

Financial Exclusion and Banking Participation of America's Working Poor

POV-423

Winter 2019

John Ahn

1 Introduction

Four in ten American adults would not be able to cover an unexpected expense of \$400 without borrowing or selling something, according to a 2018 news report from the Federal Reserve Board. Despite near record low unemployment rates and an otherwise flourishing U.S. economy, nearly 80% of Americans report living paycheck to paycheck (Reich). National surveys led by government agencies indicate that overall economic well-being of American households has improved in recent years, however, for millions of working-class Americans whose cost of living has far outpaced household income, financial burdens and disparities in well-being have hardly changed. Of the many barriers the working poor face to attain economic stability, access to sufficient financial services is arguably less prioritized. However, for the 8.4 million unbanked and 24.2 million underbanked households in the U.S., collectively representing 63.0 million adults and 21.8 million children, exclusion from the financial mainstream deepens conditions of poverty and impedes opportunities for economic mobility (FDIC).

Financial access, defined by Fed economist Anna Paulson as, “knowing what one’s financial options are and having products and services to choose from,” is fundamentally linked to individual’s economic prosperity and is pertinent for the sustainability of communities (Paulson). Account ownership at a traditional institution is considered to be the pathway for individuals to access and acquire credit, accumulate savings, and manage personal finance; although checking accounts are how individuals most commonly begin banking relationships, financial institutions are considered to also provide opportunities for individuals to attain economic self-sufficiency and promote financial-planning. For households without access to sufficient mainstream financial services, dependency on alternative sources for banking services can lead to families spending up to 10% just to use their own money (Baradaran). As the price of basic financial services each month can exceed the amounts families spend on food, unbanked and underbanked status further exacerbates financial burden and insecurity (Baradaran).

The present commercial banking industry bears little resemblance to that of thirty years ago. Once focused on serving local communities, the neighborhood banks of the past have dissolved to form a consolidated banking sector that has neglected those living on the economic margins. Today’s financial service sector has bifurcated into a two-tiered system: the traditional system and a less-regulated alternative sector, the former of which has closed branches in lower-income areas and decreased lending to average consumers (Fowler). However, the gap between

ordinary consumers and mainstream institutions is perhaps most evident by the considerable underbanked population—those with accounts who also use alternative services—and the respective proliferation of alternative service providers including payday lenders and check cashers. Consensus on the advantages account ownership can transfer has led stakeholders to focus on decreasing national unbanked rates and promoting financial integration, however, the trade-off between traditional banking and alternative sources is less certain and more complex than commonly believed (Washington).

The highly developed financial system of the U.S. continues to exclude and fail millions of American households—many of whom are disproportionately low-income and are in need of inclusive banking services the most. This paper attempts to better understand who America’s unbanked and underbanked are and analyzes the merit of financial integration into a divided mainstream sector. Using nationally representative data on 6,394 adults from the National Financial Well-Being Survey collected in 2016 by the Consumer Financial Protection Bureau, a linear probability model is used to explore the possible drivers of banking participation. The public discourse surrounding banking reform and consumer protection has involved critiquing consumers of “fringe-banking” and scrutinizing alternative providers. However, commercial banks’ withdrawal from average consumers—who are increasingly susceptible to financial shocks—has perhaps made integral banking products more unattainable for the working poor. Evidenced by the expansion of the alternative financial sector, the millions of vulnerable unbanked and underbanked Americans who must pay more for basic banking services demand policymakers and consumer advocates better understand the causes of financial exclusion before implementing the appropriate interventions.

2 Background

2.1.1 Consumer Banking

Financial security, family well-being, and advances to community development are attained through building a financial identity and having sufficient access to financial products and services (Hogarth and Anguelov). The most frequently used financial instruments by U.S. households are deposit and transaction accounts which include checking accounts, savings accounts, certificates of deposit, and money market accounts (Dilley). Transaction accounts are accounts on which consumers are able to write an unlimited number of checks and are primarily used for daily expenses. Funds in transaction accounts are easily accessible and liquid, making

transactions efficient for consumers as checks are widely accepted forms of payment (Dilley). The principal function of transaction accounts is to enable individuals to convert their income for bill payment—a universal need for anyone who must make payments toward expenses such as rent, food, and utilities (Washington). Traditional accounts also possess features to make payments considerably more efficient and less costly. For example, a household can use an account to sign up for automatic bill pay—avoiding possible late fees from accruing—or to make online payments—overcoming the need to physically make payments in cash (Breitbach). As employers and financial institutions have embraced technological advances and increasingly preferred e-transactions, individuals are able to receive income earlier than ever before—making financial accounts even more crucial for America’s working poor (Breitbach).

Upon account ownership, individuals can begin to acquire other credit, savings, investment, and insurance products to effectively manage their money and empower asset-building (Hogarth). Banking products and services are considered to be indispensable tools for financial-planning, providing not only immediate and tangible benefits but contributions towards the economic stability of future generations (Paulson). Ease in payment with a transaction account not only reduces costs for the household but also improves budgeting capabilities. Typically provided with a checking account, a monthly statement of transactions enables households to proficiently monitor expenses (Breitbach). Manually tracking all income and expenses into a monthly statement can be challenging and time-consuming while a bank-prepared statement ensures all account activity is included and can be easily accessed and reviewed by households (Breitbach). Households viewing monthly statements are also able to analyze and become aware of where all of their money is sourced and allocated—enabling individuals to take better ownership with their money and alter future purchasing behavior (Breitbach). The activity on transaction accounts can also serve as evidence of payment; checks and other forms of bank proof can verify the date a check was written or cashed (Breitbach). Bank evidence is often critical in financial transactions that are affected by legality or timing. For example, verifying the date a check was written and cashed can help users avoid incurring penalties or offer proof of payment in secondary markets (Breitbach).

One of the salient advantages of bank accounts is the protection and safekeeping of money from losses (Breitbach). Transaction accounts effectively serve as safe havens for someone’s savings, preventing individuals from having to hold significant amounts of cash in a

home or on person and assuming the risks of loss from theft, fire, and misplacement (Washington). Banks and financial institutions also provide protective measures over the checking accounts of its customers; if an individual reports a checkbook to be lost or stolen, banks have the ability to close or freeze the person's account—nearly impossible to do for a household relying on cash or prepaid cards (Breitbach). Transaction accounts at traditional institutions are also federally insured through the Federal Deposit Insurance Corporation (FDIC), assuring individuals are protected from losses and receive an insured amount up to at least \$250,000 in the event of a bank default. Money that is safely held in a bank may also be less likely to be spent on impulse or given to friends and family (Washington).

Perhaps the most compelling banking product for financially excluded individuals is the savings account. Defined as interest-earning deposit accounts that commonly have a few restrictions on deposits and withdrawals, regular savings accounts are typically used for emergency funds and to supplement the funds in a checking account (Dilley). Savings accounts are commonly the first account opened by an individual when they begin saving money beyond their daily needs and are considered to be the pathway for greater savings and positive financial decisions (Breitbach). Federally insured banks enable individuals to securely and confidently accumulate savings which is pertinent not only for insulation from unexpected expenses but for long-term economic investments in well-being such as higher education, durable goods, and retirement savings (Breitbach). Savings accounts provide individuals the opportunity to improve not only their current financial situation by protecting themselves from abrupt financial obligations but by fostering future stability. Through the use of cash reserves in the event of a cash shortfall, further savings are also attained by avoiding interest payments and other fees that would have otherwise been incurred when borrowing the amount needed (Breitbach).

2.1.2 Consumer Credit

Consumer credit, defined as short- and intermediate-term credit provided to individuals through regular business channels, are vital for individuals to finance considerable goods and access home ownership (Calder). Provided primarily by banks and finance companies, credit cards are the most mainstream form of credit and serve as payment devices that can be used nationwide for routine purchases and transactions (Durkin). While most credit purchases—with the exception of a few products—could otherwise be obtained by accumulating cash and purchasing the item later, credit grants consumers the time pattern that they prefer by deferring

repayment (Braswell). The purchasing of goods or assets without having to pay at the time of purchase provides consumers the opportunity to make relatively large expenditures—many of which have been found to provide benefits over time and generative positive returns, increasing the total benefits of spending (Zywicki). However, personal credit has for centuries provoked negative commentary that considers credit as a short-lived pathway to live beyond one's means. Yet, the use of credit does not change the amount of resources the consumer has. When a consumer borrows resources now to pay later, the amount of the consumer's resources does not change but only the timing of their personal spending (Zywicki). Borrowers and lenders can miscalculate the future prospects of a loan but risk does not change the amount of resources involved but only the probabilities of which party ends up with the resource; borrowers retain them if they fail to repay but more commonly, the lender receives the benefits over time (Zywicki).

As an individual establishes a history of consistently repaying their debt, known as a credit history, future borrowing is made more accessible and is often available at better terms (Braswell). The development of a good credit history promotes a positive banking relationship and access to competitive interest rates on loans and small business financing. Evidence indicates that consumer credit is frequently used to acquire consumer-oriented and durable assets that provide returns not in the short-term but over a longer period (Zywicki). For example, purchasing a car can provide the means to improved employment choices and investments in higher education can lead to more remunerative and fulfilling opportunities in the future (Zywicki). Many durable goods can also be used as collateral, providing individuals with access to secured credit at lower risk and cost—saving the purchaser money and enhancing the net return on purchased items (Zywicki). The use of consumer credit enables individuals to avoid the monetary and time costs associated with having to accumulate cash first and living without the item or paying for a substitute service. While individuals could certainly use short- to medium-term alternatives for relatively large expenditures such as public transportation for a car or laundromats instead of a washing machine, changing the timing of purchases through credit promotes the undertaking of more productive investment and future consumption (Zywicki). Consumer credit empowers individual's financial well-being by allowing consumers to change the timing of purchases to one that better meets their needs (Zywicki).

Evidenced by the rapid growth of the financial technology sector, the U.S. financial marketplace has and will continue to experience transformative innovation that disrupts the consumer banking industry. Although the transaction account and consumer credit represents the most fundamental financial products provided by banks, today's households are presented with an ever-widening set of financial solutions—many of which attempt to eliminate costly inefficiencies and lower consumer costs (Servon). However, for the millions of Americans who are presently excluded from the financial mainstream, it is uncertain whether further modernization of financial services will lead to increased integration and consumer autonomy. Consumer finance has increasingly become a burden for households to bear; individuals are expected to choose from a vast array of credit instruments to fund everything from a mortgage to short-term cash needs, determine pension plan contributions and payouts, and more generally assume greater levels of responsibility for their financial well-being (Campbell). As unbanked and underbanked populations continue to live without the many benefits of basic banking products, efforts of inclusion must be made to promote financial market participation for perhaps the most vulnerable individuals in today's marketplace.

2.2.1 U.S. Retail Banking

The U.S. banking industry endured transformative reforms and deregulation during the twentieth century that has led to the present size, structure, and geographic range of banks today (Calomiris). Acknowledging the origins of the present scope of retail banking and the evolution of consumer-lender relationships is pertinent to analyzing the prevailing financial landscape. Throughout the nineteenth century, state-chartered banks—the only commercial banks prior to the National Banking Act—were restricted and prohibited from branch banking (Fraser). As the U.S. population and industrial development expanded during the late 1800's and onto the early 20th century, individuals were served by a large number of new banks rather than branches of existing banks (Fraser). The fragmented banking system composed of a vast number of small community banks was attributable to the restraints on geographical expansion specifically bank branching and holding company acquisitions (Fraser). However, the aversion to systemic banking panics, heightened regulatory competition, and pressures of overseas competition led to an era of liberalization that has come to define the present banking industry.

After World War II, commercial banking flourished alongside the U.S. economy (Fraser). The separation of commercial and investment banking as well as the establishment of the Federal

Deposit Insurance Corporation (FDIC) through the Banking Act of 1933 raised confidence among the American public, preventing mass withdrawals and significantly decreasing incidences of bank failure (Fraser). From the mid-1930s through the 1970s, the post-Depression regulated system delivered stability, resulting in regulatory and institutional features of the banking system being widely accepted (Calomiris). The memories of systemic banking panics faded and the stability of the commercial banking system was attributed to the tightly regulatory structure (Calomiris). However, the nature of banking changed beginning in the 1960s-70s as direct competition with other domestic and foreign financial institutions increased (Calomiris). Although banking panics were avoided through deposit insurance, loan losses in the 1980s from agricultural and oil busts produced bank failure rates and asset declines reminiscent of the Depression era (Calomiris). The failures of the decade and increasing threat from international competition led to reevaluation of the banking sector, prompting deregulation that would shape the structure of commercial banking.

The banking failures of the 1980s were attributed to barriers to takeover of inefficiently managed banks, perverse incentives created by the federal safety net, limitations on bank activities, and restrictions on intrastate and interstate branching (Calomiris). While past studies on the economies of scale of unit banking (single-office) found little effects on efficiency, the growth of securities markets and competition from non-bank financial intermediaries heightened pressures to improve efficiency (Calomiris). Competition from abroad was also an increasing threat and was reflected in the significant loss of U.S. banks' domestic and international market shares (Calomiris). As bank regulators were faced with the dismal prospect of overseeing a shrinking banking sector, the Fed enticed Congress to alter the traditional post-Depression regulatory framework (Calomiris). Motivated by the need to preserve the competitive edge of U.S. banks, then Chairman of the Fed Alan Greenspan argued, "the global dominance of American finance would be undermined unless Congress repealed the archaic restrictions under which U.S. banks continue to operate" (Calomiris). In 1987, the Fed began to relax restrictions on bank underwriting activities and pressed for the easing of branching and consolidation limits—two of the most consequential forms of bank deregulation (Fraser).

2.2.2 Financial Deregulation

As international competition for bank customers intensified among banks, nonbank intermediaries, and other financial institutions, U.S. regulators lost the monopoly they possessed

over the financial system (Calomiris). While similar regulatory pressures also promoted bank deregulation in Europe, Japan, and other affluent economies, U.S. deregulation provoked an unprecedented series of bank mergers, its legacy of which continues in today's banking system (Gup). The focus of liberalization was initially on intrastate expansion before shifting to the interstate level and the eventual proliferation of multi-state banking (Keeton). From 1981-1986, more mergers occurred in banking than in any other industry with approximately 2,139 mergers in banking and financing (Gup). As the number of banking organizations peaked in the 1980s, scholars were correct to predict the advent of interstate banking legislation to lead to relatively few holding companies dominating the industry with remaining independents struggling to maintain market shares (Gup). From 1985-2013, the number of small banks—identified as those with less than \$100 million in assets—declined by 85% (Servon). Today, four of the largest banks: JPMorgan Chase, Bank of America, Wells Fargo, and Citigroup, collectively hold nearly half of all U.S. assets while the remaining half is shared amongst 6,395 institutions (Servon).

Despite the radical depth of liberalization during the 1980's and the extensive economic and social effects of bank consolidation, the merger boom sparked little to no controversy (Calomiris). Despite decades of presumed success, unit banking or the historical limitations on bank activities in underwriting or insurance were hardly defended by economists or politicians (Calomiris). The consensus among banking scholars was that the historical limitations on banks' locations and activities were inefficient and undesirable—identifying past evidence supporting restraints to be derived from theories of political economy opposed to efficiency (Calomiris). While there is evidence of many mergers being hastily arranged to take advantage of the newly liberalized antitrust rules and to avoid legislation that would reduce tax benefits, controversy persists about who precisely the victims of the merger frenzy were (Gup). To some observers, investors who found their banks burdened with exorbitant amounts of debt to finance a takeover are the evident victims (Gup). Other skeptics view the public, specifically those who banked and developed relationships with small and local banks, to have endured the brunt of the consequences as dominant banks absorbed smaller competitors (Gup).

2.2.3 Small Banks and Consumers

Consumers and small businesses rely the most on local banks for credit and payment needs and were presumably the most affected by changes in local banking practices (Keeton). Amidst an environment without geographical barriers and increasing presence of financial

conglomerates, small banks markedly suffered—and continue to struggle. Of the 85% of commercial banks in 1985 with total assets of less than \$100 million, only 36% of those banks were operating in 2012 (FDIC). Characterized by a high proportion of below market-rate deposits, limited economies of scale, and lack of diversification in loan and deposit portfolios, small banks' profitability was severely hampered (Fraser). The dramatic decline of small banks is concerning given their integral role in the economy; for small businesses that don't meet the procedures of larger banking organizations, small banks—by making credit decisions on a less formal and more flexible basis—are the only accessible lenders (Fraser). While large banks tend to base loan approval on financial ratios, small banks rely more on the existence of a prior banking relationship to extend credit (Berger). Small and medium-sized banks are the primary financiers of growing businesses with small banks estimated to represent nearly 40% of total loans outstanding to small businesses (Fraser). As the merger boom consolidated smaller firms, the present banking industry is comprised of large multinational organizations that are hardly connected to the communities they operate or serve (Servon).

The evolution of the banking industry and the emergence of conglomerate institutions beginning in the 1980's has shaped the experience of retail customers today. Prior to widespread bank consolidation, consumers were forced to rely on surrounding banks and nearby branches for their banking services (Keeton). According to the Politz Study of consumer attitudes toward commercial banks, a nationwide survey that gathered the public opinion of 1,700 households on the banking industry in 1963, the leading reason as to why individuals reportedly closed their checking account or saving account was from moving, representing 43% and 27% of responses respectively. As mergers and combinations grew, analysts advocated larger banks specifically across states to increase public access to financial services and lending particularly during regional economic downturns (Keeton). Yet, while banks attaining nationwide coverage may have made financial services more convenient for some individuals, evidence indicates that this expansion in accessibility was not inclusive for all Americans.

As both the pace of mergers and the size of banking organizations increased, consumers were faced with greater fees and reduced service quality (Keeton). Using 1994-1999 Fed surveys of representative samples of various insured depository institutions, large multistate banks—banks with operations in two or more states—were consistently found to charge higher fees than single-state banks for similar services and actions (Keeton). While higher fees were partially explained

by the greater costs of operating in larger urban markets, price differences remained after controlling for the size and location of banks (Hannan). Explanations of the price disparity have ranged from consumers paying a premium for the convenience of being able to conduct business at numerous locations to the deliberate action of megabanks that don't depend on retail customers (Keeton). As large multistate organizations are less reliant on average customer deposits, analysts suggest banks of such size to be less compelled to reduce fees. While banking reform may have increased the array of available financial services and improved customer convenience, higher fees and increased costs disproportionately affect the low-income and those most susceptible to unbanked and underbanked status.

2.3.1 The Alternative Financial Sector (AFS)

Known for predatory price gouging and for exploiting the financially vulnerable, the alternative financial sector (AFS) provides consumers with a range of services identical to the products found in the traditional or mainstream financial sector (Swagler). Frequently referred to as “fringe banking” or the “shadow banking system” in literature, organizations within the AFS operate outside the system of federally insured banks and are less regulated than traditional institutions. Alternative providers include payday lenders, check cashers, pawnbrokers, auto title lenders, money wiring companies, rent-to-own retailers, and tax preparers offering refund anticipation loans (Fowler). Bank deregulation in the 1980s provoked the rapid growth of AFS providers and made services such as deferred deposit loan operations, otherwise known as payday lenders, commonplace in the financial landscape of the U.S (Graves). As a growing number of low-to-moderate income U.S. households began to become reliant on the nontraditional sector and traditional banking facilities became less common, the growing disparity in the both the type and accessibility to financial products for households became increasingly controversial (Prager). In 2017, approximately 22.1% of U.S. households reported using some type of nontraditional provider and 18.7% of the U.S were observed to be underbanked, referring to households with account ownership who also obtained services outside of the traditional banking system (FDIC). While individual frequency of AFS transactions is largely uncertain, the dollar volume of transactions exceeds \$320 billion annually, a figure that is likely understated from various unobserved segments in the AFS (FDIC).

Common products within the AFS include payday loans or post-dated checks which are short-term loans generally under \$500 that are securitized by the borrower's anticipated

paycheck or other expected income (Gross). Due in full on the date of the borrower's next paycheck, a standard loan contract charges a fee of \$17.50 for every \$100 loaned and translates into a high implicit interest rate based on the short-term of the loan (Gross). Refund anticipation loans (RAL) are a similar form of short-term credit but is secured by the taxpayer's future tax refund (Swagler). Car-title loans are short-term, high-rate loans that enable customers to use their car as collateral (Swagler). Rental-purchase agreements or "rent-to-own" programs enable customers to rent durables such as furniture or electronics with the option of purchasing it in the future (Gross). Nonbank money orders are alternatives to personal checks and are free for bank customers but are sold for a fee by businesses such as Western Union (Gross). Check cashing services are also normally provided by banks to their customers for free but require a fee by check cashers which varies by state and location.

From the inception of bank deregulation to increasingly uneven patterns of income growth, the proliferation of the AFS has led to more payday lending stores in the U.S. than the number of McDonald's restaurants and Starbucks shops combined (Servon). The payday lending industry, offering perhaps the most controversial financial alternative, has grown from a \$10 billion industry in 2001 to \$48 billion in 2011 (Servon). While many studies on the effects of alternative services treat the services as peripheral, considering fringe banking to be a largely isolated phenomenon rather than a larger system, the emergence of the AFS amidst declining real wages and contracting credit markets has led to significant demand particularly for payday loans (Swagler). Such views are perhaps formed from the regulation of payday lending occurring at the state level rather than the federal with fee structures, maximum loan amounts, and rules varying widely across states. Payday loans, for example, are illegal in fourteen states and are heavily regulated in others with borrowers often limited on the number of payday loans they can have outstanding (Servon). While the evolution of the AFS is less systematic compared to financial deregulation and bank consolidation, the growth of payday lenders, pawn shops, and sub-prime lending particularly in low-income neighborhoods cannot be separated from the series of mergers between traditional banks in the U.S. (Servon).

2.3.2 Public Discourse

The controversy over the AFS is highly polarized with consumer advocates demonizing fringe banking solutions and proponents of the alternative sector defending an accessible marketplace solution. Public sentiment of the industry commonly perceives alternative providers

to exploit the economically disadvantaged through price gouging and deceitful practices (Washington). Critics of the industry, many of whom are bewildered by the notion of an individual willfully deciding to patron alternative financial services, condemn the usury high fees and costs for banking products, exploitation of debt cycles, and lack of transparency in loan agreements and product conditions (Servon). Intense scrutiny on behalf of media, activists, and consumer advocates has led to states promptly regulating alternative providers through the restriction of fees, capping of rates, and to even the outright ban of certain products (Servon). In 1980, only three states limited check-cashing fees; by the end of 1999, 21 of the 49 states allowing check cashers had capped charges (Washington). Trivial fees on services such as check-cashing can gradually accumulate to a significant sum if used on a reoccurring basis (Breitbach). Yet, for many individuals who rely on the immediate transfer of funds or for short-run credit in periods of crucial cash shortfalls, defenders of the industry argue no real alternative exists in the marketplace for the financially excluded (Servon).

According to scholars on the geography of banking, the financial service sector began bifurcating in 1990 into a two-tiered system: a traditional system serving the middle- and upper-income and the less-regulated and more expensive AFS used predominantly by lower-income households (Fowler). Among the explanations for the division and the growth of the AFS include higher pricing and marketing strategies instituted by banks after reform, the perception among lower-income consumers that banks are interested only in wealthy customers, and the phenomenon of “debanking” as branch banks in lower-income neighborhoods have decreased their presence (Swagler). Citing lagging demand for teller services, banks have actively minimized footprints by shuttering branches in poor communities (Servon). The widening gaps and stagnated incomes have also been argued to drive individuals to alternative financial providers. Despite rising income nationally, income gains have been accrued disproportionately by upper-income groups with real median income stagnating and many individuals having less available resources for financial services (Swagler). While the financial products of the AFS are certainly not marketed to the mainstream, the dramatic increase in consumers using alternative solutions and the comprehensive range of offerings available arguably makes the AFS no more fringe than the specialty accounts that traditional banks offer to affluent individuals (Swagler).

2.4.1 “Rational Choice”

Despite consensus among many policymakers to eventually transition all consumers into the financial mainstream, for an increasing number of Americans, the “rational decision” is less evident and more complex than one might imagine. For many individuals, particularly those experiencing income constraints, owning a checking account can be considerably costlier than is initially expected and the tradeoff between using a nontraditional product is uncertain. Discussions on why individuals do not own checking or savings accounts have commonly compared the monetary costs of owning an account with the expenses of a check-cashing outlet (Prescott). Yet, many of the products between AFS and traditional institutions are not necessarily comparable; a consumer obtaining credit through a pawn shop where the average transaction is approximately \$55 is unlikely to be able to borrow such a modest amount from a traditional lender (Swagler). Among the number of other demand pressures that aren’t captured in monetary cost-comparisons but also affect account ownership include the perceived need for a certain product, the ability to use and manage accounts, proper access to service, and previous experiences with financial institutions (Hogarth).

The benefits of a transaction account far outweigh the costs for the vast majority of Americans, however, for low-income households, securing a safe place to store savings and accessing means for income conversion requires additional monetary considerations. For an individual holding a small account balance that would benefit little from interest payments, the direct monetary benefit the banked consumer receives are the fees that are avoided when income is converted into bill payment (Washington). One estimate identified the total annual monetary cost for a typical account holder to be \$32 for savings and \$147 for a low-cost checking account; the costs incurred for similar services at a fringe-banking institution was calculated to be \$395 per year—concluding bank accounts to be the financially sound option. Researchers at the New York Federal Reserve found similar results upon comparing monetary costs of both account ownership and alternative services (Doyle). In New York, where check cashing outlets typically charge the legal maximum 1.1% of face value for cashing checks, a family of four at the federal poverty level is estimated to pay \$172 to cash paychecks while the median cost of a checking account was just \$44 per year (Doyle). The pricing gap can also be illustrated through costs associated with a check’s liquidity; assuming a 1.1% face value charge, a consumer paying \$1.10 to deposit a \$100 check with a check casher is effectively receiving a three-day loan (the duration for the check to clear in a bank) for an interest payment of \$1.10. The payment is

equivalent to an annual interest rate of 133%, an effective rate that is considerably higher than other consumer loan rates.

2.4.2 Issues in Comparability

Past research commonly frames the trade-offs between traditional banking and the nontraditional sector through strict monetary cost comparisons, however, high degrees of ambiguity and an extensive set of assumptions are implicit within published estimates. To derive a hypothetical cost, numerous assumptions must be made in regards to individual financial needs, characteristics, and account activity. For example, the New York Public Interest Research Group calculated account ownership costs by considering an individual, "...failed to meet minimum balance requirements, made 25 regional and five national ATM withdrawals per year, bounced one check, and received one deposit item return" (Washington). Although industry data is used to approximate typical levels of usage, statistics that directly compare the costs between mainstream and alternative services and effectively treat the two as perfect substitutes can be misleading. The subjective nature of quantifying trade-offs not only enables estimates to be susceptible to criticism but results in substantial variation. Economist Edward Prescott argues the \$172 expense for unbanked individuals calculated by the Fed to be highly inflated and approximates the cost to instead be around \$30. Citing focus group interviews and survey evidence indicating free check cashing to be provided in many communities, Prescott claims the costs of cashing checks to be greatly overestimated and speculates forgoing checking accounts to be a rational choice for many consumers.

Whether the monetary costs associated with using alternative financial services exceed the costs of holding a checking or savings account remains uncertain. Despite the many visible expenses that unbanked individuals incur as they pay otherwise unnecessary fees and charges, conflicting estimates in literature contend the costs of being unbanked to not be nearly as expensive as past figures have indicated. From spurious patterns of account activity, possibilities of incurring overdraft fees, and varying consumer banking needs, implicitly modeling individual financial behavior to derive an aggregated cost for basic banking services is challenging and complex. However, the persistence of the alternative sector in the U.S. and the number of bank-account holders who also choose to patron an alternative financial provider is perhaps the most compelling evidence for the ambivalence of the trade-off between the traditional and alternative sector. The above section describes the reality for millions of conflicted Americans who must

decide how to best fulfil their financial needs and build economic security in an increasingly sophisticated and diverse banking sector.

3 Literature review

3.1 Unbanked and Underbanked Populations

For most American households, life without a transaction account is both unknown and inconceivable (Breitbach). Individuals who are unbanked have repeatedly been found to rely on alternative service providers for their financial needs—frequently incurring additional costs and constraints. However, a recurring theme in literature is that those arguably in need of inclusive banking services the most are the very individuals living without a checking or savings account. Researchers share general definitions for what constitutes unbanked and underbanked households with some distinguishing between checking and savings account to explore specific banking participation. However, the few existing discrepancies in identification of the unbanked allows for clear and accessible cross-study comparisons. This paper uses the most common definition for an “unbanked” household, referring to U.S. households that do not have either a checking or savings account at an insured institution. Underbanked households refer to households who own either accounts but also make use of financial products and services outside the traditional financial sector.

Among surveys that have been used to compare historical rates of account ownership include the Yankelovich Monitor Database, Consumer Credit Survey, Population Survey of Income Dynamics, Survey of Consumer Finances (SCF), Panel Study of Income Dynamics (PSID), and Survey of Consumers (Hogarth and O’Donnell). Conducted beginning in 1983 by the Board of Governors of the Federal Reserve System, the triennial SCF is one of the earliest surveys on consumer finances and collects detailed information on the financial asset holdings of U.S. families (Prescott). According to cross-sectional SCF data, ownership rates have fluctuated in past decades with rates declining from 1983-1989, rising from 1989-1992, and maintaining a steady rate from 1992-1995 (Hogarth and O’Donnell). The longitudinal PSID data which allows for examination of the same heads of households over a period of time found ownership rates to peak in 1989 and decline thereafter. The panel results showed 6% of households holding an account in 1984 to no longer have one in 1989 while 8% of households who previously did not have an account acquired one by 1989 (Hogarth and O’Donnell). Disparities in estimates of

historical account ownership rates vary widely in literature and can be explained by differing definitions of account ownership and the timing of studies.

Administered for the first time in 2009 to assess the inclusiveness of the country's banking system, the biennial FDIC National Survey of Unbanked and Underbanked Households is conducted in partnership with the U.S. census bureau and collects responses for more than 35,000 households. The nationally representative survey is one of the most extensive sources on unbanked populations and is frequently cited in financial exclusion literature. According to the 2017 results, approximately 6.5% of the U.S. population are unbanked, representing 8.4 million households or 14.1 million adults and 6.4 million children. The unbanked rate declined by 0.5% from the survey's previous established rate of 7.0% in 2015, however, the decrease was explained nearly entirely by changes in household characteristics across the survey years. After controlling for socioeconomic characteristics of U.S. households, the remaining difference in the unbanked rate was nearly nonexistent and no longer statistically significant (FDIC). Consistent with the results of previous national surveys and findings in literature, unbanked rates were disproportionately higher among households with lower-income, less-education, black and Hispanic households, working-age disabled households, and households with volatile income. For most segments of the population, unbanked rates in 2017 hadn't changed and were similar to that of recent years.

3.2 Characteristics of the Unbanked

Among the various individual-level characteristics that are closely associated with banking status, the most persistent attribute of unbanked populations found in literature is low-income and net worth. Researchers Jeanne Hogarth, Christoslav Anguelov, and Jinhoon Lee aggregated the Fed's SCF from 1989, 1992, 1995, 1998, and 2001, to observe consumer trends during the economic and public policy reform of the 1990s. Of the full sample, comprised of over 20,000 observations, households with lower incomes and low levels of net worth were disproportionately unbanked compared to their higher income counterparts (Hogarth). Within the 1995 SCF, rates of account ownership clearly rose with household annual income. Individuals earning \$9,999 or less had a 38.4% unbanked rate compared to 16.9% for income between \$10,000-\$24,999 and 5.0% for individuals earning \$25,000-\$49,000 (Prescott). The pattern of banked households typically having higher income and net worth has been repeatedly identified in past descriptive investigations of unbanked populations. Observational studies also suggest the

effect of income on banking status to be in fact monotonic. After distinguishing the unbanked to consistently receive government benefits at disproportionate rates, Economist Edward Prescott found unbanked rates to decline as income increased. In 2015, the FDIC reported households with incomes less than \$15,000 to have the highest unbanked rate of 25.6% while those with incomes of \$50,000 or greater had the lowest unbanked rate of 0.9% (Hayashi). Across investigations and surveys, income has consistently been a pertinent characteristic of unbanked populations.

Researchers and policymakers consider low-income to be a defining attribute of unbanked populations (Hayashi). Among variables interrelated to income—as they refer to a household’s level of assets, financial solvency, and indebtedness—that have also been found to be negatively correlated with unbanked status include home ownership, vehicle ownership, and employment status (Hogarth). The notion presuming that only households that are able to save and accumulate wealth maintain transaction accounts is possibly due to a disproportionate number of unbanked individuals being the beneficiaries of welfare assistance programs—many of which mandate asset limitations for program eligibility (Prescott). However, the broad income identification of unbanked household masks profound differences within low-income populations, particularly considering socio-demographic attributes such as age, household composition, presence of children, and marital status, to be also correlated with account ownership (Hogarth). In 2018, researchers Fumiko Hayashi and Sabrina Minhas even observed low technology receptiveness and internet access to be a pervasive characteristic among surveyed unbanked households (Hayashi).

According to Economics Professor John Caskey, disagreement on the precise number of unbanked populations in the U.S. is tempered by the widespread consensus on who the unbanked are. Along with income and household wealth, race and educational attainment have also been pronounced individual-level characteristics among those without a checking or savings accounts. After compiling corresponding years of the survey of Financial Capability in the U.S., the National Survey of Unbanked and Underbanked Households, and the Survey of Consumer Finances by the Fed, researcher Elizabeth Breitbach found Hispanic and African-American individuals to be disproportionately unbanked (Breitbach). Consistent with previous findings, the 2015 FDIC survey observed black and Hispanic households to have unbanked rates of 18.2% and 16.2% respectively, while white and Asian household groups had a considerably lower rate

of 3.3% (Hayashi). Account ownership is also highly correlated with education levels. Breitbach observed households with higher levels of education to have greater banking participation and be more likely to own an account, aligning with the 23.2% unbanked rate among individuals with less than a high school education and 1.1% rate for college educated individuals in the 2015 FDIC survey (Hayashi).

Minority households are among the least privileged in regards to account ownership with non-Hispanic whites consistently having higher banked rates (McConnell). However, the disparity between racial/ethnic minorities and their white counterparts is perhaps more severe for those born outside the U.S. A 2004 analysis of the Survey of Income and Program Participation by researchers of the Federal Reserve Bank of Chicago found about 32% of foreign-born households in the U.S. to not hold transaction accounts compared to approximately 18% of the native population (Newberger). However, there are high degrees of variation among immigrant groups with one study finding Chinese immigrants to be twice as likely to own a checking or savings account compared to Mexican or Salvadoran immigrants (Joassart-Marcelli). The unbanked rate was highest for Mexican immigrants at 54 percent—considerably greater than the 17% and 19% for European and Asian immigrants, respectively (Newberger). Other empirical studies have found immigrants to be less likely to be banked even after controlling for socioeconomic and demographic factors (McConnell). One analysis identified immigrants living in metropolitan areas with higher shares of other immigrant populations to be less likely to be banked (Paulson). The integration of immigrants into the U.S. financial system has become of increasing concern amidst rising migrant populations (Joassart-Marcelli).

3.3 Characteristics of the Underbanked

Approximately 18.7% of U.S. households are reportedly underbanked, representing 24.2 million households composed of 48.9 million adults and 15.4 million children (FDIC). Navigating between the formal and the alternative sector, underbanked individuals fulfill banking needs through both traditional institutions and alternative providers (Ratcliffe). The central difference between underbanked and fully banked individuals is that in addition to using traditional banking methods, underbanked households also patron services outside of the financial mainstream (FDIC). Underbanked households receive the benefits of transaction accounts but arguably are not taking complete advantage of the services offered by traditional banks. (Breitbach). Similar to unbanked populations, low income is a trait also commonly found

among the underbanked. According to the 2017 FDIC survey, which identified underbanked households as those indicating account ownership and also reportedly using an alternative product or service in the past 12 months, rates were higher among the poor. Lower income was also identified among the 780,000 underbanked households in a consumer banking study led by the NYC Department of Consumer Affairs' Office of Financial Empowerment (Ratcliffe). The Bronx, the area with the highest rates of poverty and unemployment rates, had the highest share of underbanked households (30.5%) followed by Brooklyn which had the second highest underbanked rate of 26.6% (Ratcliffe).

While banks and alternative providers are presumably market competitors in the provision of banking products such as income-conversion services and consumer credit, research on a number of metropolitan areas suggests fringe banking to be predominantly located in minority neighborhoods (Swagler). Results of the FDIC Survey also repeatedly observe underbanked rates to be particularly higher among black and Hispanic households. Since the rapid growth of the AFS, alternative providers—specifically check cashers—have disproportionately been located in poor urban areas and economically disadvantage communities (Washington). Past investigations affirm racial and ethnic minorities to be disproportionate users of fringe banks and be more likely to be underbanked (Hogarth). However, while alternative providers may be more commonly found in communities of color—possibly filling vacated markets left by traditional banks, concentration of fringe banking does not necessarily lead to greater usage. Results of a 2013 study of banking participation found geographic areas with a substantial number of alternative providers to have relatively lower rates of underbanked households (Ratcliffe). One explanation was that consumers were using providers near work or outside the city while some neighborhoods are so diverse that certain segments of the neighborhood could use AFS while others might not (Ratcliffe). Within investigations that gather counts of underbanked households on both the national- and local-level, identification strategies often fail to reflect the intensity of AFS use—which undoubtedly affects the individual's trade-off between mainstream and alternative banking.

Individual-level characteristics of low educational attainment and distinct financial behaviors have also been observed among underbanked populations (FDIC). Yet, compared to the unbanked, the underbanked are moderately heterogeneous with a wide range of reported engagement with the traditional banking system (FDIC). While underbanked households

typically have lower income relative to the fully banked, socioeconomic factors relating to financial solvency is less of an indicator for underbanked households than for the unbanked. Conducted from 2011-2012, the Fed's Survey of Consumers and Mobile Financial Services (SCMFS) revealed that while both underbanked and unbanked households tend to have low-to-moderate incomes, unbanked households were more likely to report incomes less than \$25,000 while underbanked households predominantly had incomes between \$25,000-\$39,999 (Gross). FDIC Surveys also observe 42% of the unbanked to be home owners compared to 60% for the underbanked (Gross). Financial behaviors related to economic well-being also distinguish the two groups. Approximately 56.3% of underbanked households reportedly saved for unexpected expenses or emergencies compared to only 17.4% for the unbanked (Gross). In regards to uses of credit, over 80% of the unbanked had no mainstream credit at all with 7.2% possessing a credit card while only 21.9% of the underbanked were without traditional credit and 60.0% reported owning a credit card (Gross)

3.4 Why are Individuals Unbanked?

Extensive literature exploring the determinants of account ownership employ a range of statistical methods, experimental designs, and theoretical frameworks. Causal explanations for why individuals are unbanked in the highly developed financial system of the U.S. have ranged from demand side, individual-level characteristics such as socioeconomic measures, knowledge of the financial marketplace, past experiences with financial institutions, and even human motivation, to supply side identification of informational barriers, institutional constraints, and product design characteristics. According to Fed researchers, explanations of unbanked populations can be grouped into four broad clusters (Hogarth). From the 1970s-1990s, structural pressures related to discrimination and social barriers particularly for under-resourced, low-income neighborhoods were common. Another emerging line of research focused on the human capital status of households and a possible link between the underuse and under-saving of individuals and unbanked status. A third body of research looked at rising wealth disparities and the possibility of institutional constraints such as asset limits in welfare programs acting as a disincentive to account ownership. And the final body of work addresses the pervasive barriers to financial access which involve the inaccessibility to basic accounts, the phenomenon of debranching, reformed policies and constraints, as well as poor credit histories and previous financial mismanagement (Hogarth).

Perhaps the most frequently identified contributor to unbanked status, low-income and poverty status has repeatedly been found to have an adverse effect on account ownership. From minimum balance and savings deposit size requirements to the principal purpose of transaction accounts to efficiently manage one's own money, there is widespread consensus on the barriers that insufficient income poses on owning an account at a traditional institution (Prescott). If an account balance falls below the minimum—likely to occur more frequently with a low-balance account than a high-balance one, banks impose fees that can rapidly increase the costs of account ownership (Liu). Citibank and Bank of America requires savers to keep at least \$1,500 in basic product package to avoid maintenance fees, typically \$12 per statement cycle (Liu). For many low-income individuals who experience income volatility, conditions of maintaining a minimum balance are a compelling deterrent to account ownership (Servon). Identification of the income-related obstacles to account ownership has historically and presently been observed through survey methods that explicitly ask respondents to express their reason for not owning an account.

Income has for decades stood out as an indicator of whether or not an individual was unbanked (Prescott). According to the FDIC, 57.5% of unbanked households in 2014 cited not having enough money as the reason for being unbanked and 52.7% in 2017 (Ratcliffe). Insufficient amount of funds was also the leading reason individuals reported for not having a deposit account in a 1996 survey conducted by the U.S. Department of the Treasury (Hogarth). Using five years of the Federal Reserve Board's Survey of Consumer Finances (SCF), researchers used a multivariate logistic regression and found low-income to be one of only three variables that were robust in predicting unbanked status (Hogarth). However, economic barriers to account ownership were a common theme found even prior to banking reform. The Politz Study of consumer attitudes toward commercial banks conducted in 1963 asked respondents who were paying five or more bills why they did not own a checking account; respondents stating that they did not have enough money for an account represented 40% of responses. Those without a savings account were also surveyed and the overwhelming response was again, "Have no money," representing 74% of responses. The next highest reported reason was that individuals, "Have other investments," representing only 5% of total responses. The results of the survey also showed the monotonic relationship between income and the likelihood of account ownership found in recent literature; the proportion of banked households steadily rose as family income of the household increased.

Empirical studies and anecdotal evidence both consistently identify low-income to have the strongest independent relationship with the probability of being unbanked. However, researchers have also observed sizable differences within the probabilities of low-income households, explaining them with other individual-level attributes. Highly correlated with low-income, socioeconomic characteristics such as race and place of residence have also been found to have a statistically significant relationship with banking status (Hayashi). Minority status, specifically Hispanic and black backgrounds, have consistently been linked to unbanked status. Possible mechanisms for the effect of race explore cultural, attitudinal, and institutional explanations (Hogarth). Professor Lisa Servon contextualizes present racial gaps in account ownership with the legacy of discrimination against minorities in the financial marketplace. In the 1960s, bias against blacks specifically in the mortgage market was pervasive as black borrowers had to make higher down payments and pay off loans at faster rates than their white counterparts (Servon). While legislation such as the Equal Credit Opportunity Act and the Fair Housing Act have since been passed to ban racial discrimination, incidents such as Countrywide Financial Corporation's pattern of charging higher fees for blacks and Latin borrowers in 2014 and reported discrimination against blacks and Latinos of eight banks in Atlanta in 2015 suggests such prejudice to persist. Servon posits that the history of racial discrimination has motivated a sense of distrust among minorities toward banks and financial institutions, possibly explaining why minorities are disproportionately unbanked.

For many income-constrained individuals considering formal banking, supply-side characteristics such as the product design of mainstream products have also deterred account ownership. Considered to be an integral reason why accounts are unappealing to the unbanked, overdraft fees and penalties along with minimum balance requirements increase the total costs of bank accounts (Ratcliffe). The possibility of incurring an overdraft is a critical difference between payments made by cash and the use of personal checks. No credit is extended with cash payments opposed to the use of bank credit when making payments with a personal check; fees for overdrafts occur when checks are written against insufficient funds but are paid by the bank (Prescott). While overdraft fees are avoidable, overdrawing an account is considerably easier to control in theory than in practice—particularly if the account is often at a low balance (Servon). One common miscalculation such as presuming a check deposited into an account cleared before a payment was withdrawn can trigger a sudden chain reaction of overdraft penalties. Ranging

from \$20 to \$35 per check, fees associated with account overdrafts can make the cost of using one's own money suddenly exorbitant (Servon). In 2014, Americans paid nearly \$32 billion in overdraft fees—six billion of which went to three banks (Servon). The consideration of overdraft penalties are how alternative solutions such as payday loans can often lead to lower fees and become cheaper options for low-income individuals (Gross).

Evidence supports the adverse effect of fees on account ownership (Liu). According to results of the SCF from 1992, 1995, and 1998, product design was the leading reason cited among respondents for not having checking accounts (Hogarth). The results of a mailed survey of 385 unbanked individuals in 1999 also found 13% of respondents to attribute issues managing their money as a reason for not owning a bank account (Prescott). A telephone survey of 900 low-income individuals in 1997 also observed 28% of respondents to complain about the cost of fees when considering account ownership (Prescott). In focus groups, bank staff also emphasized the greater likelihood of significant overdrafts occurring on low-balance accounts compared to those with a higher balance (Prescott). Low-balance account holders also tend to close the account—becoming unbanked—upon incurring overdrafts while a high-balance account holder might simply pay the fees (Prescott). Unbanked participants who previously owned bank accounts also reported suffering losses from overdrawn accounts in the past (Prescott).

3.5 Why are Individuals Underbanked?

Past research looking at the characteristics of consumers using AFS products identified many of the correlates linked to the unbanked. Users of nontraditional financial products are generally less educated, lower-income, unemployed, and of minority status (Gross). However, individual-level characteristics are perhaps less compelling predictors for identifying the underbanked than they are for the unbanked. Literature on the causal mechanisms behind why individuals who own accounts at insured institutions might look outside the traditional sector often consider supply-side pressures, particularly the geographic distribution of banks and alternative service providers relative to the underbanked. Derived from the compounding, bifurcating effect of banks retreating from inner-cities and the concurrent entrance of alternative lenders into many of the same communities, the drivers of the underbanked are frequently attributed to supply side factors.

For individuals without any type of affiliation with a mainstream financial institution, usage of alternative service providers for credit and financial needs is understandable. However,

for the underbanked, why consumers who have an existing banking relationship would use a nontraditional provider is less clear. Identifying and understanding the causal determinants of using fringe banking for the underbanked is further complicated by the extensive range of alternative products and services consumers demand and use. Frequently studied products in research include payday loans, pawn shops, nonbank money orders, and check cashers. Although there are differences among users of each of those alternatives, the profile that emerges for consumers of the AFS are low-income, minority, and less educated (Gross). In a supplement to the Current Population Survey (CPS) in 2009, the reason that respondents provided for using the AFS varied by both income and race (Gross). Higher-income payday loan users were more likely to cite reasons of convenience while lower-income respondents reported using payday loans because they were easier than qualifying for a bank loan (Gross). Similar income patterns were also found for other alternative products such as nonbank money orders and pawnshops (Gross). As low-income individuals are more likely to experience liquidity constraints and encounter more barriers to mainstream financial services, income differences in reasons for using alternatives can be expected.

The racial pattern of blacks and Hispanics being disproportionately financially excluded extends from account ownership to usage of the AFS. According to the 2009 CPS supplement, blacks are more likely than whites to use nearly every type of alternative product (Gross). However, varying reasons for using alternative products between race groups suggests minorities to be intimidated and uncomfortable patronizing traditional banks (Gross). For nonbank money orders, blacks were more likely than whites to report that traditional banks charge more relative to the AFS (Gross). According to researcher Steven Graves, the reason why many individuals of color might have a sense of distrust for mainstream institutions can be derived from historical racial biases among lenders and the ways banks systematically limited loan access for minorities (Graves). As many black business owners received small and more restrictive bank loans than their white counterparts, black entrepreneurs became more prone to alternative forms of credit outside of the financial mainstream (Graves). Despite recent legislation that has been designed to promote the fair distribution of credit, inequalities continue to persist with black entrepreneurs still more likely to be turned away and many blacks continuing to receive less credit from banks than whites (Graves).

For decades, the physical location of alternative financial providers and the communities they operate in has been highly controversial. Supporters of the industry advocate firms to locate in areas that are inadequately served and have been effectively neglected by traditional banks, thereby fulfilling the financial needs of neighborhoods that would otherwise be unmet. Critics however claim firms to prey upon the vulnerable by intentionally and strategically targeting low-income and high-minority neighborhoods (Prager). The geographic distribution of alternative providers on both the county, city, and state-level has been studied by numerous researchers, many of whom are interested in the causal factors behind using alternative services (Prager). While individual-level characteristics are gathered, demographic factors are used to explain the location of alternative providers opposed to predicting underbanked individuals (Prager). As banks began to trickle out of inner-cities in the 1970's, withdrawing even more frequently at prospects of loaning customers less than \$1,000, payday lenders gradually replaced them (Graves). Referred to as "the new signifiers of American urban poverty," by one researcher, alternative service providers have consistently been found to be most prevalent in areas that are predominantly low-income, less-educated, and comprised of black and Hispanic populations (Prager).

Among many of the advantages of the AFS include convenient hours, the offering of additional products, and immediate liquidation of funds (Smith). Although many of these benefits have been reported as reasons for using financial alternatives by both the unbanked and underbanked, the exiting of conventional institutions from impoverished neighborhoods has been found to lead consumers—who own accounts—to seek credit from alternative lenders (Graves). In 2004, the Fannie Mae Foundation (FMF) formed the *spatial void hypothesis*, claiming that fringe banking institutions tend to locate in markets where there is an absence of traditional banking services (Smith). A study using four counties in Pennsylvania found support for the hypothesis, concluding neighborhoods served by alternative financial providers to be characterized by an absence of formal banking and an over-representation of minority and low-income groups (Smith). A similar investigation in 2006 examining the determinants of payday lenders, pawnshops, and check-cashing outlets also affirmed the void hypothesis; the researchers concluded that nontraditional institutions were more likely to locate in areas where a large percentage of the population is black and economically disadvantaged (Prager).

4 Data and summary statistics

4.1 Data background

Established through the passage of the Dodd-Frank Wall Street Reform and Consumer Protect Act in 2010, the Consumer Financial Protection Bureau (CFPB) is an agency of the U.S. government that was birthed as part of sweeping regulatory reform (Kennedy). After existing systems failed to prevent the recent global financial crisis, the independent agency was created with the intention to protect consumers' financial interest and promote transparency in commonly used products and services (Kennedy). Under the CFPB's jurisdiction include banks, credit unions, payday lenders, mortgage-servicing operations, foreclosure relief services, and debt collectors (CFPB). The Bureau has taken a market-based approach to fulfill Congress's mandate by relying on data to inform policies and gathering input from various segments of the public including consumers, advocates, and regulated entities (Kennedy). Fielded between October-December 2016 and published in September 2017, the dataset collected by the CFPB used for this study is the Bureau's National Financial Well-Being Survey.

Upon acknowledging the importance of assessing the effectiveness of financial capability interventions and the absence of a widely accepted definition of financial well-being, the CFPB sought to implement a formal method to measure individuals' financial well-being. After deriving a consumer-driven definition of financial well-being with research partners comprised of consumers and financial practitioners, the Bureau created instruments (survey scales) to measure the newly defined construct of financial well-being. The scale—composed of a series of verified questions—was intended to enable researchers to observe financial “success,” or the extent to which an individual's financial capabilities affected their security and freedom of choice. To further validate the definition and scale, the CFPB fielded the National Financial Well-Being Survey (“Survey”) with the objective to better understand the current state of financial well-being among Americans and subpopulations, provide data for empirical analysis, and to engage a broad range of policymakers and researchers in identifying drivers of financial well-being and its appropriate policy solutions.

The national Survey was conducted in English and Spanish via web mode between October 27, 2016 and December 5, 2016. Designed to represent the U.S. adult population, the total size of the sample is 6,394 adults of which 5,395 observations were gathered from a general population sample and 999 observations from an oversample of adults aged 62 and older. In

addition to core questions related to the Bureau's financial well-being measure, the individual-level Survey also asked respondents about financial experiences, financial attitudes, savings and safety nets, behaviors and skills hypothesized to influence financial well-being, as well as demographic information regarding individual and household characteristics. The dataset was chosen for this study based on identification of respondent's banking participation, capacity to generalize findings from the sample to the adult U.S. population, and for the inclusion of both demographic characteristics and exogenous variables found in literature to be drivers of unbanked and underbanked status.

4.2 Sampling design

The survey sample was sourced and fielded by the GfK KnowledgePanel, the largest U.S. probability-based non-volunteer Internet panel, for the purpose of gathering a sample that was nationally representative of the noninstitutionalized adult (ages 18 and older) U.S. population. Fielded through address-based sampling procedures, the panel's sizable base of 55,000 members allowed for stratification of the survey sample with oversampling of certain underrepresented populations. Along with the standard GfK panel, the GfK's KnowledgePanel Latino was also used to ensure adequate representation of the U.S. Hispanic population. Adults from sampled households were solicited to participate through mailings, an invitation letter, a reminder postcard, and a follow-up letter. Invited households could join the panel by mailing a form in a postage-paid envelope, calling a hotline number, or completing a recruitment form online. The invitation email was sent on October 27, 2016, with five follow-up reminders sent periodically after. The Survey considered only respondents aged 18 and older with only one panelist per household selected. Of the KnowledgePanel, the Bureau's sample design called for 5,000 completed adult surveys and an oversample of 1,000 surveys of adults age 62 and older; targets prioritizing minimum sample sizes on individuals with respect to age, race/ethnicity, and household income, were assigned respective to representation in the U.S. population. After implementing a design to yield the determined targets, GfK added an additional sample due to lower than expected response rates for African American populations, Hispanic populations, and those below 200 percent of the federal poverty level. The median survey length was 26 minutes.

4.3 Survey sample

Of a total of 14,402 panelists selected, 6,394 surveys were completed of which 5,395 were from the general and additional population sample and 999 were from the age 62 and older

oversample. As the sample for the Bureau's Survey is drawn from an online panel, levels of survey retention feature initial recruitment into the panel and then response to this specific survey. The final count excludes 72 completed surveys that were removed due to concerns in response quality—particularly involving surveys completed in a substantially shorter than average amount of time and those containing the same ordered answer to each row of a bank of questions. Outlier values were identified only for a small number of respondents for items regarding the number of children in the household and the age respondents began receiving retirement benefits. Weighting occurred to first determine the sampling frame among the pool of active panel members based on geodemographic benchmarks of the 2016 Current Population Survey (CPS). The collected sample of completed interviews was then weighted to ensure marginal frequencies across characteristics such as race and education matched the benchmarks from the 2016 CPS. The last set of weighting adjustments were designed to ensure the final weighted sample was representative to key demographics of the U.S. population. Target weighting procedures that ensure the weighted sample matches the population does contain possibilities of coverage or nonresponse errors.

The overall sample size achieved was 6,394 observations and the target values used to weight the final sample were drawn from the CPS Annual Socioeconomic Supplement. Based off the final weighted values, 48.4% of the sample are males and 51.6% are female. Approximately 38.4% of the sample are in the 18-39 age group and 37.7% were between 40-61 years old. In regards to education levels, 11.7% of the sample have less than high school education, 29% are high school graduates, 28.6% have had some college education, 19.3% have a bachelor's degree, and 11.2% hold graduate degrees. White non-Hispanics represent 64.3% of the sample, African-American non-Hispanics compose 11.9%, Hispanics represent 15.8% of the sample, and other non-Hispanic minorities were 8.0% of the sample. The final sample was also weighted by measures of income; 11.7% of the sample were below the federal poverty level, 17.0% were between 100% to 199% of the level, and 71.4% exceeded the level by 200% or more. All of the descriptive statistics and results reported in this study use survey data analysis and the final sampling weights provided by the CFPB. Weighting adjustments enable the sample to be representative of the U.S. population and adjust for the oversampling of certain populations; all calculated point estimates are expected to be accurate for the adult population and standard errors are not expected to be underestimated, avoiding possibilities of inaccurate robust results.

4.4 Dependent variables

The Survey contained two outcomes of interest that both measured the banking participation of U.S. households. The first asked individuals to report whether they (at the time of the survey) owned a checking or savings account at a bank or credit union. Specified as “PRODHAVE_1” in the CFPB’s published codebook, the question is included as the first item on a list of financial products respondents are asked to indicate if they owned. The question is shown below and provided individuals with the option to respond either, “Yes” or “No.” A binary categorical variable, “Unbanked,” was generated from all responses to the question that equaled one if the individual responded that they did not currently own a bank account and zero if they presumably were an account owner. According to the sample and the identification described above, 17.9% of the sample or 1,147 individuals of 6,394 were estimated to be unbanked.

Despite differences in sampling designs and definitions of unbanked status across surveys, the observed unbanked rate is noticeably higher than other published rates for the U.S. population. The FDIC estimated approximately 7.0% of U.S. of households to be unbanked in 2015 and 6.5% in 2017. It is possible for the discrepancy to be caused by differences in the identification of unbanked populations. The FDIC National Survey of Unbanked and Underbanked Households asked respondents to indicate if the respondent *or anyone else* in the household owned a checking or savings account, defining the unbanked at the household-level by including only those households in which no member owned an account. In this study, the question used to identify the unbanked in the CFPB Survey asked about the banking participation of only the *respondent*, confining possible account ownership to only the surveyed individual as opposed to the entire household. While the effect of account ownership might be obtained as long as one individual in the household is banked and thus banking status might be better measured at the household level, the attributes of the unbanked sample corroborates many of the characteristics found in literature and is not assumed to be misrepresentative of unbanked populations in the U.S.

PRODHAVE

Which of the following financial products and services do you currently have?

1. Checking or Savings Account at a bank or credit union

The second variable of interest asked individuals about any usage of alternative financial services in the past twelve months of the survey. Specified sequentially from “PRODUSE_1” to “PRODUSE_5” in the CFPB codebook, five non-traditional financial products are listed under a prompt asking respondents to indicate if they’ve used any of the items described. The question is listed below and provided respondents the option to indicate either “Yes” or “No” for each item. For the purpose of predicting underbanked populations, defined in this study—and commonly in literature—as those owning either a checking or saving account but still using alternative financial services, all five listed variables were aggregated to create the binary categorical variable, “Underbanked.” Representing those in the sample who were banked and indicated using *at least one* of the non-traditional products, the dependent variable equals one only for respondents who both indicated owning an account and also answered “Yes,” to one of the non-traditional services, and zero for the unbanked and fully banked—defined as those with account ownership who did not report using any of the alternative sources below. Of the sample, 15.6% or 996 individuals of 6,394 were estimated to be underbanked.

The underbanked rate is moderately lower than the rate published by the FDIC of 19.9% in 2015 and 18.7% in 2017. The lower rate is likely attributable to the differing subjects of the question with the FDIC asking about the financial activity of both the respondent and members of their household opposed to the CFPB Survey which inquires only about the activity of the respondent. The discrepancy can also partially be explained by the broader range of non-traditional products on the FDIC survey which included money orders, check cashing, international remittances, payday loans, refund anticipation loans, rent-to-own services, pawn shop loans, or auto title loans (FDIC). The CFPB Survey does not ask respondents about patronage of refund anticipation loans or rent-to-own services which may explain part of the difference in underbanked rates.

PRODUSE

Which of the following, if any, have you used in the past 12 month?

1. Payday Loan or Cash Advance Loan
2. Pawn Loan or Auto Title
3. A reloadable card that is not linked with a checking or savings account
4. A place other than a bank or credit union to give or send money to relatives or friends outside the U.S.
5. A place other than a bank or credit union to cash a check or purchase a money order

All observations in the dataset are identified as either unbanked, underbanked, or fully banked. Individuals are assigned unbanked status if they indicated that they did not own a checking or savings account (*Unbanked*); underbanked individuals are assigned based on both account ownership and reported use of at least one of the five alternative financial products in the past twelve months (*Underbanked*); fully banked individuals are implicitly assigned by not meeting the conditions of the two prior generated variables, referring to individuals owning an account and who did not indicate using any of the listed non-traditional services. For unbanked and underbanked individuals in the sample, exploratory data analysis was conducted across various characteristics found in literature to be closely associated with banking status including income, race, and education levels. Prior to investigation of the data, distributions of the weighted sample based on age, race, and position relative to the federal poverty level were observed to ensure generated proportions corroborated the weighted values listed in CFPB publications.

| Dependent variable | Description | Proportion |
|--------------------|--|--------------------------|
| Unbanked | Respondent reported not owning a checking or savings account at a bank or credit union | 17.9% (1,147 / 6,394) |
| Underbanked | Respondent reported owning an account and using at least one of the following five alternative financial products: payday loan or cash advance loan, pawn loan or auto title loan, reloadable card not linked with a bank account, alternative provider to send money outside the U.S., alternative provider to cash a check or purchase a money order | 15.6% (996 / 6,394) |

4.4.1 Validity checks

Household income is perhaps the most persistent attribute found in studies among the financially excluded. Table 1. features the proportion of unbanked and underbanked individuals for nine levels of household income, indicating a strong link between income and banking status. Low-income individuals have disproportionately higher rates of low banking participation compared to their high-income counterparts with less than 40% of individuals earning under \$20,000 fully integrated into the financial mainstream or fully banked. The association aligns with findings in literature which also identify a monotonic relationship between household income and banking activity—as income rises, the proportion of unbanked and underbanked begins to decline (Prescott). Comparing the two columns on Table 1., income appears to be a stronger attribute of the unbanked relative to underbanked individuals; nearly 42% of individuals reporting a household income of less than \$20,000 were unbanked while only 21% of those individuals were underbanked. Although the underbanked proportion also shows a declining pattern as income rises, the distribution is less concentrated towards the bottom of the income scale with approximately 15% of individuals earning between \$60,000-\$74,999 underbanked compared to only 9% of those individuals being unbanked.

The dissimilarity in the proportions of unbanked and underbanked by income level is pronounced upon observing the income distribution of the unbanked and underbanked segments. Table 2. shows that of all individuals identified as unbanked in the sample, the sample is represented predominantly by those of lower income with approximately 44% of the sample earning less than \$30,000. Although an association between income and underbanked status can also be observed, individuals reporting identical household incomes comprised only 32% of the underbanked sample—less than 10% of the unbanked sample. The income distribution of the underbanked sample is fairly spread across incomes compared to the unbanked with 30% of those without accounts reporting incomes above \$60,000 compared to over 37% for those owning accounts but who also used alternative financial services.

Among other prominent indicators identifying populations reliant on non-traditional products include race. Table 3. visualizes the proportion of unbanked and underbanked individuals among white, black, Hispanic, and other, non-Hispanic populations. Consistent with past research, African-Americans and Hispanics are disproportionately unbanked and underbanked with rates over twice that of their white counterparts. Of the sample, 31% of

Hispanic individuals and 29% of blacks were unbanked compared to only 12% of their white counterparts. Higher unbanked rates for black and Hispanic households have been repeatedly found in past studies. Although not conditioning on population size, the majority of the total unbanked sample is white with 8% of the total 17% unbanked proportion being white while blacks and Hispanics represent 3.5% and 4.9%, respectively. Underbanked rates are slightly lower for minorities but the race disparity is preserved with 24% and 27% of Hispanics and blacks underbanked, respectively, relative to just 11% of white individuals. These statistics are consistent with the findings of the Fed's Report on the Economic Well-Being of U.S. Households in 2017 which published three in ten black and Hispanic individuals to utilize alternative financial services.

Highly correlated with race and income, educational attainment also appears to be associated with account ownership. Table 4. shows the proportion of unbanked and underbanked individuals for ascending levels of educational attainment. Aligning with past findings of the link between higher education and greater banking participation, the unbanked proportion decreases sharply as education rises. Of those with less than a high school education, 40% reportedly were unbanked and 23.7% were underbanked. Although the largest proportion of the underbanked are also found among individuals with less than a high school education, the distribution is more spread compared to the unbanked sample with 20% of college-educated individuals with either a Bachelor's or graduate degree reportedly underbanked compared to approximately 14% of college graduates being unbanked.

4.5 Theory

4.5.1 Household Income

From the proliferation of regressive customer fees becoming a considerable revenue source for many banks and the phenomenon of debranching from economically vulnerable communities, there are numerous barriers to account ownership for America's working class. While such impediments certainly have not reduced the burden for those living on the economic margins to become fully integrated into the financial mainstream, the central function of transaction accounts—to make and receive payments—and the common requirement of maintaining a minimum balance makes income the most compelling determinant of unbanked status. Several possible measures of income exist in the dataset comprising both subjective responses and objective figures; qualitative and more personal questions ask individuals to

describe the extent to which a statement such as, “I am just getting by financially,” or “I am concerned that the money I have or will save won’t last,” describes them. Less subjective and quantitative income measures include questions regarding the amount of money the individual has accumulated in savings or the present value of the respondent’s home.

This study uses individual’s reported household income tier to predict the effect of income on the probability of an individual being unbanked. Relabeled from “PPINCIMP” to “Income,” the variable asked respondents to indicate where their household income fell on a nine-level scale beginning from “Less than \$20,000” and ending at “\$150,000 or more.” This measure was chosen based on its reflection of an individual’s financial solvency and presumed indication of monetary resources—the presumed driver of individual account ownership. The continuous variable is expanded as a categorical variable in regression analysis to observe the effect of each income tier on the likelihood of an individual being unbanked. As lower income increases the financial pressures of maintaining a required minimum balance, raises the likelihood of overdrafts and incurring penalties, and often precludes access to traditional banking institutions, the effects of the lower-income tiers are likely to be robust and strongly positive, increasing the probability of an individual being without a checking or savings account. Income is also expected to have a monotonic effect on the probability of being banked; similar to findings in past research, the greater the individual’s household income, the more likely they are to own an account. The coefficients of the higher-income tiers are predicted to not be as statistically significant but have a sizeable negative sign, strongly decreasing the likelihood of an observation being unbanked given greater monetary income.

| Explanatory variable | Description | Proportion |
|----------------------|----------------------------|-----------------------|
| Income | Reported household income: | |
| | 1 Less than \$20,000 | 13.3% (853 / 6,394) |
| | 2 \$20,000 to \$29,999 | 8.8% (563 / 6,394) |
| | 3 \$30,000 to \$39,000 | 9.9% (638 / 6,394) |
| | 4 \$40,000 to \$49,000 | 6.7% (429 / 6,394) |
| | 5 \$50,000 to \$59,000 | 7.5% (481 / 6,394) |
| | 6 \$60,000 to \$74,999 | 9.2% (594 / 6,394) |
| | 7 \$75,000 to \$99,999 | 13.2% (849 / 6,394) |
| | 8 \$100,000 to \$149,000 | 15.9% (1,017 / 6,394) |
| 9 \$150,000 or more | 15.1% (967 / 6,394) | |

4.5.2 The Banking Gap

Considered to be ignorant victims by the critics of fringe-banking and rational decision-makers by defendants of the alternative sector and even consumer advocates, underbanked populations and the causal drivers of individuals using non-traditional products have been widely explored. Although challenges related to features of mainstream banking and product design that deter account ownership are also likely to be detrimental to holistic financial integration, for those owning a checking or savings account at an insured institution but also using alternative services, there are evident voids in consumer needs that mainstream providers are failing to or are deliberately choosing not to fulfil. Characterized by rising fees, obscure penalty policies, decreasing communal presence, and impersonal service, America's commercial banks have perhaps never been so disconnected with the needs of lower income consumers. The banking gap between the product offerings of traditional institutions and the financial needs of the working-class explains why millions of Americans use alternative providers. In an effort to discover whether the shortcomings of mainstream lenders are linked to the likelihood of using nontraditional products, variables conveying information on the quality of service that consumers were receiving from traditional banks were explored in the dataset. This study identified individual's experiences attaining credit to observe how the quality of service in the financial mainstream affects the probability of an individual being underbanked.

Amidst recent decades of bank consolidation and profit-driven policy changes, decreased lending to average individuals is one of the frequently cited ways that traditional financial institutions have arguably neglected consumers. As high-interest credit cards expanded through the 1970s and 1980s, banks became less interested at the prospect of loaning customers amounts of credit less than \$1,000 (Graves). Individuals who are unable to receive sufficient amounts of credit from mainstream lenders must often resort to borrowing from family, friends, and payday lenders in the alternative sector to fulfil cash shortfalls—a recurring need for the working poor and a prevailing reason why individuals become reliant on fringe banking. The extension of traditional credit—or lack thereof—and varying experiences individuals have attempting to obtain credit is a compelling proxy for measuring the present banking gap between ordinary consumers and mainstream institutions. The first two variables of interest use responses to two questions pertaining to credit access in order to identify the effect of deterrence from the financial mainstream on the likelihood of underbanked status.

The first measure was generated from a question asking individuals to indicate whether they had been rejected credit in the past twelve months of the survey. Relabeled as “Refused” from “REJECTED_1,” individuals were given the option to respond, “Yes,” “No,” or refuse to answer the question. The categorical variable of interest equals one if the individual responded that they were turned down for credit and zero if they indicated not being rejected upon applying. Table 5. shows that of the 11.4% of the sample reporting being rejected upon applying for credit, nearly one in three individuals or (32.8%) were underbanked relative to 27.9% of individuals who were unbanked. While the underbanked lagged behind proportions of the unbanked when conditioning on variables such as income and minority status, the greater proportion of underbanked individuals among those refused credit suggests banking participation to be linked to variables beyond economic indicators. As users of nontraditional products typically patron alternative providers after being refused by a traditional bank, the coefficient on the indicator is expected to be robust and strongly positive, considerably increasing the likelihood of an individual to be underbanked if they applied for and were denied credit.

The second proxy for the quality of mainstream services was created from a question asking individuals if they chose not to apply for credit from the anticipation of being rejected. Relabeled from “REJECTED_2” to “Averted,” individuals had identical options to the prior question, both of which are listed below. The categorical variable equals one for respondents who chose not to apply from the perception of being turned away and zero if they responded “No.” Table 6. shows a similar pattern to the one prior; of the 14% of the sample who were deterred from seeking credit—aligning closely to the figure found by the Fed of 11% of adults putting off credit applications from perceiving their application would be denied—approximately one third of individuals were underbanked compared to 27.5% of individuals who were unbanked. This variable is arguably a more effective measure for capturing the banking gap between consumers and the financial mainstream as it observes individual attitudes toward traditional products.

In the context of evaluating a financial mainstream that is speculated to have become increasingly disconnected to the needs of average consumers, it is worth acknowledging the larger proportion of individuals who self-selected into credit rejection compared to those who were deliberately turned away. Although the difference is less than three percent, the relatively greater number of individuals reporting that they did not apply for credit because they suspected

to be turned down compared to the number of individuals who were actually denied credit suggests individuals are keenly aware of their inaccessibility to credit. For many consumers who may have resorted to fringe banking after either assuming or experiencing exclusionary service, the second focal variable can be interpreted as the effect of an individual's perceived barriers to mainstream lenders on the likelihood of the individual using an alternative provider. The coefficient on the indicator is hypothesized to be statistically significant and positive, greatly increasing the probability of an individual being underbanked if they decided not to apply for credit from fear of being rejected.

REJECTED

In the past 12 months, has either of the following happened to you?

1. I applied for credit and was turned down.
2. I did not apply for credit because I thought would be turned down.

4.5.3 Financial Shock

From increasing one's credit limit in anticipation of a large-scale purchase to arranging online bill pay to prevent incurring late penalties, the banking products and services individuals use are connected directly to their financial demands and broader economic stability. For the 40% of Americans who according to a 2017 Fed report couldn't produce \$400 in an emergency, the reality of living paycheck to paycheck has profound effects on both the types of financial products individuals have access to and the services they desperately need. Today's working poor are perhaps more economically vulnerable than ever before with the median household reportedly not having enough liquid savings to replace even one month of income (Pew Charitable Trusts). Heightened financial pressures and volatile incomes make Americans highly susceptible to setbacks and cash shortfalls from unexpected expenses such as a health bill or a sudden car repair. Financial shocks, defined as any unplanned expenses that arise or unexpected loss of income, adversely impact an individual's ability to maintain an adequate balance, access affordable credit, and remain solvent at a threshold acceptable for the design of many common financial products. In the context of a thinner social safety net and less benefits or protections provided by employers, American households of various financial situations are likely unable to absorb the monetary burdens of any unpredictable expenses that might arise, leading individuals

to resort to short-term credit or other non-traditional products provided by an alternative institution.

The explanatory variable “Shock” was generated to observe how unforeseen financial demands are linked to the likelihood of an individual being underbanked. In one section of the Survey, respondents were asked to indicate if they or members of their household had experienced any of the eleven listed life events in the past twelve months of the survey; individuals were only provided the options, “Yes” or “No.” Based on responses, the binary indicator “Shock” was created, equaling one if an individual responded “Yes” to experiencing at least one of the five events: the loss of a job, work hours/pay reduced or business owned by respondent/household member had financial difficulty, received a foreclosure notice, had a major car or home repair, or provided unexpected financial support to a family member or friend; and zero if they responded “No” to all five described shocks. The chosen circumstances were selected based on the expected financial repercussions of the shock and the direct pressure of the event on any household’s economic stability. While the capacity of households to bear erratic expenses will certainly vary depending on the resources accessible to the household, holding all else constant, the sign of the variable is expected to be positive and of moderate size, affirming a likely pathway that leads many Americans to fringe banking and providing evidence for the precarious economic positions of those considered to be fully integrated into the financial mainstream.

SHOCKS

In the past 12 months, did you or any members of your household experience any of the follow?

1. Lost a job
2. Had work hours and/or pay reduced or a business I or someone in my household owned had financial difficulty
3. Received a foreclosure notice
4. Had a major car or home repair
11. Provided unexpected financial support to a family member or friend

| Explanatory variable | Description | Proportion |
|----------------------|---|-----------------------|
| Refused | Respondent reported applying for credit and being turned down | 11.4% (727 / 6,394) |
| Averted | Respondent reported not applying for credit because they thought they would be turned down | 13.9% (892 / 6,394) |
| Shock | Respondent reported experiencing one of the following: job loss, work hours/pay reduced or business had financial difficulty, received a foreclosure notice, had a major car or home repair, or had to provide unexpected financial support | 37.6% (2,409 / 6,394) |

The most prevalent financial shock experienced by individuals in the sample is a major car or home repair. Table 7. shows hardly any individuals to have reported receiving a foreclosure notice and approximately 7% of the sample experienced the loss of a job or a reduction in hours or pay. Although the explanatory variable aggregates responses from all five life events to observe how unforeseen financial strains affect banking participation, there is certainly unobserved heterogeneity within the impact that each shock has on underbanked status. One of the primary aims in selecting specific shocks was to reduce any correlation between the variable of interest and household income; while the capacity to withstand financial costs is likely affected by economic means, circumstances that were presumably unassociated with income were identified to mitigate multicollinearity and to observe solely the effect of an unexpected monetary burden on the probability of an individual using alternative financial products. Table 8. features the proportion of the sample reporting a financial shock stratified by income tier; although the poorest income group experiencing relatively the greatest number of shocks raises concern of the coefficient being correlated with income, the distribution of financial shocks is otherwise fairly spread across the nine income-levels. Table 9. shows that of the 37.7% of respondents who reported experiencing at least one of the five financial shocks in the past year, 18.5% were unbanked and 21.8% were underbanked. Assuming the timing of the shock precedes—and ultimately leads to—the use of financial alternatives, the greater proportion of underbanked individuals suggests that the financial solution for many Americans under pressure to meet unexpected financial expenses is to use a nontraditional service provider.

5 Empirical strategy

Ideally, to identify the causal effect of income, barriers to traditional credit, and financial shocks on the likelihood of an individual experiencing financial exclusion, randomized assignment of each variable would yield unbiased estimates. However, as such experimental designs are infeasible and no longitudinal data on individuals is available, the identification strategy of this study is to use regression analysis while attempting to mitigate endogeneity by controlling for omitted variables. Using cross-sectional survey data published by the CFPB in 2017 of 6,394 nationally representative individual-level observations, this study explores the possible associated characteristics of unbanked and underbanked populations. The following linear probability models are used:

$$(1) \text{Unbanked}_i = \beta_\theta + \beta_1 \text{Income}_i + X_i + \epsilon_i$$

$\text{Unbanked}_i = 1$ if observation reported not owning a checking or savings account
 $= 0$ otherwise

$$(2) \text{Underbanked}_i = \beta_\theta + \beta_1 \text{Income}_i + \beta_2 \text{Refused}_i + \beta_3 \text{Shock}_i + X_i + \epsilon_i$$

$$\text{Underbanked}_i = \beta_\theta + \beta_1 \text{Income}_i + \beta_2 \text{Averted}_i + \beta_3 \text{Shock}_i + X_i + \epsilon_i$$

$\text{Underbanked}_i = 1$ if observation owns an account and used at least one alternative product
 $= 0$ otherwise

The first specification predicts the probability of an individual being unbanked or without a checking or savings account at bank or credit union. The variable Income_i is predicted to have a strong associative effect on unbanked status and is expanded into eight categorical variables in regression analysis. Household incomes below \$20,000 is the lowest income category and is omitted from the specification, thus, making it the reference group. The coefficient of each income variable can be interpreted as the effect of an individual belonging to that (higher) level of household income relative to income below \$20,000 on the probability of being unbanked. Consistent with past findings in literature, the impact of income on account ownership is expected to be monotonic, meaning that the likelihood of being unbanked decreases as income rises and the negative coefficient steadily decreases with income level. The variable X_i is a vector for relevant controls that are likely correlated to both household income and account ownership including race, age, and educational attainment.

The second set of regressions estimate the probability of an observation being underbanked, defined as an individual who indicated owning a bank account and also reported using at least one of five financial alternatives. While *Income* is hypothesized to be a barrier to full financial integration, the focal variables proxy the existing gap between traditional banks and ordinary consumers as well as changing financial needs. The variable *Refused_i* is a binary indicator representing individuals who applied and were rejected for traditional credit; the variable is predicted to have a moderately positive associative effect on the likelihood of an individual using the alternative financial sector. The variable *Shock_i* is also a binary variable that equals one if the individual experienced at least one of the five financial shocks. Incurring unanticipated monetary expenses is one way the financial needs of average consumers are changing and is also expected to lead to nontraditional financial solutions. The second specification is identical to the first but proxies the disconnection between banks and consumers with the perception of credit denial opposed to the experience of credit rejection. The variable *Averted_i* equals one for individuals who reported not applying for credit from the expectation of being turned away and is also hypothesized to have a positive associative effect on underbanked status. The vector X_i includes relevant controls that are associated with the dependent variable and credit constraints including race, age, and education.

6 Empirical results

The constraints of cross-sectional data limit the ability to derive causal conclusions from regression results. Nevertheless, many of the possible confounding variables identified in past literature are included and controlled for in the model. The first set of results in Table 10. features the first specification and includes point estimates on the probability of an individual being unbanked. Although household income was originally coded as a continuous variable, the variable was expanded categorically to distinctly observe whether a monotonic relationship between income and banking participation existed. The coefficient on each income category is robust and has the expected sign, suggesting a negative associative effect between higher income and the likelihood of an individual being unbanked. Although the effect of income is not entirely monotonic as the coefficient on income between \$75,000-\$99,000 is larger than the coefficient on the \$60,000-\$74,000 category, the predicted likelihood of an individual being unbanked generally decreases as household income rises. An individual reporting a household income between \$20,000-\$29,000 is predicted to be 10% less likely to be unbanked relative to an

individual with household income of less than \$20,000. However, for an individual with income above \$150,000, the effect is over twice as large, decreasing the probability by 21.4%.

Measures reflecting an individual's level of financial solvency are the most compelling predictors of account ownership and the results show income to have relatively strong effects on unbanked status. Yet, other individual-level characteristics were also robust and had sizable coefficients. Consistent with past findings, minority status had a positive statistically significant relationship to unbanked status. Using white as the racial baseline, the model predicts the probability of being unbanked for a black individual to be 11.1% higher compared to their white counterpart, holding all else constant. For a Hispanic individual, the likelihood of being without a checking or savings account is 9.0% greater. While the predicted effects might appear modest, the penalty black individuals incur for account ownership exceeds the effect of a household earning between \$20,000-\$29,000, relative to below \$20,000, on unbanked status. Controls including education level and age were also included in the regression and were robust but are not shown in the table.

The second set of results in Table 11. features the second specification listed above and predicts the likelihood of an individual being underbanked. The first column includes an indicator for financial shocks and a variable representing credit rejection. The shock variable was robust and received the expected sign, suggesting an abrupt financial burden to increase the probability of an individual using an alternative financial product. Based on the results, an individual reportedly experiencing the loss of a job, having work hours or pay reduced, receiving a foreclosure, having a car or home repair, or having to provide unexpected financial support has a 7.4% greater change of using the AFS. The coefficient on the credit variable can be interpreted as the effect of an individual applying for credit and being turned down (on the probability of being underbanked) relative to an individual who did not apply and get rejected. The third response, "Refuse," was preserved and individuals who responded, "No," were made the reference group. The credit variable was also statistically significant and had a strong effect, indicating an individual being turned down for credit to have a strong associative effect on them using alternative services. With the exception of a three income categories—none of which at the 1% level, none of the income variables were robust, suggesting income to have a weak associative effect on underbanked status.

The second column of Table 11. includes the financial shock variable but features another proxy for the disconnection between mainstream lenders and consumers; the variable represents the effect of an individual's perceived barriers to traditional credit on the probability of an individual being underbanked. Relative to the results of the previous model, the coefficient on the financial shock variable remained largely unchanged. The perceived credit variable was also robust and had a positive associative effect on the probability of an individual being underbanked. Consistent with the treatment of the previous credit variable, individuals indicating that they did not avoid applying for credit from the assumption of being turned down were made the reference group and "Refuse" responses were preserved in the model. The results suggest that a respondent reporting that they did not apply for credit from the expectation of being turned down to have a 11.7% greater chance of being underbanked. Although this effect is marginally smaller than the coefficient of the credit refusal variable, it's pertinent to distinguish the variable as representing solely consumer perception and even attitudes toward traditional lenders opposed to personal experience or evidence. Income is also statistically insignificant in these results, indicating income to not have a strong associate effect on the use of alternative financial products.

7 Discussion

7.1 Analysis and Shortcomings

For the millions of American households who live without deposit and transaction accounts, money is a principal impediment to account ownership. While causal conclusions cannot be drawn from cross-sectional survey data, the associations that were found are consistent with empirical evidence found in literature. The statistically significant results predicting the likelihood of an individual to be unbanked align closely with the repeatedly identified pattern of rising income lowering the probability of being unbanked. Even prior to decades of bank consolidation and financial deregulation, income deficits have deterred individuals from account ownership and banking participation. Excluding individuals whose monetary resources are so low that they have no need for a formalized means of payment, income constraints make meeting the requirements of traditional accounts strenuous and can unexpectedly raise the overall cost of account ownership. The empirical model is certainly subject to possibilities of reverse causation and degrees of omitted variable bias as many correlates between unbanked status and income

exist, however, the mechanism of insufficient funds affecting an individual's demand for a bank account is theoretically valid and the results are consistent with past research.

Research on specifically the underbanked is less commonly found in literature with most studies focused broadly on users of alternative financial services without distinguishing those who may own traditional checking or savings accounts. Amidst a radically reformed financial marketplace and undeniable disconnection between average consumers and mainstream banks, the associative effect of barriers to traditional credit on the likelihood of an individual being underbanked was observed. The results suggest consumers—who own accounts at insured institutions—to seek forms of credit in the AFS upon being refused or expecting to be refused from traditional lenders. This association supports past findings of individuals reportedly using payday loans because they were more easily attainable compared to a bank loan. One particular confounder of the model that is unavailable is a county- or city-level measure for the geographic distribution of banks and alternative service providers. The location and proximity of the AFS to an individual has been repeatedly linked to greater usage of financial alternatives in literature and is likely correlated with both the outcome variable and exclusion from traditional credit. The precise mechanisms of how being turned away from a bank could lead to underbanked status is complex and assumes the credit rejection occurred prior to the use of a financial alternative, however, the statistically significant result for both proxies suggests an association to exist between those excluded from mainstream credit and users of the AFS.

In today's economy, households of varying backgrounds are vulnerable to the far-reaching and devastating effects of a financial shock. While information on individuals experiencing and responding to a shock is gathered, relatively little is known regarding the impact of unplanned expenses or loss of income on individual financial well-being (Pew Charitable Trusts). Of the survey, nearly four out of ten individuals reported experiencing at least one of the five listed shocks—an underestimate compared to the 60% of households who experienced shocks from the Pew's nationally representative Survey of American Family Finances. The size of the predicted effect on underbanked status is smaller relative to the credit variables, however, the low suspected level of omitted variable bias perhaps outweighs the modest size of the shock coefficient. Financial shocks by definition, are exogenous, and thus should not be correlated with any individual-level characteristic. Upon conditioning the shock variable by income, race, and even educational attainment, no compelling association was found between levels of attributes

and reported shocks. This quasi-experimental design imitates random assignment of a treatment—in this case, shock—to individuals and leads to a hypothetically unbiased estimate of the effect of shocks on the likelihood of being underbanked. Based on the results, there is a link between incurring unplanned expenses or losing income and using financial alternatives.

The empirical method used in this paper to identify the determinants of financial exclusion estimates the probability of an individual being unbanked or underbanked using individual-level survey responses and characteristics. While many researchers have employed similar strategies using survey data to study the effect of different household characteristics such as citizenship status or access to technology, others have conducted surveys that explicitly ask unbanked and underbanked individuals their reason for not owning an account or for using financial alternatives (Hayashi). One compelling advantage of the latter technique relative to implicitly deriving certain effects is that differing rationales for unbanked or underbanked status are observed—nearly impossible to capture through estimation using individual attributes. For example, a free response survey that asked individuals their reason for not having a checking account had respondents report, “banking hours were too inconvenient,” to others, “prefer to pay solely with cash.” While validity issues also exist for survey designs, such studies are instrumental to understand not only the financial situations of Americans but to distinctly identify the barriers they face to financial integration. A shortcoming of this study along with many other identification strategies using survey data is the lack of information on how frequent underbanked populations patron the AFS. While respondents reported whether they used any of the five common financial alternatives in the span of the most recent year, data on whether they used the service only once or heavily rely on alternatives is uncaptured and thus, not studied.

7.2 Structural Injustice

As income constraints continue to deter account ownership and barriers to mainstream credit lead many banked individuals to use financial alternatives, basic financial products and services continue to be more expensive for America’s poor. For those unable to maintain certain levels of financial solvency or liquidity requirements for a traditional account, the absence of a savings vehicle and a formal means of payment conversion exposes individuals to greater risks, leads to expenses that could otherwise be avoided, and profoundly hampers opportunities for financial stability. Account owners who must rely on financial alternatives after being denied traditional credit or upon experiencing a financial shock are susceptible to further financial

strains from higher borrowing costs and less consumer protections. Under political scientist Iris Marion Young's conception of structural injustice, the millions of households who are financially excluded based on the pathways suggested in this study are victims of larger social structures and cumulative processes that abandon those living on the economic margins.

For many of the unbanked and those reliant on financial alternatives, financial predicaments are often not the outcomes of individual choices and actions but are frequently derived from circumstances—related to income and shocks—beyond their control. Structural injustice is the collective outcome of numerous individuals and institutions all acting within generally accepted rules and norms to pursue their own interests (Young). In regards to financial exclusion, the pattern of consumers using traditional institutions to fulfil their financial needs, employees maintaining operations in the financial sector, and alternative providers and retail banks providing products in the marketplace, altogether leads to social structures that perpetuate unbanked and underbanked status. Structural injustice is distinct from other moral wrongs that are traceable to individual interactions or specific policies of states or other powerful institutions (Young). While an individual may be deterred from the financial mainstream upon experiencing poor customer service from a bank teller, many individuals suffer exclusion without any particular individual committing a wrong against them. The barriers to financial integration are not directly attributable to the interactions of specific individuals, however, detaching financial exclusion from the wrongs of unjust laws or policies is more complex. Past evidence indicates banks to have engaged in discriminatory lending practices and suggests predatory motives on behalf of alternative providers. Yet, the hypothesized determinants of financial exclusion of this paper limit such liability models or legal frameworks.

No particular agent perpetrates the barriers to account ownership or traditional credit, nevertheless, the financially excluded are victims of structural injustice through the social-structural position they occupy. Individuals who are in positions of high susceptibility to financial exclusion suffer from a financial landscape that unjustly generates victims and beneficiaries. Individuals possessing wealth and financial liquidity do not encounter impediments to the financial mainstream but have broad access to the regulated marketplace; affluent households gain from the present structure while the financially worse-off—many of whom are in desperate need of banking services the most—are left with costlier alternatives that increase economic vulnerability and expose individuals to greater risks. The social position of

exclusion from the financial mainstream arises from the accumulation of actions and interactions of a number of public and private actors, however, the severe effects of exclusion disproportionately on already disadvantaged populations makes such constrained positions morally impermissible.

7.3 Policy Intervention

From improved credit risk-assessment models that more accurately assess customers' risks factors to the integration of payment capabilities with mobile devices, there is no shortage of innovative financial technology disrupting the present marketplace. However, for those living on the periphery of the financial mainstream, gains in efficiency from increasingly sophisticated banking functions are unlikely to be transferred to the unbanked and underbanked. Based upon the identification of insufficient income as a considerable barrier to account ownership, one compelling policy intervention that has already found success include redesigned checking accounts that are developed specifically for low-income consumers. Characterized by small fees and minimum deposit requirements, these safe-transaction or checkless bank accounts include features such as mobile banking, debit cards, and ATM access. The "no-frills" accounts empower financially disadvantaged individuals to obtain all of the core advantages of savings and checking vehicles without incurring the additional risk of overdraft penalties or the burden of minimum balance requirements. Affordable checkless accounts began in 2014 as an effort to increase participation in the traditional sector and reduce people's reliance on expensive alternatives. In 2017, 1.3 million certified accounts were open and active with 600,000 accounts newly opened that year (Hayashi). While barriers related to product design are certainly not the sole driver of unbanked status, efforts of inclusion on behalf of the financial mainstream have merit in increasing account ownership and encouraging banking participation.

Influenced by individual consumer preferences, supply-side obstacles, and even the occurrence of destabilizing financial shocks, the pathways that lead banked individuals to the alternative financial sector are complex and multidimensional. As American households become increasingly susceptible to reliance on expensive financial alternatives that exacerbate economic burdens, appropriate policy interventions must work to address the evident gap between traditional institutions and ordinary consumers. This study identified unattainable consumer credit—and even perceived barriers to credit access—to be linked to many individual's use of fringe banking services. While policies that aim to promote consumer's financial well-being by

means of investing in disadvantaged communities and increasing financial literacy carry merit, an inclusive policy in the form of accessible and affordable credit is the most compelling intervention for underbanked populations based on the findings of this study. Prioritizing low-income individuals who struggle to qualify for loans or are excluded from the credit market altogether, subsidized credit and relaxed credit-rationing constraints makes borrowing more safe and attainable for individuals who encounter cash shortfalls or experience abrupt financial shocks. Resembling the costs and consumer protections of traditional credit while integrating the transparency and personable business practices of payday lenders, the conditions of such a credit solution must be designed to meet individual's capacity to repay in order to promote the financial well-being of those living on the economic margins.

8 Conclusion

In an increasingly cashless and technologically advanced society, the use of electronic forms of payments and access to financial services appears ubiquitous. However, for the estimated 8.4 million U.S. households without a basic checking or savings account and 24.2 million underbanked households, opportunities for financial security are severely obstructed and cycles of poverty are further deepened (FDIC). Despite the looming pressures of stagnant wages, vanishing employment benefits, and economic volatility, threatening the future of the middle class, financial exclusion and accessibility to traditional financial services is arguably overlooked in national discussions of poverty and social justice. In the context of a shrinking social safety net and an unprecedented number of Americans living paycheck to paycheck, financial inclusion for America's working poor has perhaps never been so important.

This paper uses nationally representative survey data of 6,394 adults gathered by the Consumer Financial Protection Bureau (CFPB) to observe the characteristics of unbanked and underbanked populations and to explore the possible drivers of financial exclusion. The core function of transaction accounts to make and receive payments as well as past evidence of individuals reporting why they did not own an account led to the identification of income constraints as the hypothesized determinant of unbanked status. Using a linear probability model to estimate the effect of household income, the results predicting the likelihood of an unbanked individual were consistent with past research. Higher income levels had a monotonic relationship with unbanked status, suggesting additional income to reduce the probability of an individual to be unbanked. The identical empirical strategy was also used to predict underbanked status; using

credit rejection to proxy the gap between ordinary consumers and the financial mainstream as well as reported financial shocks, the associative effect of such financial predicaments on the likelihood of an individual using a financial alternative was identified. Aligning with past findings on why consumers use alternative financial providers, credit denial from banks and unplanned financial demands had a statistically significant effect on the probability of an individual being underbanked.

Amidst an emerging financial technology industry and an economy rapidly shifting towards cashless forms of payment, those without a traditional account or reliant on financial alternative providers are at risk of being further left behind. Citing reasons of expedited transactions and improved customer service, businesses and retailers in the past year have increasingly refused cash in favor of electronic forms of payment (Marks). Cashless policies disproportionately deprive individuals without accessible lines of credit or checking accounts from access to restaurants, shops, and businesses. The recent trend is particularly concerning given the literature that consistently identifies the financially excluded as a group already experiencing gross disadvantage (Marks). While the unbanked and underbanked might continue to go unseen amidst future technological innovation, the millions of households who live outside of the financial mainstream and pay more to spend their money demand the U.S. banking system fulfil its fundamental purpose—to promote consumers' ability to improve their financial well-being opposed to worsening economic uncertainty.

Table 1
Proportion Unbanked and Underbanked by Income

| Household Income | Unbanked | | Underbanked | |
|-----------------------|---------------------|---------|---------------------|---------|
| | No (0) ¹ | Yes (1) | No (0) ² | Yes (1) |
| Less than \$20,000 | 0.580 | 0.420 | 0.785 | 0.215 |
| \$20,000 - \$29,999 | 0.737 | 0.264 | 0.744 | 0.256 |
| \$30,000 - \$39,999 | 0.796 | 0.204 | 0.798 | 0.203 |
| \$40,000 - \$49,999 | 0.809 | 0.191 | 0.807 | 0.193 |
| \$50,000 - \$59,999 | 0.846 | 0.154 | 0.816 | 0.184 |
| \$60,000 - \$74,999 | 0.905 | 0.095 | 0.851 | 0.149 |
| \$75,000 - \$99,999 | 0.873 | 0.127 | 0.893 | 0.107 |
| \$100,000 - \$149,999 | 0.891 | 0.109 | 0.892 | 0.108 |
| \$150,000 or more | 0.919 | 0.082 | 0.919 | 0.081 |
| Total | 0.821 | 0.179 | 0.844 | 0.156 |

¹ Representing respondents who reported owning a checking or savings account at a bank or credit union

² Representing respondents who reported not owning an account or owning an account and not using any of the five alternatives: payday loan or cash advance loan, pawn loan or auto title loan, reloadable card not linked with a bank account, alternative provider to send money outside the U.S., alternative provider to cash a check or purchase a money order

Table 2
Income Distribution of Unbanked and Underbanked

| | Household Income | | | | | | | | | |
|---------------------|-----------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|-----------------------------|----------------------|-----|
| | Less than \$20,000 | \$20,000 - \$29,999 | \$30,000 - \$39,999 | \$40,000 - \$49,999 | \$50,000 - \$59,999 | \$60,000 - \$74,999 | \$75,000 - \$99,999 | \$100,000 - \$149,999 | \$150,000 or more | |
| Unbanked | | | | | | | | | | |
| No (0) ³ | 0.094 | 0.079 | 0.097 | 0.066 | 0.078 | 0.103 | 0.141 | 0.173 | 0.169 | 1.0 |
| Yes (1) | 0.312 | 0.129 | 0.114 | 0.072 | 0.065 | 0.049 | 0.094 | 0.096 | 0.069 | 1.0 |
| Total | 0.134 | 0.088 | 0.100 | 0.067 | 0.075 | 0.093 | 0.133 | 0.159 | 0.151 | 1.0 |
| Underbanked | | | | | | | | | | |
| No (0) ⁴ | 0.124 | 0.078 | 0.094 | 0.064 | 0.073 | 0.094 | 0.141 | 0.168 | 0.165 | 1.0 |
| Yes (1) | 0.184 | 0.145 | 0.130 | 0.083 | 0.089 | 0.089 | 0.091 | 0.110 | 0.079 | 1.0 |
| Total | 0.134 | 0.088 | 0.100 | 0.067 | 0.075 | 0.093 | 0.133 | 0.159 | 0.151 | 1.0 |

³ Representing respondents who reported owning a checking or savings account at a bank or credit union

⁴ Representing respondents who reported not owning an account or owning an account and not using any of the five alternatives: payday loan or cash advance loan, pawn loan or auto title loan, reloadable card not linked with a bank account, alternative provider to send money outside the U.S., alternative provider to cash a check or purchase a money order

Table 3
Proportion Unbanked and Underbanked by Race

| Race/ethnicity | Unbanked | | Underbanked | |
|---------------------|---------------------|---------|---------------------|---------|
| | No (0) ⁵ | Yes (1) | No (0) ⁶ | Yes (1) |
| White, Non-Hispanic | 0.873 | 0.127 | 0.891 | 0.110 |
| Black, Non-Hispanic | 0.701 | 0.299 | 0.723 | 0.277 |
| Hispanic | 0.684 | 0.316 | 0.758 | 0.242 |
| Other, Non-Hispanic | 0.848 | 0.152 | 0.820 | 0.180 |
| Total | 0.821 | 0.179 | 0.844 | 0.156 |

Table 4
Proportion Unbanked and Underbanked by Educational Attainment

| Education (Highest Degree Received) | Unbanked | | Underbanked | |
|-------------------------------------|---------------------|---------|---------------------|---------|
| | No (0) ⁵ | Yes (1) | No (0) ⁶ | Yes (1) |
| Less than high school | 0.600 | 0.400 | 0.763 | 0.237 |
| High school degree/GED | 0.779 | 0.221 | 0.841 | 0.159 |
| Some college/Associate | 0.844 | 0.156 | 0.825 | 0.175 |
| Bachelor's degree | 0.917 | 0.083 | 0.889 | 0.111 |
| Graduate/professional degree | 0.931 | 0.069 | 0.909 | 0.091 |
| Total | 0.821 | 0.179 | 0.844 | 0.156 |

⁵ Representing respondents who reported owning a checking or savings account at a bank or credit union

⁶ Representing respondents who reported not owning an account or owning an account and not using any of the five alternatives: payday loan or cash advance loan, pawn loan or auto title loan, reloadable card not linked with a bank account, alternative provider to send money outside the U.S., alternative provider to cash a check or purchase a money order

Table 5
Proportion Unbanked and Underbanked by Credit Rejection

| Individual applied for credit and was turned down | Proportion | Unbanked | | Underbanked | |
|---|------------|---------------------|---------|---------------------|---------|
| | | No (0) ⁷ | Yes (1) | No (0) ⁸ | Yes (1) |
| Refused (-1) | 0.012 | 0.533 | 0.467 | 0.821 | 0.179 |
| No (0) | 0.874 | 0.838 | 0.162 | 0.867 | 0.133 |
| Yes (1) | 0.114 | 0.722 | 0.279 | 0.672 | 0.328 |
| Total | | 0.821 | 0.179 | 0.844 | 0.156 |

Table 6
Proportion Unbanked and Underbanked by Credit Averted

| Individual did not apply for credit because they thought they would be turned down | Proportion | Unbanked | | Underbanked | |
|--|------------|---------------------|---------|---------------------|---------|
| | | No (0) ⁷ | Yes (1) | No (0) ⁸ | Yes (1) |
| Refused (-1) | 0.023 | 0.497 | 0.503 | 0.819 | 0.181 |
| No (0) | 0.838 | 0.845 | 0.155 | 0.869 | 0.131 |
| Yes (1) | 0.140 | 0.725 | 0.275 | 0.699 | 0.301 |
| Total | | 0.821 | 0.179 | 0.844 | 0.156 |

⁷ Representing respondents who reported owning a checking or savings account at a bank or credit union

⁸ Representing respondents who reported not owning an account or owning an account and not using any of the five alternatives: payday loan or cash advance loan, pawn loan or auto title loan, reloadable card not linked with a bank account, alternative provider to send money outside the U.S., alternative provider to cash a check or purchase a money order

Table 7
Frequency of each Financial Shock

| Financial Shock | Proportion | |
|--|------------|---------|
| | No (0) | Yes (1) |
| Lost a job | 0.925 | 0.075 |
| Work hours/pay reduced or business owned by self/HH mem had financial difficulty | 0.921 | 0.079 |
| Received a foreclosure notice | 0.991 | 0.009 |
| Had a major car or home repair | 0.796 | 0.204 |
| Provided unexpected financial support to a family member or friend | 0.871 | 0.129 |

Table 8
Proportion Experiencing Financial Shock by Income

| Household Income | Financial Shock | |
|-----------------------|-----------------|---------|
| | No (0) | Yes (1) |
| Less than \$20,000 | 0.557 | 0.443 |
| \$20,000 - \$29,999 | 0.599 | 0.401 |
| \$30,000 - \$39,999 | 0.614 | 0.387 |
| \$40,000 - \$49,999 | 0.622 | 0.379 |
| \$50,000 - \$59,999 | 0.587 | 0.413 |
| \$60,000 - \$74,999 | 0.638 | 0.362 |
| \$75,000 - \$99,999 | 0.641 | 0.359 |
| \$100,000 - \$149,999 | 0.659 | 0.341 |
| \$150,000 or more | 0.659 | 0.341 |
| Total | 0.623 | 0.377 |

Table 9
Proportion Unbanked and Underbanked by Financial Shock

| Financial Shock | Proportion | Unbanked | | Underbanked | |
|-----------------|------------|---------------------|---------|----------------------|---------|
| | | No (0) ⁹ | Yes (1) | No (0) ¹⁰ | Yes (1) |
| No (0) | 0.623 | 0.824 | 0.176 | 0.882 | 0.118 |
| Yes (1) | 0.377 | 0.815 | 0.185 | 0.782 | 0.218 |
| Total | | 0.821 | 0.179 | 0.844 | 0.156 |

⁹ Representing respondents who reported owning a checking or savings account at a bank or credit union

¹⁰ Representing respondents who reported not owning an account or owning an account and not using any of the five alternatives: payday loan or cash advance loan, pawn loan or auto title loan, reloadable card not linked with a bank account, alternative provider to send money outside the U.S., alternative provider to cash a check or purchase a money order

Table 10
Household Income on the Probability of an Individual being Unbanked*

| VARIABLES | Unbanked |
|-------------------------------|-----------------------|
| Household Income \$20-\$29k | -0.103*** (0.0298) |
| Household Income \$30-\$39k | -0.169*** (0.0280) |
| Household Income \$40-\$49k | -0.166*** (0.0300) |
| Household Income \$50-\$59k | -0.192*** (0.0300) |
| Household Income \$60-\$74k | -0.240*** (0.0251) |
| Household Income \$75-\$99k | -0.202*** (0.0263) |
| Household Income \$100-\$149k | -0.200*** (0.0254) |
| Household Income +\$150k | -0.214*** (0.0269) |
| Black | 0.111*** (0.0203) |
| Other, Non-Hispanic | 0.00684 (0.0245) |
| Hispanic | 0.0901*** (0.0198) |
| Constant | 0.535*** (0.0396) |
| Observations | 6,394 |
| R-squared | 0.130 |

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

*Controls for education level and age not shown

Table 11
Credit Denial and Financial Shocks on the Probability of an Individual being Underbanked*

| VARIABLES | (1) | (2) |
|-------------------------------|-----------------------|-----------------------|
| | Underbanked | |
| Experienced financial shock | 0.0740*** (0.0114) | 0.0734*** (0.0114) |
| Refused credit | 0.137*** (0.0219) | |
| Perceived credit rejection | | 0.117*** (0.0197) |
| Household Income \$20-\$29k | 0.0668** (0.0277) | 0.0710** (0.0278) |
| Household Income \$30-\$39k | 0.0211 (0.0248) | 0.0254 (0.0252) |
| Household Income \$40-\$49k | 0.0215 (0.0268) | 0.0274 (0.0271) |
| Household Income \$50-\$59k | 0.0180 (0.0268) | 0.0195 (0.0271) |
| Household Income \$60-\$74k | -0.00556 (0.0236) | -0.000847 (0.0237) |
| Household Income \$75-\$99k | -0.0418* (0.0224) | -0.0398* (0.0225) |
| Household Income \$100-\$149k | -0.0303 (0.0226) | -0.0257 (0.0227) |
| Household Income +\$150k | -0.0499** (0.0234) | -0.0440* (0.0236) |
| Black | 0.122*** (0.0196) | 0.131*** (0.0198) |
| Other, Non-Hispanic | 0.0739*** (0.0252) | 0.0693*** (0.0255) |
| Hispanic | 0.0910*** (0.0177) | 0.0946*** (0.0178) |
| Constant | 0.101*** (0.0314) | 0.0997*** (0.0321) |
| Observations | 6,394 | 6,394 |
| R-squared | 0.079 | 0.077 |

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

*Controls for education level and age not shown

Works Cited

- Baradaran, M. (2018). *How the Other Half Banks: Exclusion, Exploitation, and the Threat to Democracy*. Cambridge, MA: Harvard University Press.
- Berger, A. N., Demsetz, R. S., & Strahan, P. E. (1999). The consolidation of the Financial services industry: Causes, consequences, and implications for the future. *Journal of Banking & Science*, 23(2), 135-194. doi:[https://doi.org/10.1016/S0378-4266\(98\)00125-3](https://doi.org/10.1016/S0378-4266(98)00125-3)
- Braswell, M. G., & Chernow, E. (n.d.). Consumer Credit Law & Practice in the U.S. Retrieved from https://www.ftc.gov/sites/default/files/attachments/training-materials/law_practice.pdf
- Breitbach, E. M. (2013). Banking Participation in the United States: An Analysis of Unbanked and Underbanked Households. University of Nebraska - Lincoln, 1-24. Retrieved March 11, 2019, from <http://digitalcommons.unl.edu/dissertations/AAI3559666/>
- Calomiris, C. W. (2000). *U.S. Bank Deregulation in Historical Perspective*. New York, NY: Cambridge University Press.
- Campbell, J. Y., Jackson, H. E., Madrian, B. C., & Tufano, P. (2011). Consumer Financial Protection. *Journal of Economic Perspectives*, 25(1), 91-114. doi:10.1257/jep.25.1.91
- Dilley, D. K. (2008). *Essentials of Banking*. Hoboken, NJ: Wiley.
- Doyle, Joseph J., Jose A. Lopez, and Marc R. Saidenberg. "How Effective is Lifeline Banking in Assisting the 'Unbanked'?" Federal Reserve Bank of New York *Current Issues in Economics and Finance*, Vol. 4 (June 1998).
- Durkin, Thomas A. Credit Cards: Use and Consumer Attitudes, 1970-2000, 86 Fed. Res. Bull. 623 (2000)
- F. (1963). The Politz Study of consumer attitudes toward commercial banks. Philadelphia, PA: Foundation for Commercial Banks.
- FDIC. (2018, October 22). 2017 FDIC National Survey of Unbanked and Underbanked Households. Retrieved March 16, 2019, from <https://www.fdic.gov/householdsurvey/>
- Fowler, C. S. (2014). The Geography of Fringe Banking. *Journal of Regional Science*, 54(4), 688-710. Retrieved March 11, 2019.
- Fraser, D. R., & Kolari, J. W. (1985). *The Future of Small Banks in a Deregulated Environment*. Cambridge, MA: Ballinger Publishing Company.
- Graves, S. M. (2003). Landscapes of Predation, Landscapes of Neglect: A Location Analysis of Payday Lenders and Banks. *The Professional Geographer*, 55(3), 303-317. doi:10.1111/0033-0124.5503017

- Gross, M. B., Hogarth, J. M., & Schmeiser, M. D. (2012). Use of Financial Services by the Unbanked and Underbanked and the Potential for Mobile Financial Services Adoption. *Federal Reserve Bulletin*, 98(4). Retrieved March 12, 2019, from <https://ideas.repec.org/a/fip/fedgrb/y2012iseptnv.98no.4.html>.
- Gross, M. B., Hogarth, J. M., Manohar, A., & Gallegos, S. (2012). Who Uses Alternative Financial Services, and Why? *Consumer Interests Annual*, 58. Retrieved from [https://acci.memberclicks.net/assets/docs/CIA/CIA2012/2012-57 who uses alternative financial services and why.pdf](https://acci.memberclicks.net/assets/docs/CIA/CIA2012/2012-57%20who%20uses%20alternative%20financial%20services%20and%20why.pdf).
- Gup, B. E. (1989). *Bank Mergers: Current Issues and Perspectives*. Boston, MA: Kluwer Academic.
- Hannan, T. H. (2001). Retail Fees of Depository Institutions, 1994–99. *Federal Reserve Bulletin*. Retrieved March 12, 2019, from <https://ideas.repec.org/a/fip/fedgrb/y2001ijanp1-11nv.87no.1.html>.
- Hayashi, F. (2018). Who Are the Unbanked? Characteristics Beyond Income. *Federal Reserve Bank of Kansas City*. doi:10.18651/ER/2q18HayashiMinhas
- Hayashi, Y. (2019, January 3). Bank Accounts Designed for Low-Income Customers Find Broader Audience. Retrieved from <https://www.wsj.com/articles/bank-accounts-designed-for-low-income-customers-find-broader-audience-11546533480>
- Hogarth, J. M., Anguelov, C. E., & Lee, J. (2003). Why Households Don't Have Checking Accounts. *Economic Development Quarterly*. Retrieved March 11, 2019, from <https://journals.sagepub.com/doi/10.1177/0891242402239199>.
- Hogarth, Jeanne M., and Kevin H. O'Donnell. "Banking Relationships of Lower-Income Families and the Government Trend toward Electronic Payment," *Federal Reserve Bulletin*, vol. 85 (July 1999), pp. 459–73.
- Joassart-Marcelli, P., & Stephens, P. (2009). Immigrant banking and financial exclusion in Greater Boston. *Journal of Economic Geography*, 10(6), 1st ser., 883-912. doi:<https://doi.org/10.1093/jeg/lbp052>
- Keeton, W. R. (2001). The Transformation of Banking and Its Impact on Consumers and Small Businesses. *Federal Reserve Bank of Kansas City*, 25-53. Retrieved March 12, 2019, from <https://pdfs.semanticscholar.org/0a7d/7ac388aa54733ec7e39fcf55c364ff341439.pdf>.
- Kennedy, L. J., McCoy, P. A., & Bernstein, E. (2012). The Consumer Financial Protection Bureau: Financial Regulation for the twenty-First Century. *Cornell Law Review*, 97(5). Retrieved from <http://scholarship.law.cornell.edu/clr/vol97/iss5/4>
- Liu, F. (2018). Macroeconomic effects of microsavings programs for the unbanked. *Journal of Economic Behavior and Organization*, 154, 75-99. doi:10.1016/j.jebo.2018.07.008

- Marks, G. (2018, July 15). Why going cashless is discriminatory – and what's being done to stop it. Retrieved from <https://www.theguardian.com/business/2018/jul/15/cashless-ban-washington-act-discrimination>
- McConnell, Eileen & Redstone Akresh, Ilana. (2010). Housing Cost Burden and New Lawful Immigrants in the United States. *Population Research Policy Review*. 29. 143-171. 10.1007/s11113-009-9134-9.
- Newberger, R., Rhine, S. L., & Chiu, S. (2004). Immigrant financial market participation: Defining the research questions. *Chicago Fed Letter*, 199. Retrieved from <https://core.ac.uk/download/pdf/6986367.pdf>.
- Paulson, A., Singer, A., Smith, J., & Newberger, R. (2016). Financial Access for Immigrants: Lessons from Diverse Perspectives. *The Brookings Institution*. Retrieved March 16, 2019, from <https://www.brookings.edu/research/financial-access-for-immigrants-lessons-from-diverse-perspectives/>.
- Pew Charitable Trusts. “The Role of Emergency Savings in Family Financial Security How Do Families Cope With Financial Shocks?” *Pew Charitable Trusts*, Oct. 2015, www.pewtrusts.org/~media/assets/2015/10/emergency-savings-report-1_artfinal.pdf.
- Prager, R. A. (2009). Determinants of the Locations of Payday Lenders, Pawnshops and Check-Cashing Outlets. *Finance and Economics Discussion Series*. Retrieved from <https://www.federalreserve.gov/pubs/feds/2009/200933/200933pap.pdf>.
- Prescott, E. S., & Tatar, D. D. (1999). Means of Payment, the Unbanked, and EFT '99. *Federal Reserve Bank of Richmond Economic Quarterly*, 84(4). Retrieved March 11, 2019.
- Ratcliffe, C., Kalish, E., McKernan, S., & Martin, S. (2015). Where are the Unbanked and Underbanked in New York City? *Urban Institute*. Retrieved March 11, 2019, from <https://learninghub.prospercanada.org/knowledge/where-are-the-unbanked-and-underbanked-in-new-york-city/>.
- Reich, R. (2018, July 29). Almost 80% of US workers live from paycheck to paycheck. Here's why. Retrieved from <https://www.theguardian.com/commentisfree/2018/jul/29/us-economy-workers-paycheck-robert-reich>
- Servon, L. J. (2018). *The Unbanking of America: How the New Middle Class Survives*. Boston: Mariner Books.
- Smith, T., Smith, M. M., & Wackes, J. (2008). Alternative Financial Service Providers and the Spatial Void Hypothesis. *Regional Science and Urban Economics*, 38(3), 205-227. <http://dx.doi.org/10.1016/j.regsciurbeco.2008.01.012>

Swagler, R., Burton, J., & Lewis, J. K. (1995). The Alternative Financial Sector: An Overview. *Advancing the Consumer Interest*, 7(2), 7-12. Retrieved March 12, 2019, from <https://www.jstor.org/stable/23862819>.

Washington, E. (2006). The Impact of Banking and Fringe Banking Regulation on the Number of Unbanked Americans. *The Journal of Human Resources*. doi:10.3368/jhr.XLI.1.106

Young, Iris Marion. *Responsibility for Justice*. Oxford University Press, 2013.

Zywicki, T. (2014, October 13). "Consumer Credit and the American Economy," Part I: Consumer demand for credit. Retrieved March 16, 2019, from https://www.washingtonpost.com/news/volokh-conspiracy/wp/2014/10/13/consumer-credit-and-the-american-economy-part-i-consumer-demand-for-credit/?noredirect=on&utm_term=.69bbd6ac55bc