Penny and Pound: Unpacking the Impacts of the Fringe Economy on Household Economic Wellbeing

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PENNY AND POUND: UNPACKING THE IMPACTS OF THE FRINGE ECONOMY 
ON HOUSEHOLD ECONOMIC WELLBEING

A Dissertation

Submitted to the Graduate Faculty of the
Louisiana State University and
Agricultural and Mechanical College
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in

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by
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Abstract
As an increasing number of American families cope with chronic financial stability, they have withdrawn from traditional financial systems and instead have chosen to participate in the fringe economy where alternative financial services (AFS) and products are costly. Although individuals’ lives have become highly financialized, the issue of financial inclusion is not well understood. Research to date primarily has focused on the banked and unbanked group, yet, evidence indicates the presence of a sizeable group of people who are underbanked. Using a posttest-only, nonequivalent control group quasi-experimental design, this dissertation study investigated banking statuses (unbanked, underbanked, and banked), and AFS use (payday loan, auto title loan, pawnshop services, and rent-to-own product) among American households to understand how banking practices influence financial well-being (e.g., financial security). Drawing data from a recently released national dataset, 2015 National Financial Capability Study, the current study examined relevant demographic, socioeconomic, and financial determinants (e.g., family circumstances, knowledge) of banking status. Employing a propensity score matching approach, this study investigated the impact of banking status on current and future financial security and well-being. Results showed that the underbanked group is sizeable and has a distinctive profile from that of both the unbanked and banked groups. Results also suggest that each of the four AFS products were used by individuals that had distinct characteristics, and the heterogeneity of AFS users calls for further investigation. Results from propensity score matching analysis showed that payday loan use had a modest, negative impact on present financial security, and a small, positive impact on future financial security. Implications for social work practice, education, and research are discussed.
Chapter 1. Introduction

In the past two decades, people’s lives have become more financialized as the U.S. undergoes fundamental economic and demographic shifts. Dramatic changes have occurred in the way that many individuals conduct financial activities, including making bill payments, depositing money, borrowing, and investing. An increasingly number of Americans, most of whom are low-to-moderate income individuals, have withdrawn from traditional financial systems and entered alternative financial services (AFS) markets, despite the fact that the latter provides financial products that are often considered predatory in nature (Martin & Longa, 2012). The phenomenon of decreasing bank account ownership and increasing AFS use signals a notable shift in people’s financial behaviors. However, there is a paucity of empirically-based knowledge regarding banking practices of American households and how banking status affects financial well-being.

This dissertation study investigates use of bank accounts and AFS in American households to understand how banking practices influence certain financial outcomes. Using data from a recently released national dataset, 2015 National Financial Capability Study, the current study examines relevant demographic, socioeconomic, and financial determinants (e.g., family circumstances, knowledge) of banking status. Using a propensity score matching approach, this study investigates the impact of banking status on the current and future financial security and well-being of U.S. households.

Scope of the Problem

A stable, financially secure, middle-class life is impossible without ensuring that arrangements are in place for making necessary payments, obtaining credit, managing resources, and accessing appropriate, affordable financial services (Sherraden, 2013). Financial inclusion,
defined as access to and use of a wide range of financial products and services (Kendall, Mylenko, & Ponce, 2010), has never been more crucial to the economic well-being of individuals and families. A person’s financial participation in the growing economy takes many forms, and the most basic form consists of holding a checking, savings or CD account in a bank, or credit union (Rao & Malapit, 2015). However, in the last decade, individuals and families have increasingly withdrawn from the mainstream financial system, and this decline in bank account holding is evidenced by data collected with the Survey of Consumer Finance (Bricker et al., 2011, 2014; Bricker, Kennickell, & Sabelhaus, 2012). Between 2009 and 2013, the proportion of Americans with a checking account dropped from 92 to 88%, and the proportion with a saving account dropped from 72 to 68% (Burhouse et al., 2013). By 2015, the number of individuals without either a checking or savings account totaled 9.0 million households, made up of 15.6 million adults and 7.6 million children (Burhouse et al., 2016).

The decline in bank account holding can be traced to certain events and banking reforms in the last two decades. Beginning in the late 1970s, bank failures, policies that enabled consolidation, and aggressive marketing of credit to a larger and riskier group converged to transform banks (Baradaran, 2015; Servon, 2017). Progressive deregulation of the U.S. banking system has led to the sizeable growth of a few banks and closures of many small banks. For example, by the end of 2010, the four largest banks (i.e., Chase, Bank of America, Wells Fargo, and Citigroup) collectively held about half of all U.S. bank assets (i.e., approximately $6.8 trillion) while the remaining 6,395 banks shared the other half (Servon, 2017). From 1985 to 2013, the number of banks and savings institutions that served communities with upper income increased 40%, while the number of smaller banks (i.e., those with less than $100 million in assets), which were more likely to be closely tied to their communities, declined by 85% (Peirce,
Robinson, & Stratmann, 2014). It is worth noting that the closings of banks are not spread evenly across U.S. communities, and that the majority have occurred in low-income communities in rural and inner-city areas. In fact, since late 2008, 93% of bank branch closings have been in zip codes with household incomes below national median levels (Bass & Campbell, 2013).

Meanwhile, a few growing, large banks focused on serving high-income households have become less responsive to the needs of low-to-moderate income (LMI) families. For example, in the past 10 years, fees and charges for basic financial services (e.g., check cashing, over drafting) at the traditional banks have skyrocketed (Baradaran, 2015). The average charge per overdraft went from $12.57 in 1998 to $31.26 in 2012, and average fees for using an ATM more than doubled between 2011 and 2014 (Baradaran, 2015). Furthermore, banks have established high monthly fees for failing to maintain minimum bank account balances to deter lower-income families (with few savings) from using a bank account. Studies have shown that among individuals who are unbanked (i.e., have no banking account), 83% earn under $25,000 per year (Barr, 2004). A recent national survey conducted by the Burhouse et al. (2014) has also shown that one of the most frequently reported reasons for being unbanked is insufficient funds for maintaining a minimum balance.

With the closure of small community banks and credit unions and the corresponding fee increases for maintaining a bank account at traditional financial institutions, many Americans no longer have access to affordable financial services, a consequence that is disproportionately felt by those who are socially and economically disadvantaged. Research shows that the groups most likely to be unbanked consist of low-income families, less-educated individuals, racial minorities, immigrants, and the unemployed (Burhouse et al., 2014; Studhredher & Tescher, 2005). For example, as compared to the 4.0% rate of Whites that were unbanked in 2011, 21.4%
of African Americans and 20.1% of Latinos were unbanked (Federal Depositor Insurance Corporation [FDIC], 2012). LMI individuals without bank accounts are left with few options and are compelled to use AFS for carrying out basic financial activities.

**Alternative Financial Services**

Alternative financial services (AFS), also called a fringe economy, refers to a broad range of financial institutions that serve individuals who, for a myriad of reasons, cannot or do not use traditional financial services, such as checking and saving accounts, standard personal loans, and investment portfolios (Caskey, 1994; 1997). Providers of AFS include payday lenders, pawnshops, auto title lenders, tax refund anticipation lenders, rent-to-own stores, and check cashing outlets (Karger, 2005). In contrast to services offered by traditional banking institutions, services offered by AFS providers are not federally insured and are often high cost. The AFS industry is operated outside the regulatory framework and providers typically charge outsize rates of interests and fees (Caskey, 1997; Martin & Longa, 2012). An increasing number of studies show that repeated use of AFS can be damaging to the financial stability of families, and to those low-income families experiencing escalating financial stress, in particular (e.g., Martin, 2010). To illustrate, the amount of money that some families spend on interest and fees for using AFS is 9.5% of their household income, the same percentage of income that the average American household spends on food annually (U.S. Postal Service Office of Inspector General [PSOIG], 2014).

Despite the high cost of living outside of the mainstream financial system, large portions of American families rely on AFS providers for facilitating financial arrangements. AFS providers offer a wide range of products and services including short-term loans (e.g., payday, refund anticipation, pawnshop, and title loans), check cashing, bill payment, tax preparation,
money transmitting services, and rent-to-own products (Birkenmaier, 2012). Many AFS providers operate at extended hours, offer fast transactions, and are located in communities where mainstream financial institutions are absent (Servon, 2017). The AFS industry has expanded exponentially in the last several decades, with estimates showing a five-fold increase in the number of AFS outlets between 1986 and 1994 alone (Caskey, 1994). The AFS industry grew at a steady annual rate of 15% since the mid 1990s (Apgar & Herbert, 2006), and on average, the AFS industry generated $319 billion annually by providing financial services (e.g., short-term small-dollar loans) that historically were provided by traditional banks or other financial institutions (Gross, Hogarth, Manohar, & Gallegos, 2012). Payday lending, in particular, grew from $10 billion in 2011 to nearly $30 billion in 2012, while more than $58 billion in check-cashing transactions took place in 2010, up from $45 billion in 1990 (Center for Financial Services Inclusion, 2014).

When examining the demographic characteristics of AFS users, studies show that individuals who are young, single, and high school-educated, as well as females who are heads of households are more likely to use AFS products (Barr, 2004; Weller & Logan, 2009). In terms of annual income, Elliehausen (2009) found that about half of payday loan borrowers in a sample of 1,173 participants had an annual income of between $25,000 and $49,000; whereas other studies have shown that payday loan users are middle-class families with incomes of $75,000 or higher (e.g., Martin & Longa, 2012; Lusardi & Scheresberg, 2013). In addition, AFS use is especially common among the unbanked, with studies indicating that being unbanked was positively associated with AFS usage, even after controlling for income and other demographic factors (Birkenmaier & Fu, 2016).
While many AFS products are geared toward people experiencing an immediate cash shortfall, the AFS industry is criticized for imposing high costs and aggravating families’ financial stress (Barr, 2004). Indeed, inappropriate use of AFS can jeopardize the financial health of families, with studies indicating that use of AFS is associated with low levels of savings (Barnes, 2011), high levels of medical debt (Melzer, 2011), and increased possibility of filing bankruptcy (Skiba & Tobacman, 2011). There are also other consequences of relying on AFS in addition to financial losses. An increasing body of literature shows that the use of AFS can negatively impact borrowers’ credit profiles and subsequently prevent them from regaining access to low-cost sources of credit issued by mainstream financial institutions (Belsky, & Galder, 2004).

The New Financial Reality

Financial problems shape the balance sheets of households and affect the social, emotional, and physical well-being of individuals and families. There is little doubt that individual error also contributes to financial stress and difficulties. Low levels of financial knowledge place individuals at risk for making unsound financial decisions and increasing their vulnerability to economic shocks (Lusardi & Mitchell, 2011). However, many household financial problems are rooted in systematic forces such as poverty, discrimination, and poorly designed and unsafe financial products (Karger, 2015). This requires examining individual financial problems within a larger socioeconomic context. Although the global and U.S. economies largely have recovered from the Great Recession, the majority of U.S. households continue to experience difficult financial circumstances. National poverty rates are increasing, as are the number of individuals and families living in extreme poverty, with studies showing that the number of families with only $2 or less to spend on necessities, per person, per day, has
doubled since the passage of welfare reform in 1996 (Edin & Shaefer, 2015). At the same time, government-sponsored human services have undergone retrenchment and privatization, resulting in a smaller and less secure safety net for families experiencing poverty or near poverty conditions (Abramovitz & Zelnick, 2015). For those who are in the labor force, wages have been stagnant over the past decade. Median family income decreased from $49,600 in 2007 to $45,800 in 2010 (Bricker et al., 2012). The median income in 2012 has fallen to virtually the same level it was in 1995 (Gould & Cooke, 2015). While the cost of living necessities (e.g., housing, higher education, health care, child care) continue to rise and outpace wages, many U.S. households are left with few saving and assets to cope with emergencies or to establish financial security (Sherraden, 2013; Seefeldt, 2015).

In sum, although the U.S. economy is on the track of recovery, many LMI families still struggle to make ends meet. The difficult conditions of increasing poverty, stagnant wages, and declining financial security underscore the complexity of the financial context within which many American households live. The new financial realities confronted by LMI families parallel recent shifts in the structure of U.S. banking systems and the ways in which financial services have been provided. Unbanked LMI families have increasingly sought services from AFS providers, despite the high costs and fees and increased risk of becoming entrapped in debt (Traub & Ruetschlin, 2012). Given the new financial landscape and the economic decline experienced by millions of households, there is a need to develop a better understanding regarding how AFS products meet the need of LMI families, interface with mainstream financial institutions, and influence financial well-being. However, studies focusing on interrelationships among banking status, AFS use, and household financial security remain limited and inconclusive. The extant research to date has yielded conflicted findings regarding how use of
AFS affects families’ financial well-being. There is a need for empirically-based knowledge that determines whether and how household use of AFS affects the financial well-being of LMI families. While the use of AFS may help some LMI families cope with financial shocks, it is not well understood how AFS enable families to weather other financial difficulties and impact families’ long-term financial outcomes. Although there is agreement that repeated use of AFS can detrimentally impact families’ capacity to build assets, the mechanism by which AFS influences LMI families’ financial securities is largely unknown. Furthermore, while many families use bank accounts and AFS at the same time, little is known about the relative impact of the use of traditional bank accounts and AFS use on the current and future financial security of LMI individuals and families.

**Contribution to Social Science Knowledge**

Understanding the role of banking status and how it influences the financial well-being of LMI families advances the social science knowledge base and that of social work, in particular. There is substantial evidence demonstrating the relationship between being banked and using AFS; however, few studies have focused on the relative impact of being unbanked and AFS use, despite the fact that an increasingly number of LMI families use traditional banking services and AFS. Moreover, although many LMI families simultaneously are confronted with new financial realities (e.g., stagnant wages, eroding social safety net, shrinking wealth), little is understood about how banking practices affect the current and future financial well-being of LMI families. The proposed research is both timely and relevant. As Servon (2017) aptly observes, financial well-being connects individuals and families to greater opportunity, and creates more vibrant communities, which in turn strengthens the social and economic fabric of
the nation. A good understanding of how banking status impacts families’ financial well-being can potentially inform banking policies, as well as anti-poverty efforts in the future.

**Relevance to Social Work Education and Practice**

In the context of rising income and wealth inequality, high unemployment, and stagnant wage growth, social work scholars have renewed an interest in the profession’s early focus on the financial lives of vulnerable families (Stuart, 2013; Sherraden, Birkenmaire, McClendon, & Rochelle, 2017). The profession’s mission rests on poverty work; therefore, social workers increasingly have been called upon in recent years to provide assistance with financial counseling and education and to enable access to quality banking, as well as to advocate for economic justice for the financially disadvantaged (Birkenmaire et al., 2013; Collins & Birkenmaier, 2013; Loke, Watts, & Kakoti, 2013). For example, the Council on Social Work Education (CSWE, 2016), a national association representing social work educators in the United States, established a national platform for disseminating teaching resources pertinent to economic well-being in order to facilitate integration of financial well-being into the social work curriculum and to further prepare students to address issues around economic justice in practice.

Among the various human service professions that help individuals manage household financial issues, social work is a profession that has the perspective, skills, and commitment to work with diverse financially disadvantaged populations (CSWE, 2008, 2016; Sherraden et al., 2017). However, research on banking and AFS, from a social work perspective, is preliminary. With a focus on the LMI population, the proposed study seeks to increase current knowledge about the financial struggles of economically disadvantaged individuals, which better positions social work educators and practitioners in helping LMI populations increase access to financial services and achieve financial stability.
Summary

Chapter one presented the scope of the problem of bank account underuse and AFS use in the US and its relevance to the financial well-being of individuals and families, as well as highlighted the importance of this issue for social work research, education, and practice. Chapter two presents a review of the literature on financial inclusion conducted within and outside of the US, and a brief history of U.S. banking regulations and policies, as well as reviews studies pertinent to this research. In Chapter three, the methodology of the proposed study is described. In chapter four, the results of data analyses are explicated, and chapter five contains a discussion and recommendations for future social work research, policy, and education.
Chapter 2. Literature Review

The literature review section provides an overview of research that is germane to this dissertation, including studies on financial inclusion, bank accounts, alternative financial services (AFS), and financial well-being, with a particular population focus on low-to-moderate income (LMI) individuals and families. This chapter begins with a review of existing conceptual and operational definitions of financial inclusion, followed by an overview of empirical studies on financial inclusion worldwide and in the United States and relevant policies that shape the American financial inclusion landscape. Then, a comprehensive review is offered on studies of the use of bank accounts and AFS in the United States. The last section of the literature review focuses on financial well-being and its conceptualization and operationalization. The literature review ends with a discussion about the limitations of current research and highlights the knowledge gaps, with an emphasis on the link between the use of banking practices and financial well-being among LMI households.

Unbanked, Underbanked, and Financial Inclusion

Unbanked and underbanked are the terms mostly commonly used in the U.S. literature to describe financial inclusion issues. The unbanked refers to a group of individuals without a bank account from a formal financial institution, the underbanked refers to those with a bank account who also use alternative financial services (Birkenmaier & Tyuse, 2005; Birkenmaier, 2012). Current literature in the US has neither explicitly linked unbanked or underbanked to financial inclusion, nor commonly discussed unbanked and underbanked in the discourse of financial inclusion. Nevertheless, the unbanked and underbanked statues constitute one important aspect of the consumer banking issue, as having bank accounts with formal financial institutions provides a platform for basic financial activities (e.g., payment, remittance,
borrowing), and a link to mainstream financial systems (Beck & Demirgüç-Kunt, 2008; Demirgüç-Kunt & Levine, 2009). In addition to bank account ownership, financial inclusion also includes access to formal savings and credit mechanisms that facilitate investment in productive activities such as education or entrepreneurship (Demirgüç-Kunt & Klapper, 2013). Researchers seem to consider that the ultimate goal of financial inclusion is to draw the unbanked population into the formal financial systems and to ensure access to financial services ranging from savings, payments, credit access and insurance (Allen, Demirgüç-Kunt, Klapper, Peria, & Soledad, 2012; Beck, Demirguc-Kunt, & Martinez Peria, 2007). However, there are various definitional and operational approaches of financial inclusion. In the following section, the literature review offers a review of current definitions of financial inclusion and their measurement approaches.

**Defining Financial Inclusion**

While research on financial services and products is decades old, financial inclusion is a relatively new concept in the field of consumer finance and well-being. In a narrow sense, financial inclusion has been defined as access to and use of financial services at formal financial institutions (Allen et al., 2012; Beck, Demirguc-Kunt, & Levine, 2004). This definition has been used in cross-country studies on credit accessibility and microfinance program evaluations (e.g., Clamara, Peña, & Tuesta, 2014; Kendall et al., 2010). There also are studies that broadly defined financial inclusion as the ability to participate fully in the economy through access to adequate cash resources and affordable credit, to savings opportunities, and to safe, affordable financial products that promote consumer flexibility and autonomy (Beck & De La Torre, 2007; Sprague, Thomhave, & Black, 2016). This definition was adopted by international organizations such as the Organization for Economic Co-operation Development and the World Bank to guide conceptual discussions on financial inclusion and relevant research (Beck,
Additionally, some scholars defined financial inclusion with a specific population focus. For example, in Dev’s (2006) study, financial inclusion was referred to as delivery of banking services at an affordable cost to disadvantaged and low-income groups.

A concept relevant to financial inclusion is financial exclusion. Leyshon and Thrift (1995) offered one of the earliest definitions of financial exclusion, which referred to the process that prevents certain social groups and individuals from gaining access to the formal financial system. In a similar vein, Sinclair (2001) conceptualized financial exclusion as the inability to access necessary financial services in an appropriate form. Clearly, financial exclusion is a negative term used to describe inadequate financial access. It is most often used by studies conducted in developing countries where access to financial services is far from universal (e.g., Conroy, 2005; Rangarajan, 2008). However, financial exclusion is a term that is gaining more popularity in discourse on financial access in the US where credit discrimination has become a policy issue (The Pew Charitable Trusts, 2012).

Conceptual Framework

Hannig and Jansen (2010) offer the most comprehensive conceptual approach to financial inclusion, stating that it is composed of four dimensions of financial services and products including access, quality, usage, and impact. Specifically, access refers to a person’s ability to use available financial services and products from mainstream institutions, whereas quality focuses on the relevance of the financial services or products to the lifestyle needs of the consumer. Usage refers to the prevalence and depth of financial services and product use. Impact refers to changes and improvements in the financial lives of people from using certain financial products and services (Hannig & Jansen, 2010).
Sherraden (2013) developed a similar conceptual framework of financial inclusion that contains six dimensions. Sherraden (2013) maintained that inclusive financial products and services should be evaluated on their appropriateness, accessibility, affordability, financial attractiveness, flexibility, safety and reliability. Although the details for each of the six dimensions were not provided, Sherraden (2013) pointed out that all dimensions should be evaluated. For example, appropriateness of financial services is determined by a match between a person’s characteristics and the type and forms of financial services. One feature of Sherraden’s conceptual approach is that it contains a focus on low-income populations. Sherraden (2013) stressed that for low-income individuals and families, financial inclusion means, at a minimum, having access to a safe place to deposit money, a place to store precautionary savings, a means to generate savings and investments, a reasonably priced small dollar credit, and simple insurance products.

Financial inclusion often is insufficiently conceptualized, with little consensus on how best to define the term in research studies and reports. The most common approach is to conceptualize financial inclusion as a multifaceted construct that includes access, availability and usage of the formal financial system. However, it is worth noting that a lack of connection to formal financial systems can be the result of a voluntary decision that does not require an intervention. The World Bank (2014) defined voluntary exclusion as a condition where a segment of the population chooses not to use financial services either because they have no need for them or for cultural or religious reasons. In contrast, involuntary exclusion arises from causes such as insufficient income and having a high-risk profile or from discrimination, market failure and imperfection (The World Bank, 2014).
**Operationalizing Financial Inclusion**

Although financial inclusion is commonly regarded as a multidimensional concept, its measurement has focused on two aspects: access and use. Although the terms access and use often are employed interchangeably in the literature, these two terms have different meanings. Access specifically focuses on a person’s ability to use available financial services and products from formal institutions (Hannig & Jansen, 2010). Whether a person has access to basic financial services is determined by a host of factors such as geographic reach, price, and other costs. In other words, access refers to the possibility of using financial services, given available resources. By comparison, use refers to actual consumption of financial services, and whether and how the financial services are consumed once they are accessed. In the literature, use often involves assessment of ownership of financial products, and the regularity, frequency, and duration of financial services usage (Beck et al., 2007; Hannig and Jansen 2010).

Previous research has used various measures to assess financial inclusion at the country level versus the individual level. To examine access, studies have focused on cross-country comparisons, using measures such as per-capita number of bank branches and Automated Teller Machines (ATMs) (Beck et al. 2007; Hannig and Jansen 2010; Pería, 2013), or number of bank branches or ATMs per 1,000 square kilometers (Beck & Demirgüç-Kunt, 2008; Beck et al., 2007). To investigate actual use, studies have commonly adopted measures such as frequency of checking or savings accounts and the amount of loans or credit taken from formal institutions. A few studies used other measures such as number of loans per capita and deposit size relative to GDP per capita, to gauge country-level financial inclusion and make cross-country comparisons (e.g., Beck et al., 2007).
Although existing measures of access provide a rough gauge of a country’s banking sector outreach and make cross-country comparison possible (Beck et al., 2004; Leyshon & Thrift, 1995), they are subject to notable limitations. First, total aggregate figures (e.g., the number of loans per capita) can provide only rough estimates of the financial services used by households because some individuals use more than one financial service and others use no services at all (Pería, 2013). Therefore, estimates of the frequency of financial products and services in use can overestimate the inclusiveness of financial systems (Honohan, 2008). Another limitation of using aggregated data to measure access and use is that aggregated data describing the frequency of financial services and products typically are collected by banks that are not interested in individual-level information; therefore, these data often do not allow identification of those with the fewest financial services (Honohan, 2008).

In contrast, measures used by studies examining financial inclusion at the individual or household levels are varied and likely to capture the actual use of financial services. First, measures of use and access are not often distinguished in the literature on household banking. It is not uncommon that studies attempt to investigate individual access to financial services employing measures of use. In fact, the most common measures include ownership of basic financial products and use of financial services, and researchers often survey individuals and families about whether they use certain basic financial services at a formal financial institution (e.g., direct deposit service, cash checks) and own any financial products (e.g., savings account, credit card, various types of insurance; Demirgüç-Kunt & Klapper, 2001; 2013; Peachey & Roe, 2006; Sarma & Pais, 2011). A few studies have adopted measures such as frequency of use over time and amount of deposits or credit to examine the extent of financial service use (e.g., Fungáčová & Weill, 2014; Hannig & Jansen, 2010; Peachey & Roe, 2006).
In terms of format, researchers often used unidimensional measures, and only recently have some researchers developed aggregated measures. For example, Amidžić, Massara, and Mialou (2014) developed a composite measure of financial inclusion to assess variables pertaining to three dimensions including outreach (geographic and demographic penetration of bank services), usage (deposit and lending), and quality (cost, disclosure requirement). Sarma (2012) used a similar approach and constructed a composite of financial inclusion. These latter measures are likely to capture the multidimensional aspect of the concept; however the empirical validation of these measures is at a preliminary stage.

**Summary.** There is a tremendous variability in approaches used to assess financial inclusion, and researchers have not agreed on how the concept should be reliably measured. Existing studies often have adopted measures that assessed access and use, despite agreement that financial inclusion contains multiple dimensions. While cross-country research typically has employed access measures, research on individual- and household-level financial inclusion most often adopted use measures. It is worth noting that factors such as sociocultural considerations and high opportunity costs can influence individuals’ financial decisions concerning the use of financial products and services provided by the nearby banks (Beck et al. 2007; Beck & Demirgüç-Kunt 2008); therefore, measures of actual use are considered more reliable than those that assess access.

Since the 2008 housing crisis, the field of financial inclusion research has gained considerable attention, and efforts to promote mainstream banking services have increased at an unprecedented rate (Birkenmaier, 2012). Nevertheless, research in the area remains at a preliminary stage, which is reflected mainly in the lack of systematic data on household use of financial services. Studies often collect data to examine household use of only one or two types
of financial services or products (e.g., Beck & Demirgüç-Kunt, 2008; Tejerina & Westley, 2007). What is missing in the literature is a comprehensive examination of a wide range of financial services and products used by households. Measurement validity is another issue. Numerous existing studies have failed to distinguish access from use measures, with some adopting use measures and others employing access measures. Although financial inclusion is regarded as a multidimensional concept, the current measurement approach is inconsistent with current perspectives. Lastly, researchers have not specified the outcomes associated with financial inclusion. Although cross-country studies have linked financial inclusion to income equality and economic growth, studies on household-level financial inclusion have not identified relevant outcome variables or tested the predictive validity of specific measures. Financial inclusion as a policy objective requires a good understanding of the mechanisms through which financial inclusion affects financial stability and well-being of individuals and families; yet the empirical evidence linking financial inclusion to household economic outcomes is lacking.

The paragraphs below review existing studies on financial inclusion, providing a summary of empirical studies of financial inclusion across countries and within the US, with an emphasis on financial inclusion issues unique to the U.S., given recent economic and social changes. The subsequent section provides an overview of studies on issues relevant to being unbanked and contributing factors, followed by a summary of the research on utilization of AFS and its correlates. The last section of the review examines the literature on the definitional and operational approaches to financial well-being, as well as the conceptual framework for the proposed study. The literature review concludes with implications and the definitions of key terms.
International Studies on Financial Inclusion

Internationally, financial inclusion has been broadly recognized as crucial for alleviating poverty, boosting shared prosperity, and achieving inclusive economic growth (Morgan & Pontines, 2014). Since 2010, more than 55 countries have made commitments to advancing financial inclusion, and more than 30 have either launched or are developing a national strategy (The World Bank, 2014). A number of research efforts have been initiated in order to understand and identify opportunities for removing barriers that prevent people from using financial services. Examples of these initiatives include the World Bank’s Global Financial Inclusion (i.e., Global Findex) project and the International Monetary Fund’s Financial Access Survey (Bolaji-Adio, Perotti, Zottel, & Iarossi, 2013; Demirgüç-Kunt & Klapper, 2012). Analyzing data collected from more than 30 countries, these international research projects aim to identify, track and compare how people save, borrow, make payments, and manage risk in multiple countries. The heightened interest reflects increasing understanding of the importance of financial inclusion for economic and social development.

Levels of financial inclusion worldwide are far from satisfactory. Half of the world’s adult population (i.e., 2.5 billion working-age adults) does not have an account at a formal financial institution (The World Bank, 2014). Only 22% of adults worldwide have saved at a formal financial institutions and 9% have taken out a loan from a bank (Demirgüç-Kunt & Klapper, 2012). In addition, there are large disparities in the use of financial services between high-income countries and developing economies, as measured by GDP per capita. While bank account penetration is nearly universal in high-income economies, with 89% of adults reporting that they have an account at a formal institution, the rate is only 41% in developing economies (Demirgüç-Kunt & Klapper, 2012). Gaps in credit use across developed and developing
countries are even larger. Globally, in 2010, only 9% of adults reported having originated a new loan from a formal financial institution, as compared to 14% of adults in high-income countries and 8% in developing countries. Credit cards as a form of short-term loans are held by half of adults in developed countries but by only 7% of adults in developing ones (Demirgüç-Kunt & Klapper 2012).

While a portion of nonuse demonstrates a lack of demand, barriers such as cost, travel distance, and amount of paperwork play a key part. Allen et al. (2012) have shown that in countries with higher banking costs, financially excluded individuals are more likely to report that they perceive not having enough money as a barrier to opening an account. It is encouraging that most of these barriers can be addressed by better designed polices. In fact, the past decades have witnessed noticeable efforts to promote financial inclusion worldwide, as hundreds of millions have gained access to electronic payments through services using mobile phone platforms (Demirgüç-Kunt & Klapper, 2012). According to a recent report by the World Bank, 78% of the financial sector practitioners surveyed indicated that, according to their assessment, access to finance in their countries had substantially improved in the last five years. In South Africa, for example, 6 million basic bank accounts were opened in four years, significantly increasing the proportion of adults with a bank account (Allen, Demirguc-Kunt, Klapper, & Peria, 2012).

However, the estimates of increased bank account ownership can be misleading. Bank account penetration as an indicator of financial inclusion is widely critiqued, as a greater frequency of opened bank accounts does not necessarily result in actual use of the particular account (Hannig & Jansen, 2010). Measures based on the proportion or number of households with a bank account or other types of financial product fail to capture important aspects of
inclusive financial systems, such as the quality and utilization of basic financial services (The World Bank, 2014). The unbanked, for example, are unlikely to benefit from owning a bank account if the bank account remains inactive. In addition, the striking disparities in levels of financial inclusion between developed countries and developing countries suggest that challenges in promoting financial inclusion can vary widely according to a nation’s economic development (Beck et al., 2004).

**How the United States Fares on Financial Inclusion**

In comparison to other developed countries, a modest proportion of the US population, overall, is banked. The Global Index data ranks the United States at 21 out of 31 within the the Organization of Economic and Co-operation and Development (OECD) community on the usage of formal bank account (88%), while the highest banked country, Denmark, has a rate of 99.7% (Peachey, Van de Werff, & Hogarth, 2013). What is striking is the large disparities in having a bank account between high and low-income segments. Using Global Index data, Peachey et al. (2013) compared 31 OECD countries on the proportion of unbanked individuals in the whole population and in the lowest 40% of the income distribution. Among 31 OECD countries, the US had the ninth largest proportion of unbanked individuals in the LMI population, a rate similar to less developed countries such as the Czech Republic, Portugal, and Turkey.

Access to capital and financial services is regarded as the key to economic growth (Hudson, 2007; Imboden, 2005). Nevertheless, as compared to other developed countries (e.g., Canada, the UK, Australia), the level of access to financial services in the US is low and uneven. While the U.S. has one of the deepest and broadest capital markets in the world (Barr, 2002; 2004), LMI communities, as well as minority borrowers, have not enjoyed full access to those markets. In fact, access to financial services in the U.S. has long been uneven (Servon &
Kaestner, 2008). Banks in the U.S. have a history of under serving low-income communities. Historically, banks have neither located in low-income neighborhoods nor provided LMI individuals with products and services geared to their specific needs (Servon, 2017). This is evidenced by findings from studies using spatial analysis on financial access, which converge to show that the U.S. consumer finance market is bifurcated, with mainstream financial services concentrated in more vibrant communities; and fringe financial services, such as pawnshops, check cashers, and payday lenders, concentrated in distressed communities (Carr & Schuetz, 2001; Gallmeyer & Roberts, 2009; Immergluck, 2002).

The bifurcation of the U.S. consumer banking market has evolved over years and has prompted state and federal regulation. For example, the 1933 Glass-Steagall Act authorized the then newly established Federal Deposit Insurance Corporation (FDIC) to regulate savings institutions and limit interest rates for savings accounts (Caskey, 1994; Stoesz, 2014). Forty-four years later, the 1977 Community Reinvestment Act (CRA) was passed to prohibit red-lining, a practice of denying mortgages and other loans to entire neighborhoods of consumers suspected of being high risk, and it also required banks to make credit available to poor families (Stoesz, 2012; 2014). As the CRA prompted banks to serve low-income and minority families in particular, stagflation of the mid-1970s pushed interest rates above traditional usury limits, encouraging states to relax regulation of financial institutions (Stoesz, 2014). Soon, bipartisan support grew for deregulating financial services altogether. Bank deregulation and resulting consolidation of the banking industry led to closures of many community banks and left LMI communities without convenient access to banks (Servon, 2017). Meanwhile, financial services at traditional banks lacked transparency and charged hidden expenses and fees that pushed LMI families, who already were financially stressed, further over the financial brink (Servon, 2017).
The market void was quickly filled by the AFS providers, who responded to the increasingly fragile financial circumstances of LMI families (Stoesz, 2014).

In addition to banking deregulation and the closure of community banks, public policies also facilitated the growth of the AFS industry. Since the Personal Responsibility and Work Opportunity Act of 1996 was enacted, states have begun to distribute public assistance, such as food stamps, cash payments, and unemployment benefits electronically through prepaid debit cards, namely, electronic benefit transfer (EBT) cards. The federal government also uses EBT cards to deliver payments to unbanked Social Security beneficiaries (Barr, Dokko, & Feit, 2011). Although funds on EBT cards are insured by the FDIC, a supervisory federal agency, EBT cards still lack consumer protections such as rules against hidden fees and liability for unauthorized transactions (The Pew Charitable Trust, 2014). While the ability to fully participate in American economic life is predicated on access to basic financial services and mechanisms; public programs designed to support economic advancement of people in poverty often explicitly exclude intended beneficiaries from meaningful engagement with financial institutions (Stoesz, 2014). The following sections review existing studies that have examined two important aspects of financial inclusion in the American context: bank accounts and AFS use. The literature reviewed below focuses specifically on studies that have examined unbanked and underbanked populations, as well as investigated correlates of unbanked and underbanked statuses.

A Review of Literature on Financial Inclusion in the U.S.

Prevalence of Unbanked and Underbanked

The proportion of unbanked families (i.e., those without either a checking or savings bank account has steadily declined for more than two decades (Rhine & Greene, 2013). In 1989, close to 15% of families were unbanked (Kennickell, Starr-McCluer, & Surette, 2000). By 2009,
that number had fallen to 7.7% (Bricker et al., 2011; FDIC, 2009). Although the majority of Americans are banked, a larger percentage (approximately 20%) of Americans have a traditional bank account but are considered underbanked, meaning they hold a bank account yet still utilize high-cost AFS for their banking or credit needs (Birkenmaier, 2012; FDIC, 2012). In 2015, for example, approximately 10 million U.S. households were unbanked, and 24.5 million were underbanked (FDIC, 2016). Current estimates show that 28% to 36% (i.e., more than one fourth) of households are excluded from mainstream banking institutions at any given time, and are left outside of the traditional financial system (Birkenmaire & Fu, 2016).

While unbanked populations include a rather small percentage of households within the US, this status disproportionately falls along lines of income, race, and class. Estimates suggest that 25-30% of the lowest income American families (i.e., those earning $18,900 per year or less), or at least 10 million households are unbanked (Bricker et al., 2011; Rhine & Greene, 2013). Households headed by African Americans are almost seven times more likely to be unbanked than those headed by whites (at 21.7% and 3.3%, respectively), followed by Hispanics (19.3%), American Indians (15.6%), and Asians (3.5%) (FDIC, 2012). In addition, households headed by singles, renters, and the young (35 years old or younger), and those with low levels of education and net worth also are likely to be unbanked or underbanked (Hogarth, Anguelov, & Lee, 2004; Northwood & Rhine, 2017; Zhan, Anderson, & Scott, 2009).

Welfare recipients and immigrants are disproportionally unbanked or underbanked. Studies also have found that families receiving TANF benefits are 70% less likely than other low-income families to have a bank account (Stegman & Faris, 2005). In addition, as compared to US natives, immigrants are less likely to use a variety of financial services, including bank accounts. For example, using the 2000 Survey of Income and Program Participation, Rhine and
Green (2006) found that about 32% of immigrants did not have bank accounts, as compared to approximately 18% of people born in the US. Overall, the unbanked and underbanked are an economically diverse mix of working and middle class families, poor and unemployed young people, and immigrants.

**Reasons for Not Using Bank Accounts**

Studies exploring why a large proportion of LMI individuals do not use bank accounts have identified several contributing factors. First, high minimum account balances and costly service fees deter LMI families from opening and maintaining a bank account. The average minimum balance requirement for free checking is around $400, a sizable portion of a low-income individual’s monthly paycheck (Baradaran, 2015). Between 2009 and 2013, the proportion of free checking accounts decreased from 76% to 38% (Sprague, 2015). Without enough cash flow to qualify for a free bank account, many LMI families choose to manage their money without a bank. A report from the FDIC (2009) found that more than one third (37.1%) of never-banked households reported that not having enough money was a main reason they did not have bank accounts. Similar findings were also reported by Seidman, Hababou, and Kramer (2005) who surveyed 1,532 LMI residents in three large cities (i.e., Los Angeles, Chicago and D.C.). The authors found more than a third did not have checking accounts (37.4%) and more than half (54.4%) did not have savings accounts because of insufficient income.

In addition to insufficient income and high monthly fees, other costs associated with bank accounts (e.g., overdraft fees, fees for non-bank ATM use, and fees to make deposits) deter LMI families from using a bank account. In addition, research shows that these fees have increased in recent decades. For example, the charge per overdraft, on average, increased from $21.75 in 1998 to $31.26% in 2012; and the average ATM fee more than doubled between 2001 and 2014.
With neither sufficient funds in the bank nor a steady income, low-balance account holders are likely to suffer the domino effect of a bounced check, which includes bank penalties, overdraft fees, and bounced check fees (Barr, 2004; 2007). In fact, longitudinal research examining changes in bank status indicate that families typically become unbanked when there is a decline in family income, loss of employment, or loss of health insurance coverage (Rhine & Greene, 2013). It is estimated that since 2004, roughly half of unbanked families had previously held traditional bank accounts (Rhine & Greene, 2013).

**Individual Credit History.** It is well established that having bad credit history or no credit history at all can be a barrier that prevents individuals from using a bank account. For example, individuals who have bounced a check or failed to pay a fee may not be eligible to open subsequent accounts because they are evaluated as being “unbankable” by ChexSystems, a consumer reporting agency that collects and disseminates information about individuals’ banking histories to banks for screening new customers (Sprague, 2015). The misuse of a checking or savings account or payment problems are reported to prevent people from using formal financial institutions and opening a bank account (Berry, 2005). Examining the national dataset, Campbell, Mertinez-Jerez, and Tufano (2008) found that during 2001 to 2005, approximately 30 million debit accounts were involuntarily closed for past errors such as overdraft or a bounced check. This widespread exclusion prevented a vast number of individuals from entering formal banking systems for periods of up to seven years (Servon, 2017).

**Financial Knowledge.** Although the research is limited, studies indicate that financial knowledge plays a role in how individuals access financial services and products, including use of bank accounts. Lack of knowledge about how to manage accounts or loan requirements can deter individuals from using formal banking services. Current studies demonstrating links
between deficiencies in financial knowledge and nonuse of formal bank accounts primarily have focused on immigrant populations and welfare recipients. For example, Zhan, Anderson, and Steve (2009) examined the impact of a financial management training program among 61 immigrant participants, and found that difficulties in understanding bank use were common. Specifically, the study showed that before training, only 37.2% of the sample provided correct answers to 10 questions about banking practices and procedures, and 32.1% gave correct answers to 5 fringe financial agency practices questions (Zhan et al., 2009). Further, the study found that upon completing training, immigrant participants reported increased understanding of bank use, a much greater inclination to use mainstream financial institutions and less of an inclination to use fringe financial agents, suggesting that financial knowledge plays an important role in banking behaviors (Zhan et al., 2009).

Distrust and misinformation can also deter individuals from using traditional banking services. Research has long indicated that discomfort with traditional banking institutions is prevalent among low-income families and immigrants (Seidman, Hababou, & Kramer, 2005; Zhan et al., 2009). The distrust, sometimes due to misinformation, often is intergenerational. For example, Padua and Doran (2016) interviewed 34 community experts about financial practices in the low-income communities of East Los Angeles, and reported that misinformation about how the financial system operates can be transmitted over generations and amplified through social networks, leading to the persistence of unbanked status within families and low-income communities. In addition, studies examining immigrants’ financial behaviors found that immigrants from countries where the banking system is not trustworthy were likely to mistrust banks in the US (e.g., O'Brien, 2012; Osilis & Paulson, 2008).
Summary. For many LMI individuals, access to mainstream financial institutions is tenuous, and reasons for not having a bank account vary from insufficient cash flow and problematic credit histories to lack of financial knowledge, and distrust in mainstream financial institutions (Hogarth et al. 2004; Servon & Kaestner, 2008). Barriers such as high minimum balances, various fees, and poor credit history suggest that formal bank accounts do not meet the needs of LMI households (Barr, 2004; 2008). Not having a bank account, however, can negatively affect families’ financial health and security, and the implications are particularly detrimental to LMI families and other disadvantaged groups. The following section reviews the extant research that has examined how being unbanked or underbanked affects the well-being of individuals, families and communities.

Studies on the Consequences of Being Unbanked

Without a bank account, individuals and families lack the basic mechanisms provided by formal financial systems for the receipt of income, the store of its value, and the payment of bills (Birkenmaier, 2012). An unbanked household often relies on nonbank providers for check cashing and other financial services; and is therefore likely to have more cash on hand, which exposes the households to possible loss or theft (Sherraden, Frey, & Birkenmaier, 2016). Empirical evidence is limited regarding how being unbanked affects individuals’ financial activities and outcomes, although a strand of research has identified a relationship between being banked and individual financial wellbeing. For example, Lim, Livermore, and Davis (2010) examined banking status and material hardship among 384 recipients of the Earned Income Tax Credit (EITC) program, and found that those with a bank account were less likely to experience material hardship (e.g., utility or water disconnection, unmet medical needs, unpaid rent or mortgage). There also are studies showing that those with bank accounts, as compared to those
without bank accounts, are more than twice as likely to have savings and to add to savings on a monthly basis or more (e.g., Stegman & Faris, 2005). Even among those with fewer financial resources, lower-income individuals with bank accounts are 43% more likely than those who are unbanked to have positive net financial assets of any kind; whereas for more than half of the unbanked, the only asset is their car (Federal Reserve Board, 1998). Studies have found that individuals with saving and other accounts are more likely to have other savings accounts, receive a federal tax refund, own a home, and have more insurance coverage (e.g., health, life, renter's insurance) (e.g., Lim, DeJohn, & Murray, 2012; Seidman et al., 2005).

While studies investigating the direct impact of banked status are limited, a large body of research has focused on the financial costs of not using bank accounts. Studies have found that individuals without bank accounts often rely on AFS providers to pay bills, cash checks, and conduct other financial transaction activities (e.g., Servon, 2017). The monetary costs of using AFS can be significant. For example, banks generally cash their customers’ checks free of charge, while the average fee for check cashing from a Check-Cashing Outlet is 2-3% of the value of the check, and some charges may be as high as 20% of the value of the check (Caskey, 1997). In 2012, the unbanked spent a total of $89 billion on financial transactions alone (CFSI, 2012). The high costs of using AFS fall especially hard on the LMI families. The average unbanked family, with an annual income of around $25,000 spends $2,400 per year, almost 10% of its income, on financial transactions alone, a rate that is more than these families spend on food (Office of Inspector General, 2014). Additionally, a report by the Office of the Comptroller of the Currency indicated that unbanked families and many of whom are welfare recipients can easily pay up to $15,000 over a lifetime in fees to check cashers and other AFS providers simply to conduct basic daily financial transactions (Hawke, 2000).
Reliance on AFS not only negatively affects the financial health of LMI families, but it also can undermine widely shared societal goals of reducing poverty, moving families from welfare to work, and reinforcing the value of work through incentives such as the EITC. The public assistance system has become increasingly digitalized; thus, being banked and connected to the mainstream financial system is necessary to efficiently receive assistance (Hogarth & O’Donnel, 1999; Sprague, 2015). For example, through direct deposit, which is one of the new delivery mechanisms, welfare participants can receive benefits at their banks or credit unions without any additional fees. However, many welfare recipients are unbanked. Stegman and Faris (2005) found that almost half (49.8%) of the 610 TANF recipients in Charlotte did not have bank accounts, and therefore, were unable to take advantage of associated cost savings. Many welfare recipients have to pay approximately 3-5% of their government benefits check and payroll check just to receive benefits (Beard, 2010). Stegman and Farris (2005) suggest that families who leave TANF without bank accounts and significant debt burdens tend to recycle back onto welfare when they experience even modest reversals. While the impact of bank accounts on welfare programs is not clear, evidence seems to suggest that access to bank accounts and other affordable financial services can have a positive impact on initiatives to move families from welfare to work and enhance the effectiveness of federal income transfer programs.

**Summary.** A review of recent literature indicates that unbanked and underbanked populations are disproportionately lower-income, and less-educated individuals, people of color, singles, renters, welfare recipients, and immigrants. The reasons that many individuals and households remain unbanked are complex and include both institutional barriers (e.g., costs of bank account maintenance, credit history) and individual factors (e.g., distrust and misinformation about banking). Nevertheless, evidence regarding the relationship between being
banked and financial well-being remains limited and inconclusive. Research is still in a preliminary stage, and nearly all studies are correlative. Studies have linked the use of a bank account to only a few indicators of financial well-being such as material hardship, savings, and asset building; yet more research is needed to gain a better understanding of banking status and its relationship to individuals’ present and future financial well-being. Additionally, the finding that half of unbanked individuals previously held bank accounts suggests that the banked-unbanked dichotomy has limitations when examining individuals’ financial decision making and behaviors (Barr, 2008; Rhine & Greene, 2013; Seidman et al., 2005). National surveys have shown that large portions of the population use bank accounts and AFS concurrently (i.e., underbanked, Burhouse et al. 2014; FDIC, 2012). Therefore, it is important to rectify the current banked-unbanked approach in order to develop a more complete understanding of individuals’ banking practices. Moreover, only a few studies have focused on how banking status changes over time; the majority of studies treated banking status as static. However, being unbanked is not a fixed state, and studies that categorize individuals as being either banked or unbanked do not fully capture the complex and dynamic process of banking practices.

A Review of Studies on Alternative Financial Services

AFS are controversial. While consumer advocates argue that AFS prey on those who are financially vulnerable (Barr, 2002; Caskey, 1994; 2006; 2010); the AFS industry contends that high transaction costs are legitimate because of the short-term nature of the products and high-risk profile of the typical client (Elliehausen, 2009; 2011). The AFS industry demonstrated tremendous growth in the past decade, and debates have centered on the predatory nature of the industry and the pernicious effects of high transaction fees and interest rates (Faber, 2016). Yet, empirical knowledge on AFS users and how AFS use affects the well-being of individuals and
families remains limited, with the current literature dominated by legal (e.g., Austin, 2011) and economic analyses of the industry (e.g., Morse, 2011). Although the extant research focuses primarily on the economics of institutions, the proposed study examines characteristics of AFS users. The following paragraphs summarize existing knowledge about AFS users, correlates of AFS use, and the implications of AFS use on household financial well-being.

**Sociodemographic Characteristics of AFS Users**

Research suggests that a host of demographic and socioeconomic factors (e.g., age, race, and household income) are strongly associated with AFS use. Studies show that AFS use is prevalent among young adults (Burhouse et al., 2014; Lusardi & Scheresberg, 2013), racial minorities (Gross et al., 2012; Rhine & Greene, 2006), individuals with lower levels of education and income (Lim et al., 2014; Lusardi & Scheresberg, 2013), and families with dependent children (e.g., Lusardi & Scheresberg, 2013; The Pew Charitable Trust, 2012). For example, Elliehausen (2011) reviewed several data sources (e.g., Survey of Consumers) regarding characteristics of AFS users and found those who were 35 and younger demonstrated a greater likelihood of using AFS products such as payday loans, rent-to-own (RTO) products, and refund anticipation loans. Race is also an important predictor of AFS use. Lacko, McKernan, and Hastak (2000) examined a national random sample of 532 RTO customers, and found African Americans are more likely to use payday loans and RTO products than other racial and ethnic groups, and the race effect remains, even after controlling for income and educational differences. In addition, individuals with low levels of education (e.g., less than college) showed a significantly higher frequency of AFS use. Use of RTO transactions, for example, was also high among those with no more than a high school education (e.g., Lacko et al., 2000; Stegaman & Faris, 2001; 2003).
Income is another important predictor of AFS use, with studies showing that AFS users are disproportionately represented by LMI segments of the population. For example, individuals taking out payday loans were likely to have annual household incomes between $25,000 and $50,000, whereas those who used tax refund anticipation loans were likely to earn between $15,000 to $40,000 (Elliehausen, 2005; Elliehausen & Lawrence, 2001; Weller & Logan, 2009). Contrary to popular belief, the very poor are not as likely as LMI households to use AFS because lower-income families often don’t have a bank account, which disqualifies them from obtaining AFS products (Burhouse et al., 2014).

**Financial Circumstance**

In addition to income, other indicators of financial conditions (e.g. home ownership, credit availability, and incidence of financial shocks) are associated with AFS use. For example, renters are two to three times more likely to use AFS (Northwood & Rhine, 2017; Shobe, Christy, Givens, & Murphy-Erby, 2013). Home ownership is considered an indicator of a person’s connection to traditional banks (through a home loan mortgage), because home owners are allowed access to mainstream banking options (Shobe et al., 2013). Previous research suggests that restrained credit is predictive of AFS use: Those with low credit limits are four times more likely to use AFS. In addition, families experiencing financial shocks and economic strains indicate a propensity toward AFS use (Gross, Hogarth, Manohar, & Gallegos, 2012; Lim et al., 2014; Lusardi & Scheresberg, 2013; Shobe et al., 2013). Research suggests that AFS services provide an easier way to obtain money when household financial circumstances prevent individuals from meeting their financial needs otherwise.
Bank Accounts and AFS Use

A strand of research has focused on AFS use and its relationship to bank account status, with studies commonly reporting that AFS users disproportionately represent those without traditional bank accounts (Barr, 2002; Birkenmaier & Fu, 2016; Goodstein & Rhine, 2013; Shobe et al., 2013; Stegman, 2007), as well as demonstrating a strong association between being unbanked and AFS use. The latter relationships primarily emerged among samples of immigrants, racial minorities, and low-income families (Northwood & Rhine, 2017). It is worth noting that about one fifth of the U.S. population use both AFS and bank accounts to conduct their financial activities (Burhouse et al., 2016), suggesting that bank account ownership and use of AFS are not necessary mutually exclusive.

Financial Knowledge Deficiencies

Although a burgeoning literature has focused on the relationship between financial knowledge and various financial behaviors, a small portion has explored the effects of financial knowledge on the use of AFS and related behaviors. Findings from previous research show that the average American family is not well-equipped to make financial decisions, and that uses of AFS represent a group with the lowest levels of basic financial knowledge (Lusardi & Mitchell 2011). Most payday borrowers, for example, cannot accurately recall the annual percentage rate of charge (APR), despite being able to report finance charges (Elliehausen, 2009; Elliehausen & Lawrence, 2001), and there is a strong relationship between low levels of financial knowledge and high-cost borrowing behaviors (e.g., Allgood & Walstad, 2013; de Bassa Scheresberg, 2013; Lusardi & Scheresberg, 2013; Robb, Babiarz, Woodyard, & Seay, 2015).

It is worth noting that the majority of studies examining the association between financial
knowledge and AFS use are correlative, relying on cross-sectional data and weak research designs (i.e., pre-experimental design, Rubin & Babbie, 2010). One exception is Bertrand and Morse’s (2011) field experiment, which tested whether the disclosure of information affected individuals’ decisions to apply for a payday loan. The researchers provided information about payday loans to 1,441 new borrowers in 11 states and collected follow-up data 4 months later to see if borrowers changed their decisions to obtain payday loans. The study showed only a modest impact. A high percentage of borrowers were not influenced by the disclosure of information (Bertrand & Morse, 2011). Although the study has several methodological limitations, it is a relatively rigorous study and indicates that financial knowledge may not be the most important factor when it comes to the decision to use AFS.

**Geographic Proximity and AFS Use**

One popular theory explaining why people use AFS is the spatial void hypothesis, which assumes that AFS providers tend to be located in areas where traditional banking services are absent or underprovided (Friedline & Kepple, 2017). This argument is supported by studies using Geographic Information Systems (GIS) to compare geographic proximity to bank branches and AFS, with an emphasis on neighborhoods. This latter research shows that AFS providers are concentrated in LMI communities where traditional bank providers are scarce (e.g., Cover, Spring, & Kleit, 2011; Smith, Smith, & Wackes, 2008). National studies using census tract or county-level data have shown that a disproportionate number of AFS providers are located in communities with high proportions of minorities and those with lower creditworthiness and levels of education (Cover et al., 2011; King, Li, Davis, & Ernst, 2005; Northwood & Rhine, 2017; Prager, 2014).

Studies supporting the spatial void hypothesis are often critiqued for their weak research
designs, omission of key socioeconomic community-level factors (e.g., property value, ratio of rental housing), use of less rigorous sampling strategies and small sample sizes (Lehman, 2006). Other studies show little evidence that AFS providers are more prevalent in areas where traditional banks are absent, suggesting that locations of bank branches or ATMs and AFS may have little effect on consumer choices of financial providers (Fellowes & Mabanta, 2008; Goodstein & Rhine, 2013; 2017).

**Summary.** Existing research suggests that populations with certain characteristics tend to use AFS for various reasons including financial circumstances, lack of financial knowledge, and lack of access to traditional financial institutions. The influence of bank and nonbank provider locations on bank account ownership is fairly modest overall, and the effect is not as large as those associated with key household-level attributes, such as income, education, or race (Goodstein & Rhine, 2013). Debates continue regarding whom the AFS industry mainly serves (see e.g., Caskey, 2010), and thus far, few studies used nationally representative data to investigate the socioeconomic conditions that predict AFS use. Research on identifying determinants of AFS use and the factors (e.g., financial knowledge) that affect household decisions to use AFS, bank accounts, or both is limited.

**A Review of Studies on the Consequences of AFS Use**

The published literature focusing on the consequences of AFS use has thus far been very limited, and findings are quite mixed. There are about a dozen empirical studies that have sought to examine the effects of AFS use on individuals’ financial well-being, and most focus on payday loans. Studies have linked AFS use to an individual’s amount of debt (Morgan, 2007; Skiba & Tobacman, 2011), likelihood of filing for bankruptcy and home foreclosure (Mayer, 2004; Morse, 2011; Morgan & Strain, 2007; Skiba & Tobacman, 2011), credit records (Bhutta,
2014), job retention, mental health status (Karlan & Zinman, 2010), and material hardship (e.g., food consumption, late bill payment) (Melzer, 2011; Morgan, 2007; Zinman, 2010). Several studies have investigated the relationship between AFS use and indicators of neighborhood well-being (e.g., property crime, Morse, 2011).

Findings from the corpus of studies on payday loans have been mixed. Some have found negative effects, such as elevated rates of bankruptcy (Skiba & Tobacman, 2011), declines in job performance (Carrell & Zinman, 2014), increased difficulty paying bills (Melzer, 2011), and increased likelihood of losing one’s bank account (Campbell, Martínez-Jerez, & Tufano, 2012). In contrast, other studies have indicated that use of payday loans can have positive outcomes, such as job retention and financial well-being (Zinman, 2010), helping consumers recover from expenditure shocks (Morse, 2011), and reducing consumer complaints against lenders by helping people manage cash flow and debt problems (Morgan & Strain, 2007). Two of these latter studies (i.e., Morgan & Strain, 2007; Zinman, 2010) further indicated that restricting access to payday loans leads people to turn to more costly financial behaviors (e.g., overdrafting bank accounts and paying bills late). Several studies showed little or no effect of access to payday loans on individuals’ credit scores and other credit record outcomes (Bhutta, 2014; Bhutta, Skiba, & Tobacman, 2015).

Limitations of Existing Studies

Research Design. The vast majority of existing studies on AFS have utilized uncontrolled designs that make causal inference impossible. A handful of studies used relatively rigorous designs, including a laboratory experiment (e.g., Wilson, Findlay, Meehan, Wellford, & Schurter, 2010), a quasi-experiment (e.g., Zinman, 2010), and a natural experiment (e.g., Morse, 2011). However, the generalization of findings from these latter studies is limited because of
certain research design elements. For example, Wilson et al. (2010) investigated whether 318 college students could manage a hypothetical household budget in a lab setting, and found that while access to payday loans increased the likelihood of making ends meet, a greater numbers of payday loans had the opposite effect (i.e., reducing the likelihood of making ends meet). However, it is unclear to what extent findings from Wilson et al. (2010) can be generalized to other settings and populations, given that the hypothetical budget simulation does not reflect the circumstances of actual payday loan borrowers and the sample does not reflect their characteristics.

**Measurement Issues.** Another common drawback of existing studies is reliance on unreliable measures of AFS use. For example, numerous studies used proxy measures of access (e.g., the number of payday loan lenders in a zipcode area) to examine the impact of AFS use on various outcomes (e.g., Bhutta et al., 2015; Melzer, 2011; Morgan & Strain, 2007; Skiba & Tobacman, 2011; Wilson et al., 2010), and concluded that AFS use was associated with individual-level outcomes (e.g., Bhutta et al., 2015; Melzer, 2011; Wilson et al., 2010). However, such conclusions are misleading and inaccurate because access does not equate to actual use. Among studies employing measures that assessed actual AFS use, the vast majority exclusively focused on payday loans (Mayer, 2004) and disregarded other AFS products.

**Representativeness of Samples.** Previous studies examining AFS use often have employed samples that are not representative of AFS users, therefore their findings have limited generalizability. For example, Skiba and Tobacman (2011) used secondary data collected from a large set of payday loan applications and found that payday loans increased the likelihood of bankruptcy. However, the authors emphasized that the estimated effect was relevant only to individuals whose application were nearly rejected, and that the findings could not be
generalized to a larger population of payday loan users. In a similar vein, Morse (2011) found that access to payday loans mitigated the effects of natural disasters on foreclosures; however, the results are generalizable only to one-time payday loan users, and not to those who repeatedly use payday loans. Carrell and Zinman (2014) found evidence that use of payday loans was associated with mental or financial stress, but their analysis was restricted to a sample of military personnel, therefore limiting the generalizability of the findings to a broader population.

**Summary and Conclusions.** The extant research examining the impact of AFS use on financial well-being is rather limited and far from conclusive. While some studies suggest that AFS use is associated with negative household economic and individual mental health outcomes, others have demonstrated that AFS use has had either positive or few effects on households’ financial well-being. While the body of research provided a preliminary understanding of the impact of AFS use on certain outcomes, the findings must be interpreted with caution because of weak research designs and the use of unreliable measures and samples with questionable representativeness. The research on financial services and inclusion is inconclusive at best, and additional research is needed with specific regard to correlates of AFS use and how AFS use affects families’ current and long-term economic outcomes.

The paucity of well conducted research is partly due to the unavailability of data. To date, only a few national datasets have included measures of financial services, and the majority of these national-level data sets do not collect information from American LMI households. Existing national data sources that focus on financial services (e.g., Survey of Consumer Finances) are geared toward the financial services used by middle and upper-income households and wealthy households are oversampled (Barr, 2008). Conversely, surveys that include large
numbers of low-income households (e.g., Survey of Income and Program Participation) do not focus on the use of specific financial services.

Another noticeable knowledge gap in this field is that the outcomes of AFS use have been examined using only a handful of financial well-being measures. In fact, no research to date has used a comprehensive framework of financial well-being to investigate outcomes of AFS use in a systematic manner. Intellectual interest in financial well-being as an outcome stems from continuing debates about whether AFS providers serve the best financial interests of their users, including LMI households. The following section summarizes existing frameworks for understanding financial well-being and approaches to measuring it.

**A Literature Review on Financial Well-being**

Zimmerman (1995) defined well-being as a state of being healthy, happy, and free from worry. Following suit, several researchers have defined financial well-being as a state of being financially healthy, happy and free from worry over finance (Joo, 2008; Praag, Frijters, & Ferrer-Carbonell, 2000). Studies have used the term, financial well-being, interchangeably with others terms such as economic well-being, financial wellness, and financial health (Joo, 2008; Xiao, 2015). There are three main approaches that previous studies have adopted to define financial well-being: objective, subjective, and mixed perspectives. Using an objective, concrete perspective, Breen (1991) viewed financial well-being as having sufficient income and assets, quality health and personal care, the right mix of products and services, and legal readiness and professional guidance. Financial well-being has also been described from a subjective, nonmaterial perspective (e.g., Hayhoe & Wilhelm, 1998; Kim, Garman, & Sorhaindo, 2003). Porter (1990), for example, defined financial well-being as one’s attitude towards his or her financial status. Similarly, Hayhoe and Wilhelm (1998) and Falahati and Paim (2011) defined
financial well-being as satisfaction with one’s financial status. The third approach blends a mix of objective and subjective perspectives of personal finance (Shim et al., 2009). In sum, there is great variability in how financial well-being is defined in the extant research; however, researchers have recently concurred that financial well-being is a complex and abstract concept that contains numerous dimensions (Delafrooz & Paim, 2011; Gerrans, Speelman, & Campitelli, 2014).

**Operationalizing Financial Well-being: Objective Measures**

For researchers who view financial well-being through a concrete lens, objective measures have been used to assess the financial well-being of individuals and households. Typical objective measures of financial well-being include income, expenditures, debt, and assets (Xiao, 2015), or financial ratios developed by financial planners and family economists to assess household financial well-being. According to DeVaney (1993), several financial ratios are relevant to family financial well-being, including solvency ratio, asset/net worth ratio, and annual debt payments/disposable income ratio. Greninger et al. (1996) also offered financial ratio and benchmark recommendations for each of the seven family finance areas (i.e., liquidity, savings, asset allocation, inflation protection, tax burden, housing expenses, insolvency/credit). Researchers maintain that financial ratios can provide information about financial status, and also serve as a prescriptive guideline for promoting efficient financial behaviors. However, the extant research testing the value of these financial ratios is limited. There is little evidence to suggest, for example, that a capital accumulation ratio (i.e., the ratio of investment assets to net worth) of 0.7 is better than one of 0.3 (Harness, Finke, & Chatterjee, 2008). In addition, relying on financial ratios for gauging financial well-being increases the risk of making inaccurate estimates (Xiao, 2015). This is because two individuals with the same income are likely to have
different perceptions about their financial conditions, in part because their needs, consumption values, and spending habits may differ (Harness et al., 2008). Factors such as life cycles, family structures, and financial environment are closely tied to family well-being, but are often overlooked in objective measures. Previous studies primarily have focused on determining whether households meet certain thresholds; however, few have investigated whether the established thresholds are valid or how they can be used most effectively (Harness et al., 2008).

**Operationalizing Financial Well-being: Subjective Measures**

Recognizing the limitations of objective measures, researchers have increasingly used subjective measures to assess financial well-being. Such measures typically focus on perceptions, attitudes, and feelings about financial conditions (Joo, 2008; Xiao, 2008), and have gained increasing popularity in recent years because subjective measures provide invaluable insight into individuals’ experiences of financial conditions in the context of the external environment, a crucial factor not captured by objective measures alone (Delafrooz & Paim, 2011). Existing subjective measures of financial well-being vary considerably in the literature, and have assessed constructs such as perceived financial ability, levels of stress and satisfaction regarding one's financial condition, and attitudes towards debt and savings (Kim et al., 2003). Researchers have developed psychometric scales to measure subjective financial well-being. For example, the InCharge Financial Distress/Financial Well-being (IFDFW) is an 8-question, self-report subjective measure of financial well-being that was developed and tested by Prawitz et al. (2006). The IFDFW was later used to assess financial well-being among various populations including college students (e.g., Copur, Gutter, Eisen, & Way, 2008; Gutter & Copur, 2011) and employees (e.g., Gerran et al., 2014; Prawitz & Cohart, 2014).
Several studies have incorporated both objective and subjective measures to assess financial well-being. For example, Shim et al. (2009) tested a conceptual model of the potential antecedents and consequences of financial well-being with a sample of college students (N=781) at one state university. The researchers used a composite financial well-being measures that included an objective debt measure, a subjective debt index assessing perceived debt level, and a subjective five-point Likert-type financial satisfaction scale. Similar composite measurement approaches were used by Serio, Shim, Mishra and Tang (20100), and Sabri (2011).

Summary. A review of previous studies on financial well-being indicates that there is little consensus regarding how best to define and measure the construct. Objective measures provide concrete evidence of a person’s financial condition, whereas subjective measures offer a richer assessment of perceived financial well-being. Increasingly, researchers tend to understand financial well-being as a mixture of objective financial gains and losses and subjective experiences (i.e., perceptions, attitudes and satisfaction) regarding financial conditions.

Despite many decades of research examining financial well-being, the consumer perspective is not assessed in current conceptual and measurement approaches. Indeed, the development of existing financial well-being measures has heavily relied on expert knowledge and opinions. For example, financial ratios and benchmarks that initially were established by Greninger and colleagues (1996), and later widely used by many other researchers (e.g., Joo, 2008) are based on interviews with 156 financial planners and educators. This top-down approach to developing financial well-being measures is common in the field of personal finance and dominates the U.S. discourse on financial well-being (e.g., Baek & DeVaney, 2004; Yao, Hanna, & Montalto, 2003). The inclusion of consumers’ viewpoints is of great value with regards to contextualizing and interpreting objective measures, refining existing measures, and
developing new measures that are relevant to a broad range of circumstances. However, consumer perspectives are conspicuously absent in academic and policy circles.

Recognizing the paucity of consumers’ viewpoints in the literature, the Consumer Financial Protection Bureau (CFPB), a federal agency created in 2010 to supervise banks and protect consumers, conducted a research project to explore the meaning of financial well-being to consumers and to identify factors related to financial well-being, based on consumers’ own experiences and the experiences of those around them. Analyzing data collected through in-depth, one-on-one interviews with 59 consumers and 30 financial professionals, the CFPB (2015) proposed a definition of financial well-being that is grounded in expert opinions, the existing literature, and most importantly, the experiences and voices of consumers. According to the CFPB (2015), financial well-being is a state of being wherein a person can not only meet current and ongoing financial obligations, but also feels secure in his or her financial future and is able to make choices that allow enjoyment of life. The definition was further elaborated: Individuals: a. have control over day-to-day, month-to-month finances, b. have the capacity to absorb a financial shock, c. are on track to meet financial goals and, d. have the financial freedom to make the choices that allow them to enjoy life (CFPB, 2015).

As compared to other definitions, the CFPB (2015) definition is unique in its content and focus. First, it includes a strong time-frame dimension: The first and fourth elements pertain mainly to one’s present situation; and the second and third elements pertain to the future. Second, the definition is comprehensive and relevant to a wide range of circumstances. Financial security is a major theme in the definition, which is relevant to all consumers, regardless of their characteristics and circumstances. Financial freedom is another important element, which acknowledges heterogeneity in individual preferences. Third, unlike many current
conceptualizations, the CFPB (2015) definition is broad, yet concrete. Finally, the four elements provide a conceptual framework for developing theoretically-grounded measures that align with consumer perspectives. Because of these merits and the consumer-driven perspective, the current research adopts the CFPB (2015) definition of financial well-being and uses its framework to guide the selection of appropriate measures.

Summary of Reviewed Literature

Although financial inclusion has been researched for decades worldwide as a policy tool for alleviating poverty and promoting self-sufficiency, it has received increasing attention in the US, given the tremendous growth of the AFS industry in the last decade. Research has suggested that access to basic banking services and products offered by mainstream financial institutions encourages full participation in the financial system and provides individuals with opportunities to build assets and wealth, leading to greater financial stability and well-being (Allen et al., 2012; Beck & De La Torre, 2007). However, recent national surveys indicate that the number of unbanked and underbanked individuals is increasing at unprecedented rates (Office of Inspector General USPS, 2014). Banking status is influenced by a variety of demographic, socio-economic, and household factors, including age, race, educational attainment, income level and volatility, family size, and home ownership (Elliehausen, 2009; Goodstein & Rhine, 2013; Lacko, Singe-Mary, & Manoj, 2000; Shobe et al., 2013). Those without a bank account tend to be heavy users of AFS products (Birkenmaier & Fu, 2016; Goodstein & Rhine, 2013; Northwood & Rhine, 2017). Despite the high costs of AFS products, an increasing number of LMI households use AFS providers for basic banking services. Research suggests that certain factors (e.g., low levels of financial knowledge, distrust and misinformation about mainstream financial institutions, absence of traditional banks) contribute to the pervasive use of AFS in LMI
households and neighborhoods (Friedline & Freeman, 2016; King et al., 2005; Lusardi & Scheresberg, 2013; Robb et al., 2015; Smith et al., 2008).

Empirical research on the consequences of banking status remains limited and inconclusive. Studies examining the direct impact of AFS use have only emerged since the late 1990s (e.g., Casey, 1994; Mayer, 2004). Furthermore, findings from existing studies are mixed, with some showing negative outcomes of payday loans (i.e., bankruptcy, indebtedness, and other family economic hardship, Melzer, 2011; Skiba & Tobacman, 2011; Wilson et al., 2010); and others suggesting that use of payday loans has a positive impact (e.g., reduced rates of foreclosure, decreased debt payment delinquency incidence, Karlan & Zinman, 2010; Morgan & Strain, 2007; Morse, 2011). Some studies also show little or no impact of AFS use in general (Bhutta, 2014; Bhutta et al., 2015; Zinman, 2010). In addition, the reviewed literature includes studies with numerous methodological weaknesses. Sample sizes are small, control groups are lacking, and longitudinal studies are rare. The majority of studies is correlational. To date, only a few financial well-being outcome indicators have been considered, and measurement validity is often a concern. Overall, empirical research on AFS use has only recently emerged in the published literature, and evidence of the effects of payday loan use is limited and inclusive.

Implications of the Literature Review

The review of the literature indicates several methodological limitations and substantial knowledge gaps in the field of financial inclusion, and about banking practices, in particular. The following paragraphs discuss the major limitations of the existing research, with specific regard to the use of dichotomous measurement approaches, the lack of descriptive research, and issues around research design.
Financial Inclusion Measures and Banked-Unbanked Dichotomy

Financial inclusion has not been measured consistently in the extant literature. Although financial inclusion is considered a multi-dimensional concept, the majority of existing studies include measures examining only one or two dimensions (i.e., use and access); and to date, few studies have examined financial inclusion in a comprehensive manner. There are other aspects of financial inclusion that have rarely been measured, such as affordability and financial attractiveness. Moreover, use of and access to financial services often are treated as the same construct, and measures often are not distinguished, with studies using measures of access to describe actual use of financial services. Inconsistencies in how financial inclusion is measured create challenges when attempting to compare outcomes, while the measures used in most studies do not fully capture the multiple dimensions of financial inclusion.

Current debate about financial inclusion includes much discourse about the banked-unbanked dichotomy (Servon, 2017). The practice of categorizing individuals as either banked or unbanked has many limitations. For one, the banked-unbanked dichotomy excludes those who concurrently use bank accounts and AFS products (i.e., the underbanked), despite the fact they comprise a relative large population, as compared to the unbanked population. Studies that fail to consider the status of being underbanked are unlikely to capture an accurate picture of household banking practices. Furthermore, by using the banked-unbanked dichotomy, studies often treat banking status as a static variable, although many individuals move in and out of the formal banking system, suggesting that being unbanked may not be a fixed state. To date, few studies have focused on how banking status changes over time for individuals. In sum, the bank-unbanked dichotomy not only fails to capture an accurate depiction of the full range of banking
practices, it also masks the complexity of banking status and factors influencing consumers’
decision-making processes.

**Incomplete Understanding of AFS users**

Legislators have debated how to best regulate AFS transactions, yet most of the important
empirical questions about different lending practices remain unanswered, especially those
surrounding the characteristics and behaviors of people who use different types of AFS products.
Empirical knowledge also is limited regarding determinants of AFS use and associations
between use of bank accounts and AFS use. The bulk of existing studies have focused on users
of payday loans, with only a handful examining rent-to-own and tax refund anticipation loan
products (e.g., Elliehausen, 2005; Stegman & Faris, 2003; 2005) and AFS products as a whole
(e.g., Robb et al., 2015; Prager, 2014). Few studies to date have provided a detailed account of
characteristics of AFS users other than payday loan users, and no study has examined how users
of each type of AFS product differ on key characteristics.

A strand of research has examined demographic and socioeconomic characteristics of
payday loan users, yet investigations fail to reach a consensus regarding the population primarily
served by payday lenders. Some studies have indicated that payday loans are mainly used in
middle-class households (e.g., Elliehasuen, 2009), while others have found that low-income
families constitute a fairly large portion of payday loan users (e.g., Shobe et al., 2013). Payday
loan use, and repeated use of payday loans, in particular, can have a detrimental impact on the
financial well-being of families; thus, from a policy perspective, it is important to understand
who uses payday loans and why, and what risks people face when using them. The extant
literature, however, has not yet provided definitive answers to these questions.
Furthermore, research examining the relationship between use of bank accounts and AFS are limited and the findings are mixed. A few national surveys suggest that having fewer bank accounts is associated with the increased use of AFS; however, a thorough understanding of the relationship between use of bank accounts and AFS use is still lacking. Most studies examining AFS use have focused on household demographic profiles, but have not included having a bank account as a potential correlate of household financial well-being. Although a few studies have examined the associations between bank account ownership and AFS use (e.g., Goodstein & Rhine, 2017; Northwood & Rhine, 2017), the findings are mixed and the relationship between bank accounts and AFS use remains unclear.

**Gaps in Knowledge Regarding Consequences of AFS Use**

Although the AFS industry has grown exponentially in the last two decades, research on the consequences of AFS use has emerged in the published literature only in the past few years. To date, studies examining the consequences of using AFS products are few in number, and almost all focused exclusively on use of payday loans. The features of existing studies vary in terms of research design, sample characteristics, and selected outcomes. First, most studies have employed weak research designs (e.g., pre-experimental designs, Melzer, 2011; Morgan, 2007; West & Friedline, 2016). Two studies used quasi-experimental designs (i.e., Morgan & Strain, 2007; Zinman, 2010) and one employed a field experiment design (i.e., Karlan & Zinman, 2010). Numerous threats to internal validity (e.g., selection biases, history, maturation, testing, Shadish et al., 2002) render the findings from these uncontrolled studies as correlational, at best. What is still unknown is whether a causal relationship exists between use of payday loans and financial well-being.
Sampling issues are also prevalent. Most studies have recruited participants on the basis of availability, with some selecting participants from a population of individuals who filed bankruptcy (e.g., Lim et al., 2015; Mayer, 2004) and others drawing participants from a client pool of a particular payday lender (e.g., Bhutta et al., 2015; Skiba & Tobacoman, 2011). It is unclear whether and to what extent findings from these latter studies can be generalized to a larger population of AFS users. More importantly, self-selected participants may differ from other payday loan users on potentially relevant variables that are correlated with observed financial outcomes. However, existing studies rarely discuss these sampling issues.

Lastly, research examining associations between AFS use and family financial well-being is rather scarce. To date, only a few financial well-being indicators have been linked to use of payday loans (e.g., home foreclosure, bankruptcy, job retention, bill payment, credit score), and there has been no systematic selection of financial outcomes. No research to date has used a theory-based framework of financial well-being to guide selection of financial outcomes when investigating the impact of AFS use. Consequently, there is a considerable knowledge gap regarding how AFS use affects financial well-being, including the strength and magnitude of the association between AFS use and individuals’ current and long-term financial well-being.

The Current Study

The purpose of the present study is to develop knowledge about the banking practices of U.S. families by examining the determinants and impact of banking status on household financial well-being. New knowledge sheds light on policy-practice recommendations for enhancing the financial capacities of LMI families. Specifically, using a nationally representative dataset, the National Financial Capability Study, the current study identifies demographic, socioeconomic, and financial factors that predict individuals’ banking status and describes the
financial arrangements and difficulties experienced in American households. In addition, this study attempts to explain how the use of bank accounts and AFS use impact household financial well-being in terms of current and long-term financial security. The present study is framed by the following research questions:

1. What is the prevalence of banked, unbanked, and underbanked statuses among the U.S. general population?
2. What are the individual and household characteristics associated with being banked?
   - What are the individual and household characteristics associated with having a checking account?
   - What are the individual and household characteristics associated with having a saving account?
   - What are the individual and household characteristics associated with having at least one bank account?
   - What are the individual and household characteristics associated with having both checking and saving accounts?
3. What are the individual and household characteristics of AFS users?
   - What are the individual and household characteristics associated with using auto title loan products?
   - What are the individual and household characteristics associated with using payday loan products?
   - What are the individual and household characteristics associated with using pawnshop services?
• What are the individual and household characteristics associated with using rent-to-own products?

4. What are the individual and household characteristics associated with being underbanked?

5. What is the effect of use of payday loan products on household financial well-being?
   • What is the effect of use of payday loan products on present financial security (e.g., making ends meet, bill payment)?
   • What is the effect of use of payday loan products on future financial security (e.g., emergency funds, rainy-day funds)?

**Contribution to the Knowledge Base**

The current research extends the knowledge base in several ways. First, by including the underbanked (i.e., those who concurrently use formal bank accounts and AFS), this study investigates and expands the focus beyond the banked-unbanked dichotomy, which characterizes the bulk of current research. This is a substantively meaningful contribution, given that a sizable proportion of individuals use both bank accounts and AFS products (Burhouse et al., 2016). An examination of characteristics of the three banking groups will provide a more accurate, comprehensive picture of household banking practices in the United State.

Second, the present study makes a unique contribution to understanding heterogeneity among AFS users by examining the characteristics of those who use four types of AFS products. Most studies have exclusively focused on payday loans. This study seeks to provide a detailed description of the characteristics of users of all four AFS products (i.e., auto title loans, pawn shop use, and rent-to-own products). This latter effort will extend current knowledge and allows for comparisons among users of all four AFS products. Given that few studies have
simultaneously examined characteristics of users of different AFS products, the current study lays new ground for future research.

Third, guided by a consumer-driven conceptual framework of financial well-being, the present study employs measures of financial well-being that are comprehensive and meaningful. Selected measures are consistent with consumer perspectives, thereby allowing for a more meaningful and holistic assessment of financial well-being and its relationship to AFS use. Outcome measures used in prior research examining the impact of AFS use have been limited in scope (e.g., foreclosure, amount of debt, bankruptcies, Bhutta et al., 2014; Morse, 2011). The current study addresses some of these measurement limitations by including multiple measures and incorporating a time dimension that separately assesses current and future financial security, thus allowing for a more comprehensive understanding of the consequences of AFS use.

Lastly, the current study uses a nationally representative dataset and employs a rigorous analytic strategy that will result in more reliable and valid estimates. The 2015 National Financial Capability Study is a recently released data set that provides rich and detailed information on financial capability, banking behaviors, and household finance issues. Descriptive analyses provide a more representative picture of banking behaviors and financial well-being. The current study employs a propensity score analysis approach to estimate the average treatment effect of AFS use. Propensity score analysis allows for the identification of more valid comparison groups (Morgan & Winship, 2015), and it will generate relatively unbiased estimates of the impact of payday loan use on financial well-being. Few studies have, to date, used advanced analytical approaches to control for heterogeneity among those who use and who do not use AFS products. The current study addresses this gap by employing various matching strategies that will result in more sound estimates of the effect of AFS use.
Definition of Key Terms

The current research incorporates empirically and theoretically relevant concepts that are associated with financial inclusion and financial well-being. The terms pertaining to the research questions are defined below.

Financial Inclusion

Financial inclusion is defined as access to and use of financial services and products from mainstream financial institutions. One of the most important aspects of financial inclusion is banking status. According to the Federal Deposit Insurance Corporation (2014), banking status can be categorized as *unbanked*, *underbanked*, and *banked*. Being *unbanked* refers to those who do not hold a checking or savings account in a federally insured deposit or share account at a mainstream financial institution. Being *underbanked* refers to those who hold an account at an insured institution, but also obtain AFS products and other financial services outside of the banking system. Being *banked* refers to those who have a checking or savings account at a mainstream financial institution, and who do not use any of the four AFS products. In the current study, the banked includes those who report having a checking or savings account in a federally insured deposit or share account at a mainstream financial institution. The underbanked includes those who report having a checking or savings account at a mainstream financial institution, but also used at least one of the four AFS products (i.e., payday loan, auto title loan, pawnshop, and rent-to-own products). The banked includes those who report using bank accounts, but not using any of the four AFS products.

Financial Well-being

The current study adopts the CFPB (2015) definition of financial well-being, which is “a state of being wherein a person can not only meet current and ongoing financial obligations, but
also feel secure in his or her financial future and is able to make choices that allow enjoyment of life” (p. 5). The proposed investigation examines two aspects of financial well-being, namely, present security and future security. Present Security is defined as the ability to have control over daily finances, and measured with three variables: budgeting, making ends meet, and bill payment. Future Security is defined as the capacity to absorb a financial shock, and is measured with two variables: an emergency fund to cover expenses for three months and a rainy-day fund of $2,000.
Chapter 3. Methodology

This chapter first provides a description of the research methodology, including the research design, mode of observation, survey instrument, sampling, and the content of the 2015 National Financial Capability Survey. It also provides a delineation of definitions of study variables and operationalization of key terms. A description of analytical approaches for answering the research questions concludes the chapter.

Purpose

Utilizing existing data, the current cross-sectional study employed a quasi-experimental research design to accomplish two main purposes. One is to examine the demographic, socioeconomic characteristics, and financial circumstances that best predict being unbanked, underbanked, and banked. The other purpose was to investigate the effect of using AFS products, and payday loans in particular, on household financial well-being. Analyses were conducted using existing data from the 2015 National Financial Capability Study, which was collected by the FINRA Investor Education Foundation (FINRA, 2015).

Research Design

The current secondary data analysis incorporates a posttest-only, nonequivalent control group quasi-experimental design. Specifically, using data from 2015 National Financial Capability Study data set, the study examines the effect of using AFS on household financial well-being. Propensity score matching (PSM), a type of propensity score analysis, is used to identify comparison groups that shares similar characteristics with the groups that used AFS products, as well as shares similar propensities to use AFS products, but did not use AFS products. Using PSM, the current study makes comparisons on a series of financial well-being indicators between two groups: (1) AFS users and (2) non-AFS users who share similar
propensities to use AFS. Propensity score analysis, in general, is an alternative to random assignment when randomization is neither feasible nor ethical, and it is often used with observational data (Morgan & Winship, 2015).

**Mode of Observation**

**An Overview of NFCS Data Set**

The survey data used for the current study is drawn from the 2015 National Financial Capability Study (NFCS), a nationally representative survey of American adults’ financial activities, knowledge, attitude, and behaviors. The NFCS was initially commissioned in 2009 by the FINRA Investor Education Foundation, in collaboration with the U.S. Department of the Treasury and President Bush’s Advisory Council on Financial Literacy, and was conducted by Applied Research & Consulting. The NFCS was continued in 2012 and 2015 with updated measures in the 2009 study, including items about social program participation and school loan debt. The NFCS consists of three separate, but related surveys that are administered online: a national, a state-by-state, and a military questionnaire (FINRA, 2015).

The current study uses data collected from the 2015 state-by-state survey, which is the largest dataset of the three. The NFCS was designed to benchmark key indicators of financial capability and evaluate how these indicators vary with underlying demographic, attitudinal and financial knowledge characteristics. The 2015 NFCS, developed in consultation with the U.S. Department of the Treasury and other federal agencies, updated key measures from the 2009 NFCS and broadened the scope to explore current, relevant household financial issues. For example, the NFCS is one of the few publicly available data sets that include detailed information about owning financial products, such as checking and savings accounts, changes in financial knowledge, and AFS use (FINRA, 2015).
Sample

The sample for the 2015 NFCS state-by-state survey was recruited online by Applied Research and Consulting (FINRA, 2015). The NFCS uses non-probability quota sampling methods to select prospective respondents from three established panels composed of millions of individuals who are recruited to join online and offered incentives in exchange for their participation (FINRA, 2015). The three panels (i.e., Survey Sampling International, EMI Online Research Solutions, and Research Now) use industry-standard techniques to verify the identities of their respective panel members to ensure demographic characteristics are accurate (FINRA, 2015).

The NFCS establishes quotas for each state to approximate distributions on key variables (age, gender, ethnicity, education levels, and income) based on the American Community Survey of the U.S. Bureau of the Census (FINRA, 2015). Three panel providers emailed a total of 894,825 invitations to potential respondents; 71,176 potential respondents reached the survey instrument (i.e., clicked on the link to begin taking the survey); 32,616 were terminated due to quotas or because they did not provide demographic information; and another 10,996 dropped out of the survey before finishing. Thus, the final sample size for the 2015 NCFS consists of 27,564 participants. The response rate represents 3.08% of all survey invitations (894,825). The final sample represents over one third (38.73%) of potential respondents who initiated the survey (71,176, FINRA, 2015).

The final sample comprising the 2015 NFCS state-by-state data set included approximately 500 adult respondents per state (plus the District of Columbia) who completed the survey online between July and October 2015. In addition, to increase utility for researchers working with the data, the 2015 NFCS oversampled four large states (CA, IL, NY, TX), yielding
a total of 1,000 respondents from each (FINRA, 2015). The 2015 NFCS state-by-state data set also include three weighting variables (national figure, census division, and state figure) to produce a reliable representation of the population as a whole for the respective level of analysis (i.e., national, census division, or state); however, no weighting was used to account for non-response bias (FINRA, 2015).

**Survey Instrument**

The survey instrument used in the 2015 NFCS was based on the 2012 questionnaire, which was updated and modified to include input from academics, policymakers, and researchers who used NFCS data in previous years. The 2015 NFCS state-by-state survey was originally designed in 2009 by a multi-disciplinary team including the Office of Financial Education of the U.S. Treasury Department, Applied Research & Consulting LLC, and Annamaria Lusardi of the George Washington University School of Business. The survey was administered online and encompassed a wide range of subjects and question categories.

**Content.** The first 2009 NFCS State-by-State survey included a total 153 questions that comprised five categories, including financial capability (e.g., banked status, retirement saving plan participation, mortgage and credit card debt burden), financial literacy (e.g., ability to do financial calculations such as compound interest, understanding of financial concepts such as inflation), financial behaviors (e.g., credit card payment, mortgage financing choices, saving behaviors, access to professional financial advice), financial attitudes (e.g., self-perception of financial conditions and skills, preference over investment risk), and standard demographic characteristics (FINAR, 2009).

The original NFCS state-by-state survey instrument was piloted in two separate phases in
The first phase involved in-person, one-on-one interviews with 20 individuals in order to identify questions that were unclear or confusing. Then, for the second phase, a total of 100 computer-aided telephone interviews took place with respondents who were selected via random-digit dialing (FINRA, 2015). Based on feedback from these latter interviews, researchers made adjustments in question wording and added explanatory text to the survey. Every three years the NFCS questionnaire is slightly modified; however, the majority of items stay the same and few are either added or deleted (FINRA, 2015). It should be noted that issues around coverage and nonresponse, and measurement error affect results. In addition, the data are self-reported and there are no independent checks to verify responses. Finally, although the questionnaire was administered to adults, the respondents did not necessarily represent the head of household or the primary financial decisionmaker. The following is an overview of the major changes made to the NFCS instrument over the years.

**Major Changes from 2009 to 2012.** The 2012 version of the NFCS State-by-State added 12 new questions and eliminated 40, resulting in a total of 111 items. Questions that were eliminated mainly focused on retirement saving behaviors, financial advice seeking, and insurance; whereas the new questions were concerned with self-assessed financial situations and financial management activities (e.g., making payments, investing, and saving for emergency). In addition, a few military-related questions were added to the 2012 State-by-State survey in order to supplement the 2012 Military Survey. Other changes in the NFCS state-by-state survey included question order, minor wording, and question bases for contingency questions (FINRA, 2012).

**Major Changes from 2012 to 2015.** The 2015 NFCS state-by-state questionnaire added 17 questions and eliminated 14 (FINRA, 2015). The newly added questions focused mainly on
financial attitudes and budgeting behaviors, student loans, and medical-related financial hardships; whereas items that were eliminated were concerned with financial advice seeking, sources of income, and money management activities. The current NFCS questionnaire contains 114 closed-ended questions and takes the average respondent 50 minutes to complete (FINAR, 2015). A copy of 2015 NFCS questionnaire can be found in on the website of NFCS.

**Operationalization of Key Terms**

**Dependent Variables**

The current research examined empirically-relevant correlates of financial well-being. Guided by the CFPB’s conceptual framework of financial well-being, this study includes four self-reported outcomes that serve as proxies for financial well-being and capture its two dimensions, namely, *present security* and *future security*. Individuals with high levels of present security are in control of their day-to-day financial lives and able to cover expenses and pay bills on time (CFPB, 2015). Two measures of present security were making ends meet (spending was less than income = 0; spending was equal or more than income = 1) and monthly bill payment (very difficult to cover expenses and pay all bills = 0; somewhat difficult to cover expense and pay all bills = 1; not at all difficult to cover expense and pay all bills = 2). Future security refers to the capacity to absorb a financial shock (CFPB, 2015). Two measures of future security in the present study include emergency funds (have set aside emergency funds that would cover expense for 3 months = 1; have not set aside emergency funds that cover expense for 3 months = 0) and rainy-day funds (I am certain I could come up with $2,000 if an unexpected need across within the next month = 3; I could probably come up with $2,000 if an unexpected need across within the next month = 2; I could probably not come up $2,000 if an unexpected need across within the next month = 1; I am certain I could not come up with $2,000 if an unexpected need
across within the next month = 0). This study chose to focus on financial security instead of financial freedom because few variables were available in the dataset that allowed for a reliable assessment of the latter concept.

The current study also examined the empirically relevant concept of financial inclusion. Having access to bank accounts at a mainstream financial institution and the avoidance of using subprime financial products (e.g., AFS products) constitute two key components of financial inclusion (Demirgüç-Kunt et al., 2015; The World Bank, 2014). This study includes two measures of financial inclusion, namely bank account (had either a checking or savings account in the past 12 months = 1; no bank account in the past 12 months = 0) and AFS use (used at least one of the four AFS products in the past 12 months = 1; did not use any four AFS products in the past 12 months = 0). Three variables were computed based on different combinations of the two financial inclusion measures as follows: unbanked (bank account = 0 + AFS use = 0 or 1), underbanked (bank account =1 + AFS use = 1) and banked (bank account = 1 + AFS use = 0). The current study examined correlates of three types of banking statuses (i.e., banked, unbanked, underbanked).

**Independent Variables**

**Demographic Characteristics.** Three demographic variables associated with AFS use and other financial behaviors were included as controls in the analyses. Age, race/ethnicity, and gender (Fernandes et al., 2014; Sherraden, 2013) were recoded prior to inclusion. Age was measured at the ratio level. Race was measured with five dichotomous variables including White (yes = 1, no = 0), African American (yes = 1, no = 0), Hispanic or Latino (yes = 1, no = 0), Asian (yes = 1, no = 0), and American Indian or Alaska Native (yes = 1, no = 0). Gender will be measured dichotomously (female = 0, male = 1).
**Socioeconomic Characteristics.** Six socioeconomic variables associated with bank account use and AFS use are included in the analyses. The variables were recoded from the original NCFS items. Educational level (e.g., Lusardi & Scheresberg, 2013) was measured at the nominal level with five response options (less than high school diploma = 0; high school diploma or GED = 1; some college = 2; associate degree = 3; bachelor degree = 4; graduate degree or higher = 5). Household income (e.g., Birkenmaier & Fu, 2016) was measured at the nominal level with 8 response options (less than $15,000 = 0; At least $15,000 but less than $25,000 = 1; At least $25,000 but less than $35,000 = 2; At least $35,000 but less than $50,000 = 3; At least $50,000 but less than $75,000 = 4; At least $75,000 but less than $100,000 = 5; At least $100,000 but less than $150,000 = 6; $150,000 or more = 7). Employment status (e.g., Birkenmaier & Fu, 2016) was measured dichotomously (full-time or self-employed = 1; otherwise = 0), as was marital status (e.g., Northwood & Rhine, 2017; married = 1; otherwise = 0), home ownership (e.g., Hogarth et al., 2004; own home = 1; do not own home = 0), and dependent children (e.g., Rhine & Greene, 2013; dependent children = 1; no dependent children = 0).

**Financial Circumstances.** Four variables measuring empirically-relevant financial circumstances were included in the analyses. Previous studies have shown that income volatility affects banking practices and financial well-being (e.g., Rhine & Greene, 2013); thus, a variable assessing drop in household income was included as a dichotomous measure of volatility (experienced an unexpected income drop in the previous 12 months = 1; did not experience an unexpected income drop in the previous 12 months = 0). Having health insurance coverage and receiving government assistance were found associated with AFS use (e.g., Rob et al., 2015); therefore, health insurance (had health insurance in the past 12 months = 1, did not have health
insurance in the past 12 months = 0) and receipt of welfare benefits (received government assistance over the past 12 months = 1, did not receive government assistance over the past 12 months= 0) were included in the analyses. In addition, credit rating also is associated with AFS use (e.g., Prager, 2014); therefore, a self-reported credit rating variable was included (very good = 4; good = 3; about average = 2; bad = 1; very bad = 0).

Financial Knowledge. Financial knowledge (e.g., Lusardi & Scheresberg, 2013) was measured at the ratio level, with scores ranging from 0 to 6. Six NFCS items measure respondents’ knowledge about saving interest rate, inflation rate, bond prices, borrowing interest rate, mortgage, and risk diversification (FINRA, 2015). Four of the six items are multiple-choice questions and two are true-false questions. All correct responses were coded as 1, and incorrect response and all other responses (i.e., don’t know, and prefer not to say) were coded as 0. The ratio variable measuring financial knowledge was computed by summing all correct answers, with higher scores indicating higher levels of financial knowledge. The 6-item financial knowledge scale showed acceptable internal consistency (coefficient alpha = 0.65).

The six NFCS questions are listed below with the correct answers marked in bold.

1. Saving interest rate question
Suppose you had $100 in a saving account and the interest rate was 2% per year. After 5 years, how much do you think you would have in the account if you left the money to grow?
More than $102, Exactly $102, Less than $102, Don’t know, Prefer not to say.

2. Inflation rate question
Imagine that the interest rate on your savings account was 1% per year and inflation was 2% per year. After 1 year, how much would you be able to buy with the money in this account?
More than today, Exactly the same, Less than today, Don’t know, Prefer not to say.
3. Borrowing interest rate question

Suppose you own $1,000 on a loan and the interest rate you are charged is 20% per year compounded annually. If you didn’t pay anything off, at this interest rate, how many years would it take for the amount you own to double?

Less than 2 years, **At least 2 years but less than 5 years**, At least 5 years but less than 10 years, Don’t know, Prefer not to say.

4. Bond price question

If interest rates rise, what will typically happen to bond prices?

They will rise, **They will fall**, They will stay the same, There is no relationship between bond prices and the interest rates, Don’t know, and Prefer not to say.

5. Mortgage question

A 15-year mortgage typically requires higher monthly payments than a 30-year mortgage, but the total interest paid over the life of the loan will be less.

**True**, False, Don’t know, and Prefer not to say.

6. Risk diversification question

Buying a single company’s stock usually provides a safer return than a stock mutual fund.

True, **False**, Don’t know, and Prefer not to say.

**Data Analysis**

**Missing Data**

As with all secondary analyses of existing data sets, the first step is to assess missing data. The data set used for the analyses overall, had a relatively small percentage of missing data (FINRA, 2015). Preliminary analyses showed that about 2-4% of data were missing from the 4 dependent variables as follows: making ends meet (3.42%), bill payment (2.06%), an emergency
fund to cover expenses for 3 months (4.10%), and a rainy-day fund of $2,000 (3.62%). Six financial inclusion variables showed less than 2% missing data: checking account (1.33%), saving account (1.75%), auto title loan (1.09%), payday loans (1.16%), pawn shop product (1.11%), and RTO product (1.04%). Independent variables show small proportions of missing data as well. Three demographic variables (i.e., age, ethnicity, and gender) have no missing data. All but one (i.e., home ownership) of the six socioeconomic variables had no missing data, with 0.92% of the data missing from the home ownership variable. Four financial circumstance variables had about 1.5-5% missing data: drop in household income (2.25%), health insurance (1.41%), receipt of welfare benefits (2.90%), and self-reported credit rating (5.73%). Financial knowledge variables had no missing data.

The next step involved analyzing and determining the missing data patterns, which is necessary for selecting appropriate data imputation methods (Little & Rubin, 2002). Little and Rubin (2002) recommend using a method that completes the missing data when variables have less than 20% missing, as is the case for this study. A method that completes the missing data is preferable to listwise deletion to limit threats to validity and to improve generalizability (Saunders et al., 2006; Schafer & Graham, 2002). The Stata commands “misstable” and “mcartest” were used to determine whether missing data were Missing Completely at Random (MCAR), and results showed that data were not MCAR ($\chi^2 (5,931) = 100,884.04, p = .000$). When missing values are randomly distributed across all observations (i.e., MCAR), cases with missing values can be dropped listwise from the analysis without biasing the estimates (Little & Rubin, 2002). Because the missing data of the current study are not MCAR, listwise deletion was not appropriate when conducting the current analyses.

Missing at Random (MAR) and Missing not at Random (MNAR) are two other patterns
of missing data (Little & Rubin, 2002). When missing values correlate with one or more of the completely observed variables in the data set, the data are deemed MAR. When missing values correlate with both the completely observed variables and the unobserved variables, the data were considered MNAR (Little & Rubin, 2002). Statistical tests were used to determine whether the missing data for the proposed study were either MAR or MNAR. Specifically, a binary variable (not missing = 0, missing = 1) was created for each variable of interest, and statistical tests were performed to see if other modeled variables were significantly associated with the binary missingness indicator variable (Little & Rubin, 2002). A series of t-tests, chi-square tests of independence, and binomial logistic regression analyses yielded significant results, suggesting that missingness among the variables of interest was significantly correlated with completely observed variables in the model, indicating that the data were MAR (Little & Rubin, 2002). Maximum likelihood (ML) estimation methods are commonly used when missing data meet the assumption of MAR (Little & Rubin, 2002). In such cases, missing data are completed using the Expectation Maximization (EM) algorithm (Dempster, Laird, & Rubin, 1977). The EM algorithm completes missing values by ML estimating using the observed data in an iterative estimation process (Little & Rubin, 2002; Schafer & Graham, 2002).

Descriptive Statistics

Univariate analyses were conducted to examine frequencies and to summarize data. Descriptive statistics were used to summarize variables measuring demographic, socio-economic, financial circumstances, financial knowledge, financial inclusion, and financial well-being. Frequencies and percentages were computed for nominal variables (e.g., gender, marital status, receipt of welfare benefits). Measures of central tendency were used to describe variables measured at the ratio level (e.g., age, financial knowledge). Findings from univariate and
bivariate statistics were used to answer research question (i.e., Question #1) regarding the
prevalence of being banked, unbanked and underbanked status in the US.

**Inferential Statistics**

Bivariate and multivariate analyses were used to answer research questions regarding
individual and household characteristics associated with being banked (Question #2),
underbanked (Question #4), and use of four AFS products (Question #3). Bivariate statistics (i.e.,
independent samples t-tests and chi-square tests of independence) were used to examine
relationships between key independent and dependent variables. Specifically, an independent
samples t-test was used to examine whether the mean scores on measures of age, financial
knowledge, self-reported credit rating differ between AFS users and non AFS users. Cross
tabulation analysis and chi-square tests of independence were computed to assess the distribution
of responses among AFS use and categorical independent variables (e.g., gender, race, marital
status, dependent children, household income level, home ownership, income drop, and health
insurance coverage) (Rubin & Babbie, 2012).

Multivariate analyses allow for examination of multiple correlations among combinations
of variables to develop a model that best predicts the dependent variable (Long & Freese, 2013).
Binary logistic regression analyses were used to examine the combination of demographic,
socioeconomic, financial circumstance, and financial knowledge characteristics that best predict
use of the four AFS products (i.e., auto title loan, payday loan, pawn shop, and RTO product).
Logistic regression is an appropriate multivariate strategy when the dependent variable is
dichotomous and one or more independent variables are discrete or continuous (Long & Freese,
2005). Ordered logit regression analysis was employed to identify factors that best predict
underbanked status.
Propensity Score Analysis. The current study employed propensity score matching, a type of propensity score analysis, to answer the research question regarding the effect of payday loan use on household financial well-being (Question #5). Developed by Rosenbaum and Rubin (1983) and Heckman (1978), propensity score analysis (PSA) is a relatively new class of statistical methods for estimating treatment effects with nonexperimental or observational data (Guo & Fraser, 2015). While statisticians and econometricians have not reached consensus on the proper scope and content of PSA, the term, PSA, refers to a set of propensity score-based analytic strategies that reduce selection bias in observational studies (Guo & Fraser, 2015; Thoemmes & Kim, 2011). In the past decade, PSA has become increasingly popular across various disciplines (King, Lucas, & Nielsen, 2017; Guo, 2015), and social work researchers also have started utilizing PSA approaches to evaluate programs (e.g., Barth, Guo, & McCrae, 2008; Friedline & West, 2016; Gjertson, 2016). As a set of analytic strategies, PSA has grown rapidly, with prominent researchers concluding that PSA has reached a mature level (Guo, 2015; Imbens & Wooldridge, 2009; Thoemmes & Kim, 2011).

Propensity Score Matching. As compared to other PSA approaches (e.g., propensity score weighting, propensity score subclassification), the Propensity Score Matching (PSM) method is distinct in that it balances data through matching nontreated participants to treated ones on probabilities of receiving treatment (i.e., the propensity scores) and permits follow-up bivariate or multivariate analysis (Guo & Frazer, 2015). A propensity score (PS) is defined as the conditional probability of receiving a treatment, given a set of observed covariates (Rosenbaum & Rubin, 1983; 1985). The score is often estimated using a logistic regression model or a similar model, such as a probit regression model (Morgan & Winship, 2015). With a logistic model, the score ranges from 0 to 1 and reflects the estimated probability, based on the subject’s
characteristics, that the subject will receive the treatment of interest (Morgan & Winship, 2015). Individuals with same estimated PS have the same chance of receiving treatment (Guo & Fraser, 2015). Any two subjects that share a similar PS can have different values for specific covariates; but, overall, the covariates entered in the PS model tend to be balanced for treated and untreated subjects with similar PS scores (Rosenbaum & Rubin, 1983; 1985). There are several ways to utilize the estimated PS to facilitate the examination of treatment effect, and matching is one of the most frequently used approaches (Guo, 2015). The PSM approach uses the estimated PS to match treated participants with nontreated participants. The advantage of the PS is that multidimensional covariates are reduced to a one-dimensional score that makes match between treated and untreated subjects feasible (Morgan & Winship, 2015). Matching on the PS makes it possible to estimate treatment effects while controlling for selection bias on observed measures (Morgan & Winship, 2015). The remainder of this section specifically focusses on PSM to describe the proposed analytic strategies. The following paragraphs provide a detailed discussion of the PSM framework, underlying assumptions, advantages and limitations, and describes the use of PSM in the proposed study.

**Potential-Outcomes Framework.** PSM methods build from a potential-outcomes framework depicted in the Neyman-Rubin casual model (Rubin, 1997). The potential-outcome framework (also known as the counterfactual model) contains two hypothetical conditions (i.e., exposed/treated and unexposed/untreated), and each unit in the population has two potential outcomes (i.e., the potential outcome if exposed and the potential outcome if not exposed) (Morgan & Winship, 2015). Because only one potential outcome can be observed in real life, the unobserved potential outcome, or counterfactual, is missing (Morgan & Winship, 2015). The PSM approach attempts to generate a valid counterfactual by applying the logic of random
assignment. In a study that uses random assignment, the counterfactual is missing at random; therefore, any difference in outcomes between the units that are treated and not treated can be attributed to the exposure to the treatment (Morgan & Winship, 2015). In a non-experimental study where exposure to treatment is not randomly assigned, the nonrandom assignment can be modeled as a function of the confounding factors (also known as confounders) that determine the binary treatment condition (Rosenbaum & Rubin, 1983). When PS models account for the full set of confounders, each unit’s model-implied propensity for treatment is a balancing score that can yield exchangeable groups balanced on the confounders (Rosenbaum & Rubin, 1983; Rubin, 1974; 2007; 2008). In other words, when the confounders are balanced across the treated and matched control groups, the average value of each confounder and its distribution will be similar, if not identical, in the treated and matched control groups after conditioning on the PS. The optimal PS model is the one that yields balance on the known confounders, regardless of its viability as a true selection model, its interpretability, or its form (Morgan & Winship, 2015).

**Major Assumptions.** There are two major assumptions underlying the PSM approach. One assumption is called *Strongly Ignorable Treatment Assignment* (SITA), which assumes assignment to one condition or another is independent of the potential outcomes if observable covariates are held constant (Morgan & Winship, 2015). In a randomized experiment, the SITA assumption holds because randomization typically balances the data between the treated and control groups and makes the treatment assignment independent of the outcomes under the two conditions (Rosenbaum, 2002; Rosenbaum & Rubin, 1983). To meet the SITA assumption, the PS model must balance the full set of confounders (i.e., those that predict selection into treatment and those associated with variation in the outcome) across the exposed and nonexposed groups (Kainz et al., 2017). However, it is not possible to prove empirically that the full set of
confounders is included in the PS model; thus researchers justify their PS models with two related yet distinct arguments: (a) a review of theory and evidence justifying that the selected covariates for the estimation of the PS approaches the full set of the known confounders, and (b) statistical evaluation of covariate balance between the treated and matched control groups following use the PS (Guo & Fraser, 2015; Kainz et al., 2017).

The other assumption is often called Stable Unit Treatment Value Assumption (SUTVA). Rubin presented this assumption in 1980 and extended it later in 1990s. The key idea is that the potential outcomes of individuals are not be affected by changes in the treatment exposures of all other individuals. In Rubin (1986), SUTVA is articulated as “a prior assumption that the value of Y for unit u when exposed to treatment t will be the same no matter what mechanism is used to assign treatment t to unit u and not matter what treatment other units receive” (p. 961). A simpler way to describe SUTVA is that the treatment status and the effect of treatment are independent for each case (Kainz et al., 2017). The SUTVA is violated when, for example, there exists unrepresented versions of different treatments. It is important to consider all possibilities for which SUTVA could be violated when using PSM to estimate treatment effect (Morgan & Winship, 2015).

Merits. PSM offers a number of advantages over multivariate logistic regression analysis, because it does not rely on assumptions about functional forms, as is the case for parametric methods. Nor does PSM rely on specification of the relationship between treatment and outcome. For example, with OLS regression, the assumption that a linear or nonlinear functional form exists between an outcome and the covariates may not hold, especially if the covariate distribution differs substantially between the treatment and control groups. The PSM methods reduce selection bias by matching the treated group with control groups having similar
observed characteristics and similar probabilities of receiving treatment (Guo & Fraser, 2015). With matched control groups, PSM allows for establishing a direct test of the counterfactual model by making treatment and control groups more comparable (Rosenbaum & Rubin, 1983; Winship & Morgan, 1999). Moreover, it can account for many confounders in the process of creating comparable control groups. In this way, PSM approximates experimental designs, in theory, in that all pre-treatment characteristics of study participants, including their potential responses to treatment, are unrelated to treatment assignment (Morgan & Winship, 2015).

**Limitations.** Despite the broad utility of PSM methods, there are limitations that must be acknowledged. One limitation of PSM with observational data is concerned with unobservable confounders (Guo & Fraser, 2015). Credibly reducing bias due to confounding factors is a complicated task because it is nearly impossible to identify and obtain all confounders that fully predict the possibility of receiving treatment (Kainz et al., 2017). In addition, researchers debate whether a small set of covariates is sufficient for achieving SITA, and there is disagreement regarding the appropriate confounders that should be included when generating PS scores (Steinerm, Cook, Shadish, & Clark, 2010; Stürmer et al., 2006; Thoemmes & Kim, 2011; Pearl, 2011; 2012).

An additional limitation when using PSM methods to infer causality is that PSM is somewhat sensitive to sample size (Guo & Fraser, 2015). PSM methods typically work better with larger samples because matching often leads to a loss of study participants who are unmatched. Also, balances of covariates are easier to achieve with larger than with smaller sample sizes (Guo & Fraser, 2015). In a small randomized experiment, random imbalances of some covariates can be substantial despite the randomization process (Rubin, 1997). By the same
token, in a small observational study, a substantial imbalance of some covariates may be unavoidable, despite use of a sensible estimated PS (Guo & Fraser, 2015).

The Application of PSM to the Current Study. PSM is a three-stage analytic process. Stage one involves the use of logistic or probit regression analysis to calculate all respondents’ propensity for experiencing a treatment of interest, in this case, use of payday loans. The logit model was used to predict participants’ propensity to use payday loans. In stage two, the estimated PS obtained in stage one is used to match respondents who did and did not use payday loans. Covariate selection and balancing are key to appropriate application of PSM methods (Guo & Frazer, 2014; Kainz et al., 2017; King, Morgan & Winship, 2015). Stage three involves multivariate analyses based on the matched sample. The paragraphs below offer a detailed discussion of the covariate selection, matching techniques used, and covariate balance evaluation approaches.

Covariate Selection. It is critical to include appropriate covariates that generate PSs that can be used for matching (Kainz et al., 2017; Stürmer et al., 2006). Typically, the selection of covariates should be rooted in theory and the extant empirical evidence (Shadish, 2013; Shadish & Steiner, 2010). Kainz et al. (2017) conducted an integrative review of recent research using PS methods and identified several criteria that are commonly used for selecting covariates. According to Kainz et al. (2017), covariates should be measured or should occur before the introduction of the treatment; however, other researchers recommend prioritizing covariates that are highly associated with the outcome, given recent findings from simulation studies indicating that confounders of the outcome can be especially important for reducing bias in the treatment-effect estimate while minimizing variance in the sample outcome (e.g., Belitser et al., 2011; Pearl, 2009; 2012). Finally, covariates should be reliably measured to ensure unbiased estimated
treatment effects (Steiner et al., 2011). Including variables that have been measured in multiple ways within each construct domain is one way to address reliability measurement issue (Raykov. 2012).

Following these latter recommendations, the current study identified 12 covariates within three constructs related to payday loan use and financial well-being: demographic characteristics (e.g., Lacko et al., 2000; Elliehausen, 2005; 2006), household socioeconomic characteristics (e.g., Birkenmaier & Fu, 2016), and financial circumstances (e.g., Servon, 2017). Table 3.1 provides a description of all covariates. Following guidance from Pearl (2009, 2011), multiple variables measured within each construct were selected to reduce bias, given possible issues with imperfect measurement (Steiner et al., 2011).

Table 3.1. Covariate Description

<table>
<thead>
<tr>
<th>Variable Name</th>
<th>Distribution</th>
<th>Variable Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Demographic</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>Continuous</td>
<td>Age of the respondent</td>
</tr>
<tr>
<td>Gender</td>
<td>Dichotomous</td>
<td>1 = gender of respondent identified as male</td>
</tr>
<tr>
<td>Black</td>
<td>Dichotomous</td>
<td>1 = race of respondent identified as Black/African American, non-Hispanic</td>
</tr>
<tr>
<td>Hispanic</td>
<td>Dichotomous</td>
<td>1 = race of respondent identified as Hispanic</td>
</tr>
<tr>
<td>Asian</td>
<td>Dichotomous</td>
<td>1 = race of respondent identified as Asian, non-Hispanic</td>
</tr>
<tr>
<td>American Indian</td>
<td>Dichotomous</td>
<td>1 = race of respondent identified as American Indian/pacific Islander.</td>
</tr>
<tr>
<td>Hawaiian</td>
<td>Dichotomous</td>
<td>1 = race of respondent identified as Native Hawaiian or other Pacific Islander</td>
</tr>
<tr>
<td>Socioeconomic</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Marital status</td>
<td>Dichotomous</td>
<td>1 = marital status of respondent identified as married</td>
</tr>
<tr>
<td>(table cont’d)</td>
<td></td>
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</tr>
<tr>
<td>Variable Name</td>
<td>Distribution</td>
<td>Variable Description</td>
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<tr>
<td>------------------------</td>
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<td>---------------------------------------------------------------------------------------</td>
</tr>
</tbody>
</table>
| Educational level      | Ordinal      | 0 = less than high school diploma
1= high school diploma or GED
2 = some college
3 = associate degree
4 = bachelor degree
5 = graduate degree or higher |
| Household income       | Ordinal      | 0 = less than $15,000
1 = At least $15,000 but less than $25,000
2 = At least $25,000 but less than $35,000
3 = At least $35,000 but less than $50,000
4 = At least $50,000 but less than $75,000
5 = At least $75,000 but less than $100,000
6 = At least $100,000 but less than $150,000
7 = $150,000 or more |
| Dependent children     | Dichotomous  | 1 = respondent identified having dependent child/children |
| Employment Status      | Ordinal      | 2 = full time worker
1 = part-time worker
0 = otherwise |

**Financial Circumstances**

<table>
<thead>
<tr>
<th>Variable Name</th>
<th>Distribution</th>
<th>Variable Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Receipt of welfare benefits</td>
<td>Dichotomous</td>
<td>1= respondent identified receiving welfare benefits</td>
</tr>
<tr>
<td>Income drop</td>
<td>Dichotomous</td>
<td>1 = respondent identified experiencing a large, unexpected drop in income</td>
</tr>
<tr>
<td>Health insurance coverage</td>
<td>Dichotomous</td>
<td>1 = respondent identified as health insurance plan holder</td>
</tr>
<tr>
<td>Self-reported credit record</td>
<td>Ordinal</td>
<td>Self-reported credit record level of respondent</td>
</tr>
</tbody>
</table>
**Propensity Score Estimation.** Logistic regression analyses were used to estimate propensity score (i.e., the predicted probability of respondents using payday loan in the past five years). Prior to estimating the propensity score, a series of logistic regressions were computed to determine the covariates affecting selection bias. The results revealed significant differences among most covariates.

**Matching Strategies.** After PSs were estimated, the next step of analysis involved matching treated to control participants based on the estimated PSs (Guo & Fraser, 2015). Given that the use of multiple matching methods helps guide against hidden bias (Luellen, Shadish, & Clark, 2005); the current study used three matching methods, namely, one-to-one nearest neighbor matching, one-to-five nearest neighbor matching, and nearest neighbor matching with calipers (Guo & Fraser, 2015). The caliper size was equal to 0.1 times the standardized deviation of the obtained PS. The matched pair was not used in matching other pairs (i.e., matching without replacement). Each technique yielded an average treatment effect attributable to the receipt of treatment, in this case, use of payday loans.

Nearest neighbor matching without replacement were conducted using the STATA 14 “teffects psmatch” command to pair cases in the control and treatment groups on the basis of their likelihood of using payday loans. Control cases that were not matched to particular cases were excluded from the analysis. Nearest neighbor matching with replacement also was used. This latter method allowed control cases to be matched to more than one case in the treatment group when a particular control case was a better match to multiple treatment cases than alternative control cases (Guo & Fraser, 2015). It bears mentioning that there is no superior matching method, and little guidance is available to researchers for deciding among various matching methods (Stuart, 2010). However, because the primary goal of matching was to find a
well-matched control group, the current study selected the matching method that yielded the best matched samples of the original treated and control groups, based on the evaluation of covariate balance.

**Covariate Balance Evaluation.** Covariate balance needs to be evaluated to ensure a good match. There are several common practices for evaluating balance. One approach is to establish a metric for claiming balance before conducting the analysis (Haukoo & Lewis, 2015). A fully balanced sample will have a standardized bias or difference value of zero and variance ratio of 1.0; however, a standardized bias of .25 or less indicates negligible imbalance (Haukoo & Lewis, 2015). Covariate balance also can be checked by specifying how balance will be defined for variables with dichotomous and continuous distributions (Stuart, 2010). In addition, covariate balance can be evaluated by estimating the standardized bias and variance ratio before and after matching to detect problematic modeling (Stuart, 2010).

Following the recommendations of Stuart (2010), the current study specified methods and standards for evaluating evaluation, *a priori*. A standardized bias of .25 or less is established as model balance criteria. Also, the present study used raw difference in proportions for dichotomous variables and standardized mean differences for continuous variables when evaluating balance (Stuart, 2010). Ultimately, the PSM models were rectified repeatedly (by adding covariates or higher order terms, for example) to achieve a good balance (Stuart, 2010). The performance of PSM in balancing covariates was checked and clearly communicated by a comparison of standardized differences of each covariate before and after matching, and figures showing sample distribution of each covariate before and after matching (Rosenbaum & Rubin 1985; Stuart, 2010; Guo & Fraser, 2010).
The final step of PSM is to use regression as an analytic tool to test the statistical significance of the overall relationship between payday loan use and indicators of household financial wellbeing. Binary logistic regression was used to assess the predictive ability of AFS use on making ends meet, bill payments, emergency funds, and rainy-day funds of $2,000. STATA calculates the ML estimates necessary for conducting logistic regression (Long & Freese, 2006). Measures of predictive accuracy for logistic regression results were provided with McFadden’s pseudo $R^2$ statistics (Long & Freese, 2006). Odds ratios were reported for easier interpretation and as a measure of effect size (Long & Freese, 2006). The analyses used in the current study yielded results that answered the research question about whether the use of payday loans has an impact on the present and future security of households. Specifically, statistically different present and future security measures between payday loan users and matched non-payday loan users would indicate that the use of payday loans contributes to the likelihood of making ends meet, paying bills late, having emergency funds for covering 3-month expenses, and having a rainy-day fund of $2,000.

**Protection of Human Subjects**

The Institutional Review Board at Louisiana State University approved the current study for exemption from institutional oversight (No. E10969). The approved Institutional Review Board application can be found in Appendix. There are no psychological, legal, or social risks to study participants, and study participants cannot be identified in the data directly or statistically.
Chapter 4. Results

This chapter describes and summarizes the statistical analyses used to evaluate the research questions. Subsequent to the missing data imputation process, this chapter describes the sample, followed by a summary of the demographic, socioeconomic characteristics of banked, unbanked, and underbanked population. Then, results of multivariate regressions that predict banking status are presented. Finally, results from propensity score matching analyses estimating the effects of using payday loans on household financial well-being outcomes are reported. This chapter ends with a summary of main findings.

Sample Description

Table 2 provides the sample distribution on sociodemographic variables. Over half of the sample was female (55.40%). The mean age of respondent was aged 46.65 (SD = 16.71), and the majority of the sample was white (71.96%). Similar proportions were black and Hispanic (at 9.81% and 10.13%, respectively), whereas much smaller proportions were Asian (4.46%) and of mixed races (3.65%). In terms of education level, similar proportions reported having either a college degree (22.92%) or a high school degree or its equivalency (22.14%). As seen in Table 1, just over one half of the sample (54.44%) were married. A much smaller proportion (6.85%) was living with a partner, and almost 4 in 10 were single (36.52%). Roughly similar proportions of respondents had either one or more financially dependent children or no children (at 36.52% and 34.16%, respectively). As seen in Table 1, similar proportions reported annual household income (AHI) of less than $35,000 (32.79%), or between $35,000 and $75,000 (35.19%). Approximately 3 in 10 reported an AHI of greater than $75,000. Less than a half of respondents (46.03%) was either self-employed or a full-time worker, whereas about a fifth of the sample (20.07%) were retired.
Table 4.1. Sociodemographic Characteristics of Sample (N=27,564)

<table>
<thead>
<tr>
<th>Category</th>
<th>Percent (n)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ethnicity</strong></td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>71.96% (18,715)</td>
</tr>
<tr>
<td>Black</td>
<td>9.81% (2,703)</td>
</tr>
<tr>
<td>Hispanic</td>
<td>10.13% (2,791)</td>
</tr>
<tr>
<td>Asian</td>
<td>4.46% (1,228)</td>
</tr>
<tr>
<td>Others</td>
<td>3.65% (1,006)</td>
</tr>
<tr>
<td><strong>Education</strong></td>
<td></td>
</tr>
<tr>
<td>Didn’t complete high school</td>
<td>2.14% (591)</td>
</tr>
<tr>
<td>Regular high school diploma</td>
<td>16.13% (4,447)</td>
</tr>
<tr>
<td>GED or alternative credential</td>
<td>6.16% (1,698)</td>
</tr>
<tr>
<td>Some college</td>
<td>28.08% (7,739)</td>
</tr>
<tr>
<td>Associate degree</td>
<td>10.97% (3,024)</td>
</tr>
<tr>
<td>College graduate</td>
<td>22.92% (6,318)</td>
</tr>
<tr>
<td>Post graduate education</td>
<td>13.59% (3,747)</td>
</tr>
<tr>
<td><strong>Marital Status</strong></td>
<td></td>
</tr>
<tr>
<td>Married</td>
<td>54.44% (15,007)</td>
</tr>
<tr>
<td>Living with partner</td>
<td>6.85% (1,888)</td>
</tr>
<tr>
<td>Single</td>
<td>38.71% (10,669)</td>
</tr>
<tr>
<td><strong>Number of Children</strong></td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>63.48% (17,598)</td>
</tr>
<tr>
<td>1</td>
<td>15.67% (4,320)</td>
</tr>
<tr>
<td>2</td>
<td>13.09% (3,608)</td>
</tr>
<tr>
<td>3</td>
<td>5.09% (1,403)</td>
</tr>
<tr>
<td><strong>Income</strong></td>
<td></td>
</tr>
<tr>
<td>&lt;$15K</td>
<td>11.47% (3,162)</td>
</tr>
<tr>
<td>$15-25K</td>
<td>10.84% (2,987)</td>
</tr>
<tr>
<td>$25-35K</td>
<td>10.84% (2,989)</td>
</tr>
<tr>
<td>$35-50K</td>
<td>14.69% (4,050)</td>
</tr>
<tr>
<td>$50-75K</td>
<td>20.50% (5,650)</td>
</tr>
<tr>
<td>$75-100K</td>
<td>13.59% (3,745)</td>
</tr>
<tr>
<td>100K–150K</td>
<td>12.22% (3,368)</td>
</tr>
<tr>
<td>150K or more</td>
<td>5.85% (1,613)</td>
</tr>
</tbody>
</table>
Table 4.2 summarizes percentages of financial characteristics of the sample.

More than half of the sample were homeowners and health insurance holders (at 62.96% and 89.97%, respectively). Similar proportions reported receiving public assistance and experienced an unexpected income drop in the past 12 months (at 16.05% and 21.79% respectively). As seen in Table 4.2, roughly 15% of the sample reported their credit record either very bad or bad, a similar proportion considered their credit records about average (17.56%), whereas more than half of the sample rated their credit records either good or very good.

On average, respondents answered 3.29 out of 6 questions correctly. Only 9.21% of the sample gave correct answers to all 6 questions, while most respondents answered 3 or 4 questions correctly (See Table 4.2). As for financial well-being indicators, about 2 in 10 reported they couldn’t make ends meet, and half of the sample reported it was either difficult or very difficulty to pay bills on time. Less than half (49.63%) of the sample had emergency funds to cover 3-months expenses, whereas 6 in 10 reported they either were certain or relatively confident that they could come up with a rainy-day fund of $2,000 if an unexpected need arose within the next month.

Table 4.2. Financial Characteristics of Sample (N=27,564)

<table>
<thead>
<tr>
<th>Variables</th>
<th>Percent (n)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Homeowner</td>
<td>62.96% (17,193)</td>
</tr>
<tr>
<td>Receipt of welfare benefit</td>
<td>16.05% (4,297)</td>
</tr>
<tr>
<td>Health insurance holder</td>
<td>89.97% (24,448)</td>
</tr>
<tr>
<td>Self-reported credit record</td>
<td></td>
</tr>
<tr>
<td>Very bad</td>
<td>3.94% (1,024)</td>
</tr>
<tr>
<td>(table cont’d)</td>
<td></td>
</tr>
</tbody>
</table>
Sample Distribution of Banking Status

Table 4.3 shows the results of sample distribution on banking status. Less than 5% of the sample were unbanked (had no checking or saving accounts), while the majority were fully banked (i.e., used bank accounts and no alternative financial services [AFS]). Among those
unbanked, about half (51.98%, n = 629) of them reported that they didn’t have a bank accounts nor used AFS products, the rest half (48.02%, n = 581) used AFS products only. In comparison, 2 in 10 were underbanked (i.e., used bank accounts and AFS products simultaneously). The majority had either checking or saving account or both (at 93.40%, 78.5%, 76.67% respectively). As for AFS use, the most frequently used AFS product was pawn shop services (15.28%), followed by payday loan (11.20%), auto title loan (9.51%), and rent-to-own product (9.12%).

Table 4.3. Banking Status of Sample (N = 27,203)

<table>
<thead>
<tr>
<th>Category</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unbanked</td>
<td>1,242</td>
<td>4.60%</td>
</tr>
<tr>
<td>Checking account</td>
<td>25,403</td>
<td>93.40%</td>
</tr>
<tr>
<td>Saving account</td>
<td>21,260</td>
<td>78.50%</td>
</tr>
<tr>
<td>Both bank account</td>
<td>20,702</td>
<td>76.67%</td>
</tr>
<tr>
<td>Fully banked</td>
<td>19,843</td>
<td>72.94%</td>
</tr>
<tr>
<td>Underbanked</td>
<td>5,901</td>
<td>21.72%</td>
</tr>
<tr>
<td>AFS users</td>
<td>6,586</td>
<td>24.18%</td>
</tr>
<tr>
<td>Auto title user</td>
<td>2,593</td>
<td>9.51%</td>
</tr>
<tr>
<td>Payday loan user</td>
<td>3,052</td>
<td>11.20%</td>
</tr>
<tr>
<td>Pawn shop user</td>
<td>4,165</td>
<td>15.28%</td>
</tr>
<tr>
<td>Rent-to-own user</td>
<td>2,487</td>
<td>9.12%</td>
</tr>
</tbody>
</table>

Table 4.4 provides a summary of the frequency distribution of respondents AFS use in the past 5 years. Specifically, the majority of the sample never used auto title loans, small proportions reported they used title loan up to 4 times (at 5.19%, 2.27%, 1.15%, 0.91% respectively). Similar proportion distribution was found among user of rent-to-own products, with most respondents never used RTO products, and the rest used up to 4 times (at 3.93%, 2.32%, 1.60%, 1.26% respectively). Similar proportions of respondents never used payday loan nor pawnshop products (See Table 4.4). Small proportions of respondents used payday loan up to
4 times (at 3.4%, 2.61%, 2.07%, and 3.13% respectively). A similar distribution was found among respondents who reported using pawn shop services and products (see Table 4.4). Among all pawn shop users, a third either sold an item (37.34%, n = 1,506) or pawned an item (43.34%, n = 1,748), and the rest (19.32%, n = 779) bought an item at the pawn shop.

Table 4.4. Distribution of Respondents’ Report on Use of Four AFS products

<table>
<thead>
<tr>
<th>AFS products</th>
<th>Response Option (%)</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Auto title loan</td>
<td>Never used 90.49%</td>
<td>24,671</td>
</tr>
<tr>
<td></td>
<td>1 time 5.19%</td>
<td>1,414</td>
</tr>
<tr>
<td></td>
<td>2 times 2.27%</td>
<td>619</td>
</tr>
<tr>
<td></td>
<td>3 times 1.15%</td>
<td>313</td>
</tr>
<tr>
<td></td>
<td>4 times 0.91%</td>
<td>247</td>
</tr>
<tr>
<td>Payday loan</td>
<td>Never used 88.80%</td>
<td>24,193</td>
</tr>
<tr>
<td></td>
<td>1 time 3.40%</td>
<td>925</td>
</tr>
<tr>
<td></td>
<td>2 times 2.61%</td>
<td>710</td>
</tr>
<tr>
<td></td>
<td>3 times 2.07%</td>
<td>565</td>
</tr>
<tr>
<td></td>
<td>4 times 3.13%</td>
<td>852</td>
</tr>
<tr>
<td>Pawn shop</td>
<td>Never used 84.72%</td>
<td>23,091</td>
</tr>
<tr>
<td></td>
<td>1 time 5.28%</td>
<td>1,438</td>
</tr>
<tr>
<td></td>
<td>2 times 3.69%</td>
<td>1,005</td>
</tr>
<tr>
<td></td>
<td>3 times 2.70%</td>
<td>735</td>
</tr>
<tr>
<td></td>
<td>4 times 3.62%</td>
<td>987</td>
</tr>
<tr>
<td>Rent-to-own store</td>
<td>Never used 90.88%</td>
<td>24,791</td>
</tr>
<tr>
<td></td>
<td>1 time 3.93%</td>
<td>1,073</td>
</tr>
<tr>
<td></td>
<td>2 times 2.32%</td>
<td>633</td>
</tr>
<tr>
<td></td>
<td>3 times 1.60%</td>
<td>436</td>
</tr>
<tr>
<td></td>
<td>4 times 1.26%</td>
<td>345</td>
</tr>
</tbody>
</table>

**Results from Multivariate Analyses of Bank Account Ownership**

Multivariate analyses were employed to predict what combination of correlates (i.e., demographic, socioeconomic, and financial circumstance) best predict use of a bank account. Logistic regression analysis allows for group membership from a set of variables that can be dichotomous, continuous, discrete, or a mix (Tabachnik & Fidell, 2012). This study employed direct binary logistic regression analysis for determining which independent variables best
predict use of a checking account. Nine demographic variables were entered (e.g., age, age squared, race), so were nine socioeconomic variables (e.g., educational attainment, marital status, dependent children, household income, homeownership). Four financial circumstance variables (e.g., welfare receipt, income volatility, health insurance coverage, self-rated credit record) were entered.

**Checking Account Ownership**

Results indicated that the overall model that included 22 predictors were statistically reliable in distinguishing between individuals using checking bank account and those did use checking bank account (see Table 4.5). Model fit was confirmed by significance of the likelihood ratio (LR) chi-square statistics ($\chi^2(22) = 2134.53, p < 0.000$), indicating that the constant is not zero when all predictors were entered into the model, and inclusion of all independent variables significantly predicted use of checking bank account. Good-of-fit indexed showed significance of model fit (McFadden’s pseudo-$R^2 = 0.203, N = 24,601, p < .000$), indicating the predictors differentiated individuals who used checking account or did not use one.

Individuals that were female ($b = 0.164, z = 2.54$), older ($b = 0.001, z = 5.85$), college-educated ($b = 0.483, z = 5.76$), married ($b = 0.402, z = 5.36$), employed ($b = 0.332, z = 8.47$), home owners ($b = 0.412, z = 5.74$) with health insurance ($b = 0.765, z = 10.62$) and high credit record ($b = 0.403, z = 14.89$) were more likely to use a checking account. Those who were young ($b = -0.060, z = -4.46$), black ($b = -0.415, z = -5.07$), American Indians ($b = -0.481, z = -3.02$), with household income at the first and second income quintiles ($b = -0.108, z = -6.75; b = -0.535, z = -3.34$, respectively) were less likely to use a checking account. Variables that were not associated with having a checking account include Hispanic, Asian, Native American, other
racial groups, dependent children, income quintile 3 and 4, welfare recipient, and income volatility.

Table 4.5. Results of the Logistic Regression Analysis Predicting Checking Bank Account Ownership (N=24,601)

<table>
<thead>
<tr>
<th>Predictor</th>
<th>Checking Account</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>b</td>
</tr>
<tr>
<td>Female</td>
<td>0.164*</td>
</tr>
<tr>
<td>Age</td>
<td>-0.060***</td>
</tr>
<tr>
<td>Age (squared)</td>
<td>0.001***</td>
</tr>
<tr>
<td>Black*</td>
<td>-0.415***</td>
</tr>
<tr>
<td>Hispanic/Latino*</td>
<td>-0.068</td>
</tr>
<tr>
<td>Asian*</td>
<td>0.005</td>
</tr>
<tr>
<td>American Indians/Alaska Native*</td>
<td>-0.481**</td>
</tr>
<tr>
<td>Native Hawaiian/Other Pacifica Islander*</td>
<td>-0.178</td>
</tr>
<tr>
<td>Others*</td>
<td>-0.256</td>
</tr>
<tr>
<td>College educated or above b</td>
<td>0.483***</td>
</tr>
<tr>
<td>Married</td>
<td>0.402***</td>
</tr>
<tr>
<td>Dependent children</td>
<td>-0.102</td>
</tr>
<tr>
<td>Income quintile 1 c</td>
<td>-1.108***</td>
</tr>
<tr>
<td>Income quintile 2 c</td>
<td>-0.535**</td>
</tr>
<tr>
<td>Income quintile 3 c</td>
<td>-0.202</td>
</tr>
<tr>
<td>Income quintile 4 c</td>
<td>-0.208</td>
</tr>
<tr>
<td>Employment</td>
<td>0.332***</td>
</tr>
<tr>
<td>Homeowner</td>
<td>0.412***</td>
</tr>
<tr>
<td>Welfare Recipient</td>
<td>-0.101</td>
</tr>
<tr>
<td>Income Volatility</td>
<td>0.075</td>
</tr>
<tr>
<td>Health Insurance Holder</td>
<td>0.765***</td>
</tr>
<tr>
<td>Self-rated Credit Record</td>
<td>0.403***</td>
</tr>
</tbody>
</table>

*aReference group: white
(table notes cont’d)
Saving Account Ownership

Table 4.6 shows results from the logit regression that the likelihood ratio (LR) chi-square statistics \( LR \chi^2 (22) = 4334.42, p < 0.000 \) was significant, indicating that the overall model fits the data well, and inclusion of all independent variables significantly predicted use of a saving bank account. Good-of-fit indexed showed significance of model fit (McFadden’s pseudo-\( R^2 = 0.176, N = 24,525, p < .000 \)), indicating the predictors differentiated individuals who used a saving account or did not use one. Variables that were positively associated with having a saving account include black \((b = 0.151, z = 2.64)\), college educated \((b = 0.384, z = 8.85)\), full time employed \((b = 0.158, z = 6.97)\), homeowner \((b = 0.293, z = 7.04)\), health insurance holder \((b = 0.632, z = 12.07)\), and self-rated credit record \((b = 0.421, z = 26.36)\). Predictors that were negatively associated with having a saving account include dependent children \((b = -0.153, z = -3.57)\), lower income quintiles \((b = -1.549, z = -18.72; b = -0.945, z = -12.35; b = -0.545, z = -6.96; b = -0.299, z = -3.37, \text{respectively})\), and welfare recipient \((b = -0.093, z = -2.00)\). Gender, racial minorities except black, and marital status were not related to having a saving bank account.

Table 4.6. Results of the Logistic Regression Analysis Predicting Saving Bank Account Ownership (N=24,525)

<table>
<thead>
<tr>
<th>Predictor</th>
<th>( b )</th>
<th>SE</th>
<th>OR</th>
<th>( z )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>0.044</td>
<td>0.372</td>
<td>1.045</td>
<td>1.19</td>
</tr>
<tr>
<td>Age</td>
<td>-0.036***</td>
<td>0.007</td>
<td>0.964</td>
<td>-5.15</td>
</tr>
</tbody>
</table>

\(^b\text{Reference group: less than college education}\)
\(^c\text{Reference group: income quintile 5}\)

Model Statistics: Pseudo R\(^2 = 0.21\), LR Chi2 (22) = 2134.53, \( p < .000 \)

*prob <.05, **prob < .01, *** prob <.001.
<table>
<thead>
<tr>
<th>Predictor</th>
<th>Saving Account</th>
<th>b</th>
<th>SE</th>
<th>OR</th>
<th>z</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (squared)</td>
<td></td>
<td>0.000***</td>
<td>0.000</td>
<td>1.000</td>
<td>4.57</td>
</tr>
<tr>
<td>Black(^a)</td>
<td></td>
<td>0.151*</td>
<td>0.057</td>
<td>1.162</td>
<td>2.64</td>
</tr>
<tr>
<td>Hispanic/Latino(^a)</td>
<td></td>
<td>0.066</td>
<td>0.063</td>
<td>1.068</td>
<td>1.05</td>
</tr>
<tr>
<td>Asian(^a)</td>
<td></td>
<td>-0.048</td>
<td>0.098</td>
<td>0.953</td>
<td>-0.49</td>
</tr>
<tr>
<td>American Indians/Alaska Native(^a)</td>
<td></td>
<td>-0.054</td>
<td>0.116</td>
<td>0.948</td>
<td>-0.46</td>
</tr>
<tr>
<td>Native Hawaiian/Other Pacifica Islander(^a)</td>
<td></td>
<td>0.181</td>
<td>0.227</td>
<td>1.198</td>
<td>0.80</td>
</tr>
<tr>
<td>Others(^a)</td>
<td></td>
<td>0.461</td>
<td>0.190</td>
<td>1.585</td>
<td>2.42</td>
</tr>
<tr>
<td>College education(^b)</td>
<td></td>
<td>0.384***</td>
<td>0.043</td>
<td>1.468</td>
<td>8.85</td>
</tr>
<tr>
<td>Married</td>
<td></td>
<td>0.102</td>
<td>0.042</td>
<td>1.108</td>
<td>2.78</td>
</tr>
<tr>
<td>Dependent children</td>
<td></td>
<td>-0.153**</td>
<td>0.042</td>
<td>0.858</td>
<td>-3.59</td>
</tr>
<tr>
<td>Income quintile 1(^c)</td>
<td></td>
<td>-1.549***</td>
<td>0.083</td>
<td>0.212</td>
<td>-18.72</td>
</tr>
<tr>
<td>Income quintile 2(^c)</td>
<td></td>
<td>-0.945***</td>
<td>0.077</td>
<td>0.389</td>
<td>-12.35</td>
</tr>
<tr>
<td>Income quintile 3(^c)</td>
<td></td>
<td>-0.545***</td>
<td>0.078</td>
<td>0.580</td>
<td>-6.96</td>
</tr>
<tr>
<td>Income quintile 4(^c)</td>
<td></td>
<td>-0.299**</td>
<td>0.089</td>
<td>0.742</td>
<td>-3.37</td>
</tr>
<tr>
<td>Employment</td>
<td></td>
<td>0.158***</td>
<td>0.023</td>
<td>1.171</td>
<td>6.97</td>
</tr>
<tr>
<td>Homeowner</td>
<td></td>
<td>0.293***</td>
<td>0.042</td>
<td>1.340</td>
<td>7.04</td>
</tr>
<tr>
<td>Welfare Recipient</td>
<td></td>
<td>-0.093*</td>
<td>0.046</td>
<td>0.911</td>
<td>-2.00</td>
</tr>
<tr>
<td>Income Volatility</td>
<td></td>
<td>0.016</td>
<td>0.042</td>
<td>1.015</td>
<td>0.36</td>
</tr>
<tr>
<td>Health Insurance Holder</td>
<td></td>
<td>0.632***</td>
<td>0.052</td>
<td>1.881</td>
<td>12.07</td>
</tr>
<tr>
<td>Self-rated Credit Record</td>
<td></td>
<td>0.421***</td>
<td>0.016</td>
<td>1.523</td>
<td>26.36</td>
</tr>
</tbody>
</table>

\(^a\)Reference group: white  
\(^b\)Reference group: less than college education  
\(^c\)Reference group: income quintile 5  
*prob < .05, **prob < .01, *** prob <.001.

**Underbanked Status**

Table 4.7 presents results from the ordered logit regression showed that likelihood ratio (LR) chi-square statistics ($\chi^2 (24) = 6485.83, p < 0.000$) was significant, indicating that the overall model fits the data well, and inclusion of all independent variables significantly predicted
underbanked status. Variables that were positively associated with underbanked status include black \((b = 0.434, z = 8.76)\), Hispanic \((b = 0.119, z = 2.21)\), Ameircan Indias \((b = 0.512, z = 4.98)\), dependent children \((b = 0.400, z = 10.37)\), all income quintiles \((b = 0.523, z = 7.38; b = 0.286, z = 4.54; b = 0.261, z = 4.19; b = 0.208, z = 3.05)\), unemployed \((b = 0.148, z = 3.61)\), welfare recipient \((b = 0.622, z = 15.21)\), and income volatility \((b = 0.523, z = 7.38; b = 0.286, z = 4.54; b = 0.261, z = 4.19; b = 0.208, z = 3.05)\).

Predictors that were negatively associated with underbanked status include female \((b = -0.350, z = -10.08)\), home ownership \((b = -0.193, z = 5.03)\) health insurance holder \((b = -0.432, z = -8.63)\), self-rated credit record \((b = -0.544, t = -36.44)\), and financial knowledge \((b = -0.145, z = -12.07)\). Variables such as Asian Americans \((b = -0.073, z = -0.86)\), other racial groups \((b = -0.114, z = -0.66)\), marital status \((b = -0.067, z = -1.72)\), and part-time employment \((b = 0.035, z = 0.60)\) were found having no association with underbanked status.

Table 4.7. Results of Ordered Logit Regression Analysis Predicting Underbanked Status (N=24,608)

<table>
<thead>
<tr>
<th>Predictor</th>
<th>b</th>
<th>SE</th>
<th>OR</th>
<th>z</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>-0.350***</td>
<td>0.035</td>
<td>0.705</td>
<td>-10.08</td>
</tr>
<tr>
<td>Age</td>
<td>-0.019**</td>
<td>0.007</td>
<td>0.981</td>
<td>-2.72</td>
</tr>
<tr>
<td>Age (squared)</td>
<td>-0.000</td>
<td>-0.000</td>
<td>1.000</td>
<td>-0.34</td>
</tr>
<tr>
<td>Black(^a)</td>
<td>0.434***</td>
<td>0.050</td>
<td>1.669</td>
<td>4.98</td>
</tr>
<tr>
<td>Hispanic/Latino(^a)</td>
<td>0.119*</td>
<td>0.054</td>
<td>1.127</td>
<td>2.21</td>
</tr>
<tr>
<td>Asian(^a)</td>
<td>-0.073</td>
<td>0.085</td>
<td>0.929</td>
<td>-0.86</td>
</tr>
<tr>
<td>American Indians/Alaska Native(^a)</td>
<td>0.512***</td>
<td>0.103</td>
<td>1.669</td>
<td>4.98</td>
</tr>
<tr>
<td>Native Hawaiian/Other Pacifica Islander(^a)</td>
<td>0.142</td>
<td>0.192</td>
<td>1.152</td>
<td>0.74</td>
</tr>
<tr>
<td>Others(^a)</td>
<td>-0.114</td>
<td>0.172</td>
<td>0.892</td>
<td>-0.66</td>
</tr>
<tr>
<td>College education(^b)</td>
<td>-0.286***</td>
<td>0.039</td>
<td>0.751</td>
<td>-7.31</td>
</tr>
</tbody>
</table>

(table cont’d)
### Results from Multivariate Analyses of AFS Use

Multivariate analyses were employed to predict what combination of correlates (i.e., demographic, socioeconomic, financial circumstance, and financial knowledge) best predict use of auto title loans, payday loans, pawn shop services, and rent-to-own (RTO) products. Logistic regression analysis allows for group membership from a set of variables that can be dichotomous, continuous, discrete, or a mix (Tabachnik & Fidell, 2012). This study employed direct binary logistic regression analysis for determining which independent variables best

<table>
<thead>
<tr>
<th>Predictor</th>
<th>Underbanked</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>b</td>
</tr>
<tr>
<td>Married</td>
<td>-0.067</td>
</tr>
<tr>
<td>Dependent children</td>
<td>0.400***</td>
</tr>
<tr>
<td>Income quintile 1&lt;sup&gt;c&lt;/sup&gt;</td>
<td>0.523***</td>
</tr>
<tr>
<td>Income quintile 2&lt;sup&gt;c&lt;/sup&gt;</td>
<td>0.286***</td>
</tr>
<tr>
<td>Income quintile 3&lt;sup&gt;c&lt;/sup&gt;</td>
<td>0.261***</td>
</tr>
<tr>
<td>Income quintile 4&lt;sup&gt;c&lt;/sup&gt;</td>
<td>0.208**</td>
</tr>
<tr>
<td>Part-time Worker&lt;sup&gt;d&lt;/sup&gt;</td>
<td>0.035</td>
</tr>
<tr>
<td>Unemployed&lt;sup&gt;d&lt;/sup&gt;</td>
<td>0.148***</td>
</tr>
<tr>
<td>Homeowner</td>
<td>-0.193***</td>
</tr>
<tr>
<td>Welfare Recipient</td>
<td>0.623***</td>
</tr>
<tr>
<td>Income Volatility</td>
<td>0.461***</td>
</tr>
<tr>
<td>Health Insurance Holder</td>
<td>-0.432***</td>
</tr>
<tr>
<td>Self-rated Credit Record</td>
<td>-0.544***</td>
</tr>
<tr>
<td>Financial knowledge</td>
<td>-0.145***</td>
</tr>
</tbody>
</table>

<sup>a</sup>Reference group: White  
<sup>b</sup>Reference group: Bachelor Degree/Graduate Degree  
<sup>c</sup>Reference group: Income Quintile 5  
<sup>d</sup>Reference group: Full-time Worker  
*prob < .05, **prob < .01, *** prob < .001.
predict use of four AFS products respectively. OLS regression analysis were employed to estimate the correlates of the frequency that each AFS product was used. Nine demographic variables were entered (e.g., age, age squared, race), so were the 9 socioeconomic variables (e.g., educational attainment, marital status, dependent children, household income, homeownership). Five financial circumstance variables (i.e., bank account ownership, welfare receipt, income volatility, health insurance coverage, self-rated credit record) as well as financial knowledge variable were entered to the OLS model.

**Use of Auto Title Loan**

Logistic regression results showed that inclusion of all independent variables significantly predicted use of auto title loan, LR $\chi^2 (28) = 2209.79, p < 0.000$). OLS regression results showed that all included variables explained 11.26% of the variance in number of auto title loans used, $F (28, 24,476) = 112.04$, Adjusted $R^2 = .11$, $p < .000$. Results from logistic regression and OLS regression analyses showed similar sets of variables that were associated with use of auto title loan and number of auto title loans used in the past five years. Specifically, respondents who were older ($OR = 0.636, z = -9.10; b = -0.084, t = -11.41$), black ($OR = 1.301, z = 3.66; b = 0.0048, t = 3.88$), Asian ($OR = 1.382, z = 3.03; b = 0.062, t = 3.57$), married ($OR = 1.183, z = 2.93; b = 0.018, t = 2.11$), full-time employees ($OR = 1.245, z = 7.43; b = 0.041, t = 9.23$), home owners ($OR = 1.340, z = 5.11; b = 0.085, t = 9.52$), welfare recipients ($OR = 2.601, z = 17.40; b = 0.257, t = 25.53$), and experienced income volatility ($OR = 2.204, z = 15.56; b = 0.257, t = 25.53$) were more likely to report using auto title loans as well as to take multiple auto title loans. In comparison, females ($OR = 0.636, z = -9.10; b = -0.084, t = -11.41$), health insurance holders ($OR = 0.775, z = -3.56; b = -0.067, t = -5.21$), and those had household income at the bottom of income quintile ($OR = 0.725, z = -3.11; b = -0.084, t = -5.75$) and poor credit
record \((OR = 0.773, z = -11.88; b = -0.027, t = -7.72)\) were less likely to use auto title loans and used less auto title loans than their counterparts. A few predictors showed different patterns of association with use of auto title loan versus numbers of auto title loans taken out. For example, three income quintiles and dependent children were positively related to use of auto title loans, but had no significant association with numbers of auto title loans taken out. In contrast, high school diploma, associate degree, and financial knowledge were negatively related to number of auto title loans taken out, but showed no association with use of auto title loan. Variables including bank account, Hispanic, and American Indians were found having no association with use of auto title loan use.

Table 4.8. Results of Multivariate Regression Analysis Predicting Auto Title Loan Borrowing \((N=24,505)\)

<table>
<thead>
<tr>
<th>Predictor</th>
<th>Logistic Model ((0/1))</th>
<th>OLS Model ((0-4))</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>OR</td>
<td>z</td>
</tr>
<tr>
<td>Female</td>
<td>0.636***</td>
<td>-9.10</td>
</tr>
<tr>
<td>Age</td>
<td>0.922***</td>
<td>-7.79</td>
</tr>
<tr>
<td>Age (squared)</td>
<td>1.000***</td>
<td>5.20</td>
</tr>
<tr>
<td>Black(^a)</td>
<td>1.301***</td>
<td>3.66</td>
</tr>
<tr>
<td>Hispanic/Latino(^a)</td>
<td>1.089</td>
<td>1.12</td>
</tr>
<tr>
<td>Asian(^a)</td>
<td>1.382**</td>
<td>3.03</td>
</tr>
<tr>
<td>American Indians/Alaska Native(^a)</td>
<td>0.966</td>
<td>-0.21</td>
</tr>
<tr>
<td>Native Hawaiian/Other Pacifica Islander(^a)</td>
<td>1.129</td>
<td>0.43</td>
</tr>
<tr>
<td>Others(^a)</td>
<td>0.825</td>
<td>-0.74</td>
</tr>
<tr>
<td>Less than High School Diploma(^b)</td>
<td>0.954</td>
<td>-1.71</td>
</tr>
<tr>
<td>GED(^b)</td>
<td>1.104</td>
<td>0.85</td>
</tr>
</tbody>
</table>

(table cont’d)
Use of Payday Loan Borrowing

Results from logistic regression indicated that inclusion of all independent variables significantly predicted use of payday loan, $\chi^2(25) = 3669.53, p < 0.000$. OLS regression results showed that all included variables explained 12.89% of the variance in increased number of auto title loans taken out, $F(25, 24,469) = 146.04, Adjusted R^2 = .13, p < .000$. Results from
logistic regression and OLS regression analysis showed similar sets of variables that were associated with use of payday loan and increased number of payday loans used in the past five years. Specifically, respondents who were female \((OR = 0.659, z = -8.69; b = -0.070, t = -6.47)\), young \((OR = 0.954, z = -4.57; b = -0.015, t = -7.21)\), married \((OR = 0.790, z = -4.36; b = -0.027, t = -2.12)\), had household income at the bottom of income quintile \((OR = 0.756, z = -2.80; b = -0.123, t = -5.71)\) and low credit record \((OR = 0.565, z = -27.53; b = -0.162, t = -31.15)\) and low levels of financial knowledge \((OR = 0.834, z = -11.45; b = -0.032, t = -8.79)\) were less likely to use payday loan and to take out payday loans multiple times. In contrast, individuals who were black \((OR = 1.883, z = 9.99; b = 0.161, t = 8.89)\), Asian \((OR = 1.692, z = 4.93; b = 0.071, t = 2.74)\), employed \((OR = 1.403, z = 11.78; b = 0.067, t = 10.20)\), welfare recipients \((OR = 2.912, z = 20.26; b = 0.304, t = 20.45)\), had dependent children \((OR = 1.731, z = 10.48; b = 0.109, t = 8.78)\), and experienced income volatility \((OR = 2.057, z = 14.94; b = 0.197, t = 14.88)\) were more likely to use payday loan and to take out payday loans multiple times. In addition, several predictors showed different patterns of association with use of payday loan and numbers of payday loans taken out including being Hispanic, having less than high school education, second lowest income quintile, and home ownership. Bank account ownership was found negatively associated with number of payday loans taken out, but had no relationship with whether or not used payday loan.

Table 4.9. Results of Multivariate Regression Analysis Predicting Payday Loan Borrowing (N=24,495)

<table>
<thead>
<tr>
<th>Predictor</th>
<th>Logistic Model (0/1)</th>
<th></th>
<th>OLS Model (0-4)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>OR</td>
<td>z</td>
<td>b</td>
</tr>
<tr>
<td>Female</td>
<td>0.659***</td>
<td>-8.69</td>
<td>-0.070***</td>
</tr>
<tr>
<td>Age</td>
<td>0.954***</td>
<td>-4.57</td>
<td>-0.015***</td>
</tr>
<tr>
<td>Predictor</td>
<td>Logistic Model (0/1)</td>
<td>OLS Model (0-4)</td>
<td></td>
</tr>
<tr>
<td>------------------------------------------------</td>
<td>----------------------</td>
<td>-----------------</td>
<td></td>
</tr>
<tr>
<td></td>
<td>OR</td>
<td>z</td>
<td>b</td>
</tr>
<tr>
<td>Age (squared)</td>
<td>1.000**</td>
<td>2.79</td>
<td>0.000***</td>
</tr>
<tr>
<td>Black(^a)</td>
<td>1.883***</td>
<td>9.99</td>
<td>0.161***</td>
</tr>
<tr>
<td>Hispanic/Latino(^a)</td>
<td>1.324</td>
<td>3.93</td>
<td>0.045*</td>
</tr>
<tr>
<td>Asian(^a)</td>
<td>1.692**</td>
<td>4.93</td>
<td>0.071*</td>
</tr>
<tr>
<td>American Indians/Alaska Native(^a)</td>
<td>1.253</td>
<td>1.59</td>
<td>0.017</td>
</tr>
<tr>
<td>Native Hawaiian/Other Pacifica Islander(^a)</td>
<td>0.915</td>
<td>-0.32</td>
<td>0.030</td>
</tr>
<tr>
<td>Others(^a)</td>
<td>0.741</td>
<td>-1.18</td>
<td>-0.119*</td>
</tr>
<tr>
<td>Less than High School Diploma/GED(^b)</td>
<td>1.178</td>
<td>1.13</td>
<td>0.053*</td>
</tr>
<tr>
<td>High School Diploma/Some College(^b)</td>
<td>1.133*</td>
<td>2.25</td>
<td>0.013</td>
</tr>
<tr>
<td>Married</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dependent children</td>
<td>1.731***</td>
<td>10.48</td>
<td>0.109***</td>
</tr>
<tr>
<td>Income quintile 1(^c)</td>
<td>0.756**</td>
<td>-2.80**</td>
<td>-0.123***</td>
</tr>
<tr>
<td>Income quintile 2(^c)</td>
<td>1.012</td>
<td>0.13</td>
<td>-0.042*</td>
</tr>
<tr>
<td>Income quintile 3(^c)</td>
<td>1.114</td>
<td>1.26</td>
<td>-0.012</td>
</tr>
<tr>
<td>Income quintile 4(^c)</td>
<td>1.055</td>
<td>0.57</td>
<td>-0.017</td>
</tr>
<tr>
<td>Employment</td>
<td>1.403***</td>
<td>11.78</td>
<td>0.067***</td>
</tr>
<tr>
<td>Homeowner</td>
<td>0.952</td>
<td>-0.92</td>
<td>-0.009***</td>
</tr>
<tr>
<td>Welfare Recipient</td>
<td>2.912***</td>
<td>20.26</td>
<td>0.304***</td>
</tr>
<tr>
<td>Income Volatility</td>
<td>2.057***</td>
<td>14.94</td>
<td>0.197***</td>
</tr>
<tr>
<td>Health Insurance Holder</td>
<td>0.895</td>
<td>-1.65</td>
<td>-0.021</td>
</tr>
<tr>
<td>Self-rated Credit Record</td>
<td>0.565***</td>
<td>-27.53</td>
<td>-0.162***</td>
</tr>
<tr>
<td>Bank Account Holder</td>
<td>1.146</td>
<td>1.14</td>
<td>-0.162*</td>
</tr>
<tr>
<td>Financial Knowledge</td>
<td>0.834***</td>
<td>-11.45</td>
<td>-0.032***</td>
</tr>
</tbody>
</table>

\(^a\)Reference group: white  
\(^b\)Reference group: Bachelor’s Degree/Graduate Degree  
\(^c\)Reference group: income quintile 5  
*prob <.05, **prob < .01, *** prob <.001.
Use of Pawnshop Products

Among 4,165 (15.28% of the sample) pawnshop users, about half (43.34%) used pawnshop services to pawn item, over a third (37.34%) sold item at pawnshops, and the rest (19.32%) bought items. Table 4.10 presents results from the logistic regression and OLS regression analyses. Logistic regression results showed the likelihood ratio (LR) chi-square statistics ($\chi^2(26) = 4153.17$, $p < 0.000$) was significant, indicating that overall model fits the data well, and inclusion of all independent variables significantly predicted use of pawnshop services. OLS regression results showed that the included variables explained 15.42% of the variance in number of pawnshop services used, $F(26, 24,471) = 172.81$, Adjusted $R^2 = .15$, $p < .000$. Results from two regression models showed similar sets of predictors associated with use of pawnshop services and increased numbers of pawnshop services used. Specifically, those who were female ($OR = 0.608$, $z = -11.66$; $b = -0.127$, $t = -11.02$), younger ($OR = 0.962$, $z = -4.16$; $b = -0.026$, $t = -11.67$), health insurance holders ($OR = 0.714$, $z = -5.87$; $b = -0.123$, $t = -6.12$), had a bank account ($OR = 0.636$, $z = -8.09$; $b = -0.026$, $t = -10.65$) with low credit record ($OR = 0.681$, $z = -21.07$; $b = -0.070$, $t = -6.47$) and low levels of financial knowledge ($OR = 0.893$, $z = -8.09$; $b = -0.0026$, $t = -6.78$) were less likely to use pawnshops and less likely to use pawnshop services multiple times. In contrast, individuals who were black ($OR = 1.516$, $z = 9.95$; $b = 0.097$, $t = 5.03$), American Indians ($OR = 1.424$, $z = 2.88$; $b = 0.140$, $t = 3.44$), had less than high school education ($OR = 1.418$, $z = 4.47$; $b = 0.118$, $t = 4.99$), dependent children ($OR = 1.598$, $z = 9.96$; $b = 0.135$, $t = 10.32$), welfare recipients ($OR = 2.325$, $z = 17.35$; $b = 0.309$, $t = 19.56$), and experienced income volatility ($OR = 1.941$, $z = 15.27$; $b = 0.244$, $t = 17.38$) were more likely to use pawnshop services and used it multiple times. In addition, a few predictors showed association with likelihood of using pawnshop services, including Hispanic ($OR = 1.237$, $z = 5.69$; $b = 0.140$, $t = 4.44$).
$z = 3.28$), other races ($b = -1.26$, $t = -2.18$), married ($OR = 0.881$, $z = -4.47$), income quintiles ($OR = 1.561$, $z = 9.96$; $OR = 1.470$, $z = 4.76$; $OR = 1.477$, $z = 4.88$; $OR = 1.296$, $z = 2.94$), part-time employee ($OR = 1.167$, $z = 2.22$), and unemployed ($OR = 1.195$, $z = 3.55$).

Table 4.10. Results of Multivariate Regression Analysis Predicting Using Pawnshop (N=24,498)

<table>
<thead>
<tr>
<th>Predictor</th>
<th>Logistic Model (0/1)</th>
<th></th>
<th>OLS Model (0-4)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>OR</td>
<td>$z$</td>
<td>$b$</td>
<td>$t$</td>
</tr>
<tr>
<td>Female</td>
<td>0.608***</td>
<td>-11.66</td>
<td>-0.127***</td>
<td>-11.02</td>
</tr>
<tr>
<td>Age</td>
<td>0.962***</td>
<td>-4.16</td>
<td>-0.026***</td>
<td>-11.67</td>
</tr>
<tr>
<td>Age (squared)</td>
<td>1.000**</td>
<td>0.47</td>
<td>0.000***</td>
<td>8.84</td>
</tr>
<tr>
<td>Black$^a$</td>
<td>1.516***</td>
<td>9.95</td>
<td>0.097***</td>
<td>5.03</td>
</tr>
<tr>
<td>Hispanic/Latino$^a$</td>
<td>1.237**</td>
<td>3.28</td>
<td>0.047</td>
<td>2.39</td>
</tr>
<tr>
<td>Asian$^a$</td>
<td>1.124</td>
<td>1.16</td>
<td>-0.006</td>
<td>-0.22</td>
</tr>
<tr>
<td>American Indians/Alaska Native$^a$</td>
<td>1.424**</td>
<td>2.88</td>
<td>0.140**</td>
<td>3.44</td>
</tr>
<tr>
<td>Native Hawaiian/Other Pacifica Islander$^a$</td>
<td>1.318</td>
<td>-1.22</td>
<td>0.012</td>
<td>0.17</td>
</tr>
<tr>
<td>Others$^a$</td>
<td>0.769</td>
<td>-1.22</td>
<td>-0.126*</td>
<td>-2.18</td>
</tr>
<tr>
<td>Less than High School Diploma/GED$^b$</td>
<td>1.418***</td>
<td>4.47</td>
<td>0.118***</td>
<td>4.99</td>
</tr>
<tr>
<td>High School Diploma/Some</td>
<td>1.207***</td>
<td>3.79</td>
<td>0.033**</td>
<td>2.64</td>
</tr>
<tr>
<td>College/Associated Degree$^b$</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Married</td>
<td>0.881**</td>
<td>-4.47</td>
<td>-0.025</td>
<td>-1.90</td>
</tr>
<tr>
<td>Dependent children</td>
<td>1.598***</td>
<td>9.96</td>
<td>0.135***</td>
<td>10.32</td>
</tr>
<tr>
<td>Income quintile 1$^c$</td>
<td>1.561**</td>
<td>4.95</td>
<td>-0.011</td>
<td>0.47</td>
</tr>
<tr>
<td>Income quintile 2$^c$</td>
<td>1.470***</td>
<td>4.76</td>
<td>0.004</td>
<td>0.23</td>
</tr>
<tr>
<td>Income quintile 3$^c$</td>
<td>1.477***</td>
<td>4.88</td>
<td>0.005</td>
<td>0.30</td>
</tr>
<tr>
<td>Income quintile 4$^c$</td>
<td>1.296**</td>
<td>2.94</td>
<td>-0.006</td>
<td>-0.29</td>
</tr>
<tr>
<td>Part-time Worker$^d$</td>
<td>1.167*</td>
<td>2.22</td>
<td>0.025</td>
<td>1.27</td>
</tr>
<tr>
<td>Unemployed$^d$</td>
<td>1.195***</td>
<td>3.55</td>
<td>0.018</td>
<td>1.29</td>
</tr>
</tbody>
</table>

(table cont’d)
<table>
<thead>
<tr>
<th>Predictor</th>
<th>Logistic Model (0/1)</th>
<th>OLS Model (0-4)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>OR</td>
<td>z</td>
</tr>
<tr>
<td>Homeowner</td>
<td>1.018</td>
<td>0.39</td>
</tr>
<tr>
<td>Welfare Recipient</td>
<td>2.325***</td>
<td>17.53</td>
</tr>
<tr>
<td>Income Volatility</td>
<td>1.941***</td>
<td>15.27</td>
</tr>
<tr>
<td>Health Insurance Holder</td>
<td>0.714***</td>
<td>-5.87</td>
</tr>
<tr>
<td>Self-rated Credit Record</td>
<td>0.681***</td>
<td>-21.07</td>
</tr>
<tr>
<td>Bank Account Holder</td>
<td>0.636***</td>
<td>-8.09</td>
</tr>
<tr>
<td>Financial Knowledge</td>
<td>0.893***</td>
<td>-8.09</td>
</tr>
</tbody>
</table>

aReference group: white  
bReference group: Bachelor’s Degree/Graduate Degree  
cReference group: Income Quintile 5  
dReference group: Full-time Worker  
*prob <.05, **prob < .01, *** prob <.001.

Use of Rent-to-Own (RTO) Products

Table 4.11 presents results from the logistic regression and OLS regression analyses.

Logistic regression results showed the likelihood ratio (LR) chi-square statistics (LR $\chi^2$ (26) = 3284.73, $p < 0.000$) was significant, indicating that overall model fits the data well, and inclusion of all independent variables significantly predicted use of RTO products. OLS regression results showed that all included variables explained 12.30% of the variance in number of RTO products used, $F$ (26, 24,491) = 133.21, $Adjusted R^2 = .12$, $p < .000$. Results from two models showed similar set of predictors showed association with use of RTO products and numbers of RTO products. Specifically, those who were female ($OR = 0.629$, $z = -8.72$; $b = -0.077$, $t = -9.39$), younger ($OR = 0.946$, $z = -4.53$; $b = -0.026$, $t = -14.39$), other races ($OR = 0.344$, $z = -2.93$; $b = -0.125$, $t = -3.06$), health insurance holders ($OR = 0.768$, $z = -3.71$; $b = -0.063$, $t = -4.13$), had a bank account ($OR = 0.747$, $z = -2.98$; $b = -0.099$, $t = -4.62$) with low credit record ($OR = 0.649$, $z$
= -18.97; \( b = -0.059, t = -15.15 \) and low levels of financial knowledge \((OR = 0.812, z = -11.81; b = -0.035, t = -12.48)\) were less likely to use RTO products were less likely to use RTO products multiple times. In contrast, individuals who were black \((OR = 1.613, z = 6.72; b = 0.071, t = 5.20)\), Asian \((OR = 1.442, z = 3.14; b = 0.057, t = 2.91)\), had less than high school education \((OR = 1.293, z = 2.73; b = 0.068, t = 4.07)\), dependent children \((OR = 2.230, z = 13.61; b = 0.129, t = 13.89)\), part-time employees \((OR = 1.355, z = 3.54; b = 0.044, t = 3.11)\), unemployed \((OR = 1.349, z = 4.82; b = 0.051, t = 5.19)\), welfare recipients \((OR = 3.459, z = 22.09; b = 0.287, t = 25.59)\), and experienced income volatility \((OR = 1.877, z = 11.93; b = 0.165, t = 16.56)\) were more likely to use RTO products multiple times. In addition, being at the top income quintiles \((OR = 1.294, z = 2.94)\) was associated with the likelihood of using RTO products, whereas predictors such as being at the bottom of income quintiles \((b = -0.081, t = -4.94; b = -0.031, t = -2.31)\), home ownership \((b = 0.041, t = 3.11)\), and high school education \((b = -0.019, t = -2.09)\) were negatively associated with increased number of RTO products used.

Table 4.11. Results of Multivariate Regression Analysis Predicting Using Rent-to-own Products. (N=24,518)

<table>
<thead>
<tr>
<th>Predictor</th>
<th>Logistic Model (0/1)</th>
<th>OLS Model (0-4)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>OR</td>
<td>z</td>
</tr>
<tr>
<td>Female</td>
<td>0.629***</td>
<td>-8.72</td>
</tr>
<tr>
<td>Age</td>
<td>0.946***</td>
<td>-4.53</td>
</tr>
<tr>
<td>Age (squared)</td>
<td>1.000**</td>
<td>1.53</td>
</tr>
<tr>
<td>Black(^a)</td>
<td>1.613***</td>
<td>6.72</td>
</tr>
<tr>
<td>Hispanic/Latino(^a)</td>
<td>1.133</td>
<td>1.60</td>
</tr>
<tr>
<td>Asian(^a)</td>
<td>1.442**</td>
<td>3.14</td>
</tr>
<tr>
<td>(table cont’d)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Predictor</td>
<td>Logistic Model (0/1)</td>
<td>OLS Model (0-4)</td>
</tr>
<tr>
<td>-----------------------------------------------</td>
<td>----------------------</td>
<td>-----------------</td>
</tr>
<tr>
<td></td>
<td>OR</td>
<td>z</td>
</tr>
<tr>
<td>American Indians/Alaska Native(^a)</td>
<td>1.137</td>
<td>0.82</td>
</tr>
<tr>
<td>Native Hawaiian/Other Pacifica Islander(^a)</td>
<td>0.820</td>
<td>-0.63</td>
</tr>
<tr>
<td>Others(^a)</td>
<td>0.344(*)</td>
<td>-2.93</td>
</tr>
<tr>
<td>Less than High School Diploma/GED(^b)</td>
<td>1.293(*)</td>
<td>2.73</td>
</tr>
<tr>
<td>High School Diploma/Some</td>
<td>1.004</td>
<td>0.07</td>
</tr>
<tr>
<td>College/Associated Degree(^b)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Married</td>
<td>1.045</td>
<td>0.72</td>
</tr>
<tr>
<td>Dependent children</td>
<td>2.230(*)</td>
<td>13.61</td>
</tr>
<tr>
<td>Income quintile 1(^c)</td>
<td>0.900</td>
<td>-0.94</td>
</tr>
<tr>
<td>Income quintile 2(^c)</td>
<td>1.125</td>
<td>1.20</td>
</tr>
<tr>
<td>Income quintile 3(^c)</td>
<td>1.200</td>
<td>1.89</td>
</tr>
<tr>
<td>Income quintile 4(^c)</td>
<td>1.294(*)</td>
<td>2.94</td>
</tr>
<tr>
<td>Part-time Worker(^d)</td>
<td>1.355(*)</td>
<td>3.54</td>
</tr>
<tr>
<td>Unemployed(^d)</td>
<td>1.349(*)</td>
<td>4.82</td>
</tr>
<tr>
<td>Homeowner</td>
<td>1.046</td>
<td>0.76</td>
</tr>
<tr>
<td>Welfare Recipient</td>
<td>3.459(*)</td>
<td>22.09</td>
</tr>
<tr>
<td>Income Volatility</td>
<td>1.877(*)</td>
<td>11.93</td>
</tr>
<tr>
<td>Health Insurance Holder</td>
<td>0.768(*)</td>
<td>-3.71</td>
</tr>
<tr>
<td>Self-rated Credit Record</td>
<td>0.649(*)</td>
<td>-18.97</td>
</tr>
<tr>
<td>Bank Account Holder</td>
<td>0.747(*)</td>
<td>-2.98</td>
</tr>
<tr>
<td>Financial Knowledge</td>
<td>0.812(*)</td>
<td>-11.81</td>
</tr>
</tbody>
</table>

\(^a\)Reference group: white
\(^b\)Reference group: Bachelor’s Degree/Graduate Degree
\(^c\)Reference group: Income Quintile 5
\(^d\)Reference group: Full-time Worker
*prob <.05, **prob < .01, *** prob <.001.
Results of Propensity Score Matching Analyses

A logit regression was employed to generate the propensity score with twelve covariates including age, gender, race, marital status, educational level, household income, employment status, welfare receipt, income volatility, credit record, and financial knowledge. Interaction terms and square terms were added to check the mode fit. Age square term was kept in the model as it improved the model fit. Results showed that inclusion of all covariates significantly predicted use of payday loan ($LR \chi^2 (13) = 3617.44, p < 0.000$), and model fit was satisfactory (88.85% were correctly classified, McFadden’s Adjusted $R^2 = 0.208$).

Propensity scores of the sample ranged from 0.004 to 0.905, with a mean of 0.111 ($SD = 0.133$). Among payday loan users, estimated propensity scores ranged from 0.005 to 0.905 ($M = 0.259, SD = 0.176$). In contrast, among non-payday loan users, estimated propensity scores ranged from 0.004 and 0.846 ($M =0.092, SD = 0.113$). Figure 4.1 shows the kernel density of propensity score. Figure 4.2 shows two group’s propensities of using payday loans.

![Figure 4.1. Kernel Density of Propensity Score](image-url)
Three matching strategies were used to estimate effects of using payday loan on four financial well-being indicators. These three matching strategies were one-to-one nearest neighbor matching, one-to-five nearest neighbor matching, and one-to-one nearest neighbor matching with caliper. The matching procedures are almost identical for the sample of all payday loan users and the non-payday loan users. The following results and referenced figures and tables discuss the matching results for the full sample.

**Effects on Making Ends Meet**

Table 4.12 presents results yielded from PSM analyses of an average treatment effect for the treated using three different matching strategies. Nearest neighbor matching without calipers successfully matches 2,750 payday loan users with non-payday loan users. Results of nearest
neighbor matching with caliper found eight treated cases that did not have matches with propensity scores that within caliper of 0.01, therefore the unmatched treated cases were excluded from the following analysis. Results from PSM estimates showed that individuals using payday loans were less likely to make ends meet when compared to closely matched counterparts who did not use payday loans. The negative effect of using payday loan on making ends meet as measured using three matching strategies was statistically significant at the \( p < .001 \) level, and effect sizes yielded from using three matching strategies were modest.

Table 4.12. Results of PSM Estimates on Making Ends Meet

<table>
<thead>
<tr>
<th>Matching Strategy</th>
<th>Coefficient</th>
<th>Standard Error</th>
<th>( z )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nearest Neighbor Matching 1:1</td>
<td>-0.105</td>
<td>0.134</td>
<td>-7.63***</td>
</tr>
<tr>
<td>Nearest Neighbor Matching 1:5</td>
<td>-0.105</td>
<td>0.011</td>
<td>-9.33***</td>
</tr>
<tr>
<td>Nearest Neighbor Matching with Caliper</td>
<td>-0.103</td>
<td>0.138</td>
<td>-7.44***</td>
</tr>
</tbody>
</table>

*prob < .05, **prob < .01, *** prob < .001.

After matching, standardized bias were computed to assess the matching performance on all covariates that were used to estimate propensity scores. Table 4.13 summarizes standardizes differences and variances before and after matching on 12 covariates. After matching, standardized biases were expected to move towards 0, while variances were expected to move towards 1. As shown in the table, standardized biases of all covariates except gender moved towards 0 after matching, and nine covariates showed their variances moving towards 1 after matching. Variances of three covariates (i.e., gender, race, and employment status) moved further from 1 after matching.
Table 4.13. A Summary of Covariate Balance Statistics

<table>
<thead>
<tr>
<th>Covariate</th>
<th>Standardized Bias Unmatched</th>
<th>Standardized Bias Matched</th>
<th>Variance Unmatched</th>
<th>Variance Matched</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>-0.046</td>
<td>-0.055</td>
<td>1.008</td>
<td>1.009</td>
</tr>
<tr>
<td>Age</td>
<td>-0.612</td>
<td>-0.003</td>
<td>0.719</td>
<td>1.101</td>
</tr>
<tr>
<td>Race</td>
<td>0.234</td>
<td>-0.032</td>
<td>1.113</td>
<td>0.743</td>
</tr>
<tr>
<td>Marital Status</td>
<td>-0.234</td>
<td>0.007</td>
<td>1.022</td>
<td>1.000</td>
</tr>
<tr>
<td>Educational Attainment</td>
<td>-0.258</td>
<td>0.088</td>
<td>0.972</td>
<td>1.005</td>
</tr>
<tr>
<td>Household Income</td>
<td>-0.335</td>
<td>0.056</td>
<td>0.891</td>
<td>0.919</td>
</tr>
<tr>
<td>Dependent Children</td>
<td>0.428</td>
<td>0.009</td>
<td>1.082</td>
<td>0.998</td>
</tr>
<tr>
<td>Employment Status</td>
<td>0.222</td>
<td>0.039</td>
<td>0.987</td>
<td>0.983</td>
</tr>
<tr>
<td>Welfare Receipt</td>
<td>0.519</td>
<td>0.033</td>
<td>1.952</td>
<td>1.022</td>
</tr>
<tr>
<td>Income Volatility</td>
<td>0.571</td>
<td>0.045</td>
<td>1.627</td>
<td>1.013</td>
</tr>
<tr>
<td>Self-rated Credit Record</td>
<td>-0.924</td>
<td>0.085</td>
<td>1.182</td>
<td>0.998</td>
</tr>
<tr>
<td>Financial Knowledge</td>
<td>-0.586</td>
<td>-0.010</td>
<td>0.779</td>
<td>0.827</td>
</tr>
</tbody>
</table>

Figure 4.3 shows distribution of propensity score of the sample before and after matching. The left set of histograms shows propensity score imbalance in unmatched sample. The right set of histograms shows propensity score balance in the matched sample. As shown in the figure, the propensity scores of matched samples were balanced, ranging from 0.15 to 0.36.
Figure 4.3. Propensity Score Balance Before and After Matching.

**Effects on Paying Bills on Time**

Table 4.14 presents results from PSM analyses estimating the average treatment effect for the treated using three different matching strategies. Nearest neighbor matching without calipers successfully matches 2,724 payday loan users with non-payday loan users. Results of nearest neighbor matching with caliper found eight treated cases that did not have matches with propensity scores that within caliper of 0.01, therefore the unmatched treated cases were excluded from following analysis. Results from PSM estimates showed that individuals using payday loans were less likely to pay bills on time when compared to closely matched counterparts who did not use payday loans. The negative effect of using payday loan on paying bills on time as measured using three matching strategies was statistically significant at the $p < .001$ level, and effect sizes that were estimated using three matching strategies were modest.
Table 4.14. Results of PSM Estimates on Paying Bills on Time

<table>
<thead>
<tr>
<th>Matching Strategy</th>
<th>Coefficient</th>
<th>Standard Error</th>
<th>z</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nearest Neighbor Matching 1:1</td>
<td>-0.066</td>
<td>0.013</td>
<td>-5.14***</td>
</tr>
<tr>
<td>Nearest Neighbor Matching 1:5</td>
<td>-0.053</td>
<td>0.010</td>
<td>-5.14***</td>
</tr>
<tr>
<td>Nearest Neighbor Matching with Caliper</td>
<td>-0.065</td>
<td>0.134</td>
<td>-4.86***</td>
</tr>
</tbody>
</table>

*prob < .05, **prob < .01, *** prob < .001.

Table 4.15 summarizes standardizes differences and variances before and after matching on 12 covariates when estimating effects of using payday loans on paying bills on time. After matching, standardized biases were expected to move towards 0, while variances were expected to move towards 1. As shown in the table, standardized biases of all covariates moved towards 0 after matching, and all covariates except race, educational attainment, and employment status showed variances moving towards 1 after matching.

Table 4.15. A Summary of Covariate Balance Statistics

<table>
<thead>
<tr>
<th>Covariate</th>
<th>Standardized Bias Unmatched</th>
<th>Standardized Bias Matched</th>
<th>Variance Unmatched</th>
<th>Variance Matched</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>-0.049</td>
<td>-0.041</td>
<td>1.008</td>
<td>1.006</td>
</tr>
<tr>
<td>Age</td>
<td>-0.606</td>
<td>-0.006</td>
<td>0.722</td>
<td>1.039</td>
</tr>
<tr>
<td>Race</td>
<td>0.234</td>
<td>0.002</td>
<td>1.119</td>
<td>0.792</td>
</tr>
<tr>
<td>Marital Status</td>
<td>-0.242</td>
<td>0.049</td>
<td>1.021</td>
<td>1.010</td>
</tr>
<tr>
<td>Educational Attainment</td>
<td>-0.256</td>
<td>0.059</td>
<td>0.975</td>
<td>0.973</td>
</tr>
<tr>
<td>Household Income</td>
<td>-0.338</td>
<td>0.096</td>
<td>0.892</td>
<td>0.978</td>
</tr>
<tr>
<td>Dependent Children</td>
<td>0.419</td>
<td>0.045</td>
<td>1.082</td>
<td>0.992</td>
</tr>
<tr>
<td>Employment Status</td>
<td>0.223</td>
<td>0.053</td>
<td>0.987</td>
<td>0.988</td>
</tr>
<tr>
<td>Welfare Receipt</td>
<td>0.518</td>
<td>0.041</td>
<td>1.951</td>
<td>1.028</td>
</tr>
<tr>
<td>Income Volatility</td>
<td>0.566</td>
<td>0.051</td>
<td>1.624</td>
<td>1.015</td>
</tr>
<tr>
<td>Self-rated Credit Record</td>
<td>-0.923</td>
<td>0.096</td>
<td>1.169</td>
<td>0.987</td>
</tr>
<tr>
<td>Financial Knowledge</td>
<td>-0.577</td>
<td>0.042</td>
<td>0.771</td>
<td>0.824</td>
</tr>
</tbody>
</table>
Effects on Rainy Day Funds

Table 4.16 shows results of PSM analyses of an average treatment effect for the treated using three different matching strategies. Nearest neighbor matching without calipers successfully matches 2,671 payday loan users with non-payday loan users. Results of nearest neighbor matching with caliper found 7 treated cases that did not have matches with propensity scores that within caliper of 0.01, therefore the unmatched treated cases were excluded from analysis. Results from PSM estimates showed that individuals using payday loans were more likely to have rainy day funds that cover expenses for three months when compared to closely matched counterparts who did not use payday loans. The positive effect of using payday loan on having rainy day funds as measured using three matching strategies was statistically significant at the $p < .001$ level, and effect sizes were found minimal across three matching strategies.

Table 4.16. Results of PSM Estimates on Rainy Day Funds

<table>
<thead>
<tr>
<th>Matching Strategy</th>
<th>Coefficient</th>
<th>Standard Error</th>
<th>z</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nearest Neighbor Matching 1:1</td>
<td>0.071</td>
<td>0.013</td>
<td>5.30***</td>
</tr>
<tr>
<td>Nearest Neighbor Matching 1:5</td>
<td>0.062</td>
<td>0.011</td>
<td>5.85***</td>
</tr>
<tr>
<td>Nearest Neighbor Matching with Caliper</td>
<td>0.068</td>
<td>0.015</td>
<td>4.63***</td>
</tr>
</tbody>
</table>

*prob < .05, **prob < .01, *** prob < .001.

Table 4.17 summarizes standardizes differences and variances before and after matching on 12 covariates when estimating effects of using payday loans on having rainy day funds. After matching, standardized biases were expected to move towards 0, while variances were expected to move towards 1. As shown in the table below, standardized biases of all covariates moved towards 0 after matching. Variances of 10 covariates moved towards 1 after matching.
Covariates that did not show improvement in variance after matching were race and educational attainment. Variance of employment status covariate did not show improvements after matching.

Table 4.1. A Summary of Covariate Balance Statistics

<table>
<thead>
<tr>
<th>Covariate</th>
<th>Standardized Bias Unmatched</th>
<th>Standardized Bias Matched</th>
<th>Variance Unmatched</th>
<th>Variance Matched</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>-0.045</td>
<td>-0.030</td>
<td>1.008</td>
<td>1.005</td>
</tr>
<tr>
<td>Age</td>
<td>-0.597</td>
<td>-0.022</td>
<td>0.719</td>
<td>1.125</td>
</tr>
<tr>
<td>Race</td>
<td>0.231</td>
<td>-0.023</td>
<td>1.119</td>
<td>0.800</td>
</tr>
<tr>
<td>Marital Status</td>
<td>-0.236</td>
<td>0.011</td>
<td>1.021</td>
<td>1.002</td>
</tr>
<tr>
<td>Educational Attainment</td>
<td>-0.257</td>
<td>0.051</td>
<td>0.973</td>
<td>0.935</td>
</tr>
<tr>
<td>Household Income</td>
<td>-0.339</td>
<td>0.054</td>
<td>0.886</td>
<td>0.911</td>
</tr>
<tr>
<td>Dependent Children</td>
<td>0.418</td>
<td>0.008</td>
<td>1.080</td>
<td>0.998</td>
</tr>
<tr>
<td>Employment Status</td>
<td>0.224</td>
<td>0.060</td>
<td>0.987</td>
<td>0.983</td>
</tr>
<tr>
<td>Welfare Receipt</td>
<td>0.518</td>
<td>0.025</td>
<td>1.950</td>
<td>1.017</td>
</tr>
<tr>
<td>Income Volatility</td>
<td>0.575</td>
<td>0.029</td>
<td>1.627</td>
<td>1.007</td>
</tr>
<tr>
<td>Self-rated Credit Record</td>
<td>-0.931</td>
<td>0.061</td>
<td>1.168</td>
<td>1.005</td>
</tr>
<tr>
<td>Financial Knowledge</td>
<td>-0.581</td>
<td>0.040</td>
<td>0.773</td>
<td>0.841</td>
</tr>
</tbody>
</table>

Effects on Emergency Funds

Table 4.18 presents results of PSM analyses of an average treatment effect for the treated using three different matching strategies. Nearest neighbor matching without calipers successfully matches 2,675 payday loan users with non-payday loan users. Results of nearest neighbor matching with caliper found eight treated cases that did not have matches with propensity scores that within caliper of 0.01, therefore the unmatched treated cases were excluded from analysis. Results from PSM estimates showed that individuals using payday loans were more likely to come up with an emergency funds of $2,000 when compared to closely matched counterparts who did not use payday loans. However, the positive effect of using payday loan on having emergency funds as measured using one-on-one matching strategy were statistically insignificant.
Table 4.18. Results of PSM Estimates on Emergency Funds

<table>
<thead>
<tr>
<th>Matching Strategy</th>
<th>Coefficient</th>
<th>Standard Error</th>
<th>z</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nearest Neighbor Matching 1:1</td>
<td>0.023</td>
<td>0.014</td>
<td>1.63</td>
</tr>
<tr>
<td>Nearest Neighbor Matching 1:5</td>
<td>0.031</td>
<td>0.011</td>
<td>2.78*</td>
</tr>
<tr>
<td>Nearest Neighbor Matching with Caliper</td>
<td>0.039</td>
<td>0.015</td>
<td>2.53*</td>
</tr>
</tbody>
</table>

*prob < .05, **prob < .01, *** prob < .001.

Table 4.19 shows standardizes differences and variances of covariates before and after matching when estimating effects of using payday loans on having emergency funds. After matching, standardized biases were expected to move towards 0, while variances were expected to move towards 1. As shown in the table below, standardized biases of all covariates moved towards 0 after matching. Variances of eight covariates moved towards 1 after matching. Race covariate did not show improvement in variance after matching. Variances of three covariates (i.e., gender, educational attainment, employment status) stayed same after matching.

Table 4.19. A Summary of Covariate Balance Statistics

<table>
<thead>
<tr>
<th>Covariate</th>
<th>Standardized Bias Unmatched</th>
<th>Standardized Bias Matched</th>
<th>Variance Unmatched</th>
<th>Variance Matched</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>-0.048</td>
<td>-0.019</td>
<td>1.008</td>
<td>1.003</td>
</tr>
<tr>
<td>Age</td>
<td>-0.614</td>
<td>0.030</td>
<td>0.715</td>
<td>1.099</td>
</tr>
<tr>
<td>Race</td>
<td>0.236</td>
<td>-0.020</td>
<td>1.116</td>
<td>0.773</td>
</tr>
<tr>
<td>Marital Status</td>
<td>-0.240</td>
<td>0.023</td>
<td>1.022</td>
<td>1.004</td>
</tr>
<tr>
<td>Educational Attainment</td>
<td>-0.254</td>
<td>0.069</td>
<td>0.980</td>
<td>1.034</td>
</tr>
<tr>
<td>Household Income</td>
<td>-0.344</td>
<td>0.077</td>
<td>0.893</td>
<td>0.908</td>
</tr>
<tr>
<td>Dependent Children</td>
<td>0.425</td>
<td>0.017</td>
<td>1.082</td>
<td>0.996</td>
</tr>
<tr>
<td>Employment Status</td>
<td>0.230</td>
<td>0.040</td>
<td>0.985</td>
<td>0.985</td>
</tr>
<tr>
<td>Welfare Receipt</td>
<td>0.520</td>
<td>0.068</td>
<td>1.957</td>
<td>1.049</td>
</tr>
<tr>
<td>Income Volatility</td>
<td>0.568</td>
<td>0.054</td>
<td>1.627</td>
<td>1.016</td>
</tr>
<tr>
<td>Self-rated Credit Record</td>
<td>-0.930</td>
<td>0.079</td>
<td>1.180</td>
<td>1.025</td>
</tr>
<tr>
<td>Financial Knowledge</td>
<td>-0.585</td>
<td>0.028</td>
<td>0.773</td>
<td>0.806</td>
</tr>
</tbody>
</table>
Chapter 5. Discussion

The current exploratory, quasi-experimental research examined sociodemographic and numerous financial characteristics that predict household banking practices in the United States. Drawing from a recent nationally representative dataset (i.e., the 2015 National Financial Capability Study), this study examined use of checking accounts, saving accounts, and alternative financial services (AFS) within diverse American households. Using a propensity score matching analysis, this study examined the effects of using AFS and payday loans in particular on household present and future financial security. The following paragraphs discuss the main findings within the context of relevant literature, followed by a review of limitations and contributions of the research. Then, suggestions for future directions are delineated and the implications of the findings for macro and micro policy, education, and research are discussed. A summary of the dissertation concludes the chapter.

Prevalence and Uniqueness of the Underbanked

One of the main findings of this study is that the underbanked group was sizable and distinctively different from both the unbanked and the banked groups. In fact, one in five individuals was underbanked, this latter group was five times larger than the unbanked group, a finding that is consistent with national estimates conducted by the Federal Deposit Insurance Corporation (Burhouse et al., 2013; 2016). Although the underbanked group appears to be a relatively large group, no study to date had singled out this group and systematically examined its profile, and compared the characteristics of the underbanked to those of the unbanked and banked groups. This is largely because current debate about financial inclusion has framed the issue as a problem being unbanked versus banked (Servon, 2017), an artificial dichotomy that excludes the underbanked group of individuals who have some type of connection to mainstream financial institutions, but also often use high-cost, high-risk AFS products (Birkenmaier, 2012).
Existing research on financial inclusion has rarely focused on the underbanked group (e.g., Friedline, Despard, & Chowa, 2016; Grinsterin-Weiss, Yeo, Despard, Casalotti, Zhan, 2010; Rhine, 2006). Failing to identify the underbanked group likely has resulted in discounting the prevalence and magnitude of problems with financial access as well as has obscured the pervasiveness of the fringe economy within the U.S. households.

In addition, the results of the current study further showed that the underbanked group was distinctively different from the unbanked in terms of demographic characteristics and household financial circumstances. For example, as compared to their white counterparts, Asian Americans were more likely to be underbanked; however, there was no significant difference in likelihood of having a checking or saving account between the two groups. Previous studies have consistently shown that unmarried individuals are more likely to be unbanked (e.g., Rhine, 2006; Rhine & Greence, 2013); however, the current study indicated that marital status was unrelated to banking status. The distinct characteristics of the underbanked have been masked in the extant research, which routinely used the banked-unbanked analytical framework when examining banking practices. The distinct profile as well as notable size of the underbanked group that emerged in the current study emphasize the importance of expanding the current, limited analytical framework to gain a more complete understanding of banking practices of individuals who are underbanked.

**Bank Account Ownership**

A number of findings are consistent with what has been documented in studies investing bank account ownership. Consistent with previous studies, the current study found that the unbanked group was overrepresented by individuals who were racial minorities (e.g., Barr, 2008;), lower-paid (e.g., Buckland, 2008), and unmarried (e.g., Rhine et al., 2006; Rhine &
Greene, 2013), as well as poor credit records (Sprague, 2015) and received welfare benefits (e.g., Stegman & Faris, 2005). In addition, having health insurance coverage was associated with using either a checking or saving account, a finding consistent with previous work (Rhine & Greene, 2013). It is possible that health insurance coverage serves an important way for families to protect themselves against health shocks. In fact, past studies have shown that health insurance coverage showed mitigating effects on labor supply and family income (Bradley, Neumark & Motika, 2012), which could in turn help families open and maintain bank account.

Several findings emerged that were inconsistent with what has been established in the literature. For example, numerous studies indicated that racial minorities are disproportionately unbanked (e.g., Hogarth et al., 2003; Rhine et al., 2013). The current study found that the likelihood of being unbanked was not evenly distributed across racial minority groups, and that there was considerable heterogeneity in owning a bank account across groups. Specifically, Hispanic and Asian groups were not significantly different from the white group with respect to having a checking or saving account. The finding that not all minority groups were at risk of being unbanked suggests that financial circumstances of Hispanic and Asian groups, for example, may be linked to cultural factors that predispose them to use bank accounts. Prospective research is needed to identify the factors that are associated with having a bank account among diverse Hispanic and American households.

Previous studies have indicated that welfare recipients typically are unbanked (e.g., Stegman & Faris, 2005; O’Brien, 2012; Rhine & Greene, 2013). The current study suggests a more complex relationship may exist between welfare receipt and banking status. The results of the current study showed that receiving welfare benefits was unrelated to having a checking account, but was negatively associated with having a saving account. For welfare recipients, the
lack of having a savings account most likely is related to current welfare policy that establishes limits on assets as part of the eligibility criteria for benefits (Sprague et al., 2016). The recent shift in delivery of benefits from paper checks to Electronic Benefit Transfer cards provides some measure of financial access and security, however, few states offer and encourage direct deposit or establish it as the default method of benefit disbursement (Sprague et al., 2016). Moreover, nearly all states set the amount of assets a family can have and still qualify for federal assistance, such as Temporary Assistance for Needy Families (TANF), which set the lowest asset limits among all means-tested program. For example, in 2013, the median asset limit for TANF was $2,000, and 9 states currently restrict TANF recipients to no more than $1,000 (Sprague et al., 2016). Research shows that these limits signal to TANF recipients that owning a bank account could render them ineligible for benefit (Lim et al., 2010; O’Brien, 2008; 2012; Sprague, 2015). The stringent financial eligibility criteria and statutory and administrative barriers to holding a bank account often deter many low-income households and public assistance recipients from using bank accounts and services. Within this latter context, the finding that welfare receipt was negatively associated with having a saving account lends support to the interpretation that stringent asset limits likely prohibit recipients from using and maintaining a formal saving account.

**Characteristics of AFS Users**

A major goal of the current study was to examine four groups of AFS users in order to provide a comprehensive picture of demographic and financial determinants of AFS use. The following paragraphs discuss findings regarding four AFS user groups: auto title loan users, payday loan users, rent-to-own users, and pawnshop users.
Users of Auto Title Loans

The current study showed that auto title loan users tended to be female, African American, Asian American and middle aged. Individuals who were married with dependent children, full-time workers, and reporting annual incomes in the middle income quintiles also were overrepresented in this subgroup of AFS users also. In addition, use of auto title loan was associated with having a homeownership, receiving welfare benefits, experiencing income volatility experiences, and having a poor credit record, and have no health insurance coverage. While other fringe banking products such as payday loans have received considerable attention in the literature, the characteristics of auto title loan users are relatively understudied and less understood. The study by Fritzdixon, Hawkins, and Skiba (2012) is the only large-scale empirical investigation of auto title loan users. Fritzdixon et al. (2012) found that auto title loan users were more likely to be middle aged, full-time workers, and home owners, and these groups of people were also tended to take out multiple title loans. It is possible that full-time employment and home assets were associated with owning a car, which then allowed these individuals to obtain auto title loans.

The current study indicated that financial knowledge was unrelated to auto title loan use, which is inconsistent with the finding of Fritzdixon et al. (2012) showing that auto title loan customers were overconfident about their knowledge regarding auto title loan and overly optimistic about their ability to make timely payments. It is worth noting that Fritzdixon et al. (2012) did not examine actual financial knowledge of auto title loan users. Rather, Fritzdixon et al. (2012) compared self-reported estimates of length of time for loan repayment with the actual length of time recorded in existing general usage data. These authors subsequently concluded that title loan users may be persistently naive about their loan payment ability. The current study
examined knowledge about the general financial concepts that did not include a focus either on participants’ understanding of auto title loans or their ability to repay them. Thus, prospectively designed studies are needed to assess knowledge specific to auto title use and examine its relationship to actual financial behaviors.

Although financial knowledge was not associated with auto title loan use, other important predictors of auto title use emerged in the current analysis. For example, income volatility and welfare receipt showed large, positive effects on both use of auto title loans and number of title loans taken out. These latter financial circumstances, which are linked to poverty, make auto title loan users vulnerable to unscrupulous lending practices (Karger, 2007). The extant research consistently shows that poverty and financial hardship contribute to the use of fringe economy vendors (e.g., Karger, 2007; Shobe et al., 2013; Martin & Longa, 2012); however, few studies have focused on auto title loans in particular. The current study presents initial empirical evidence that financial circumstances associated with poverty predict use of auto title loans, thereby enhancing current understanding of users of different AFS products.

Payday Loan Users

The current study showed that payday loan use was associated with being females, young, African Americans, and unmarried. Those who were employed part time with the lowest income and who showed low levels of financial knowledge also were likely to use payday loans. These latter characteristics emerge in previous studies of payday loan users (e.g., Bertrand & Morse, 2011; Elliehausen, 2009; Lawrence & Elliehausen, 2008; Lim et al., 2014; Stegman, 2007). Welfare receipt showed a notably large impact on payday loan use, which is consistent with previous studies indicating that recipients of public assistance were three to five times more likely than nonrecipients to use payday loans (e.g., Caplan, Kindle, & Nielsen, 2017; Martin &
Longa, 2012). As compared to individuals in the highest income quintile, only those in the lowest income quintile were significantly more likely to use payday loans. Taken together, these findings imply that welfare recipients may be rational decision makers who simply piece together a safety net from the various income-generating possibilities available (Kindle & Caplan, 2015).

Several findings of the current study are inconsistent with existing knowledge about payday loan users. For example, previous research has shown that medical debt is positively associated with payday loan debt, and that individuals with medical debt tend to borrow from payday lenders to cover medical expenses (e.g., Bickham & Lim, 2015; Gary & Villegas, 2012). The current study showed no association between health insurance coverage and either payday loan use or number of payday loans. On the one hand, this could be because the health insurance plans held by payday loan users had limited coverage and failed to function as a financial buffer as expected. Thus, having a health insurance coverage may not be sufficient for individuals who incur high medical costs or unexpected health shocks, and are compelled to borrow from payday lenders. On the other hand, the lack of health insurance may be an artifact of being unemployed. Future research should therefore consider collect specific information about particular health plan benefits and medical related expense and debts to gain a better understanding regarding how health insurance coverage affects use of payday loans.

In addition, several findings contradict assumption about payday loan users. For example, there is a common belief that AFS users including payday loan users overrepresent among those without traditional bank accounts (e.g., Barr, 2002; Birkenmaier & Fu, 2016, FDIC, 2014). Findings from the current study showed that bank account ownership had no significant association with payday loan use, suggesting a more complex relationship between these
variables, and that reasons for not having a bank account do not fully overlap with the reasons for using payday loans. One possible explanation is that bank accounts do not function in a way that fulfills the transaction and credit needs of payday loan users. Prior research has shown that prohibitive banking policies deter consumers from maintaining bank accounts (e.g., high balance requirement, rising overdraft fees, Baradaran, 2015), whereas individuals use payday loans because they are easy and quick transactions that do not require a substantial credit records (Servon, 2017).

Lastly, previous studies have shown that individuals who are low-income and cash strapped use payday loans to obtain cash for bill payments and financial emergencies (e.g., Gross, Hogarth, Manohar, & Gallegos, 2012; Karger, 2005; Lim et al., 2014). It is plausible that a substantial number of low-to-moderate income families experience income volatility, and that their financial distress and uncertainty make payday loans more appealing than formal bank loans; however, few studies have examined income volatility and its relationship to payday loan use. Income volatility and payday loan use is an increasingly important focus of research, given that current stagnant wages and increased financial uncertainty experienced by working-class families (Morduch & Schneider, 2017). The current study is the first to provide preliminary empirical evidence that income volatility has a substantial impact on both the use of payday loans and the frequency of payday loan use. This latter finding sheds light on how financial uncertainty may affect individuals’ financial behavior, and the way they manage personal finance.

**Pawnshop Users**

The current study indicated that pawnshop users tended to be female, unmarried, middle aged, and from racial minority groups. Those who were less educated, lower paid, and part-time
workers also were overrepresented among pawnshop users. In addition, the use of pawnshop was positively associated with receiving welfare benefits, experiencing income volatility, having a poor credit record and low financial knowledge, and being unbanked without health insurance coverage. Although pawnshops have provided short-term cash lending to consumers for decades, research on pawnshop users is scant. The study by Bos, Carter, and Skiba (2012) is the only available investigation of pawnshop services and users in the United States. Findings of the current study are somewhat consistent those of Bos et al. (2012), who showed that pawnshop borrowers were most likely to be women with child rearing responsibilities who were experiencing in both employment and marital instability.

Bank account ownership was found negatively associated with pawnshop use and frequency of pawnshop use. This finding is consistent with previous studies showing that those who are unbanked are more likely to use various AFS products; however, no study has specifically examined pawnshop use. Similar to payday loan users, pawnshop users were more likely to be welfare recipients and those who experienced income volatility. These latter characteristics suggest that pawnshop users may live in relatively unstable financial situations with numerous constraints. However, empirical knowledge about pawnshop products and its users is scarce; and additional research is needed to shed light on this oldest financial institution and its consumers in the context of the modern fringe economy.

Rent-To-Own Users

The current study showed that those who use rent-to-own (RTO) stores were likely to be middle-aged, female, African American, and be employed part time. Those with less than high school education and dependent children were overrepresented among RTO users. In addition, RTO use was associated with receiving welfare benefits, being unbanked, experiencing income
volatility, as well as having no health insurance, a poor credit record, and low levels of financial knowledge. Some of these latter findings are consistent with those of existing studies indicating that African Americans (Elliehausen, 2005), having dependent children (Lacko, McKernan & Hastak, 2000, 2002), and low levels of educational attainment (McKernan, Lacko, & Hastak, 2003) predict whether individuals use RTO. It is notable that although research has investigated the RTO industry and its products (Anderson & Jaggia, 2009; 2012; Hawkins, 2007), descriptive examining RTO users are scarce and mostly descriptive.

The current study adds to the limited knowledge about RTO users by identifying several predictors of RTO product use that have not emerged in previous research. For example, both welfare receipt and income volatility were found to have a substantial positive impact on both RTO use and frequency of RTO use. In addition, having a poor credit record was positively associated with RTO use. Taken together, these findings provide a preliminary profile of RTO users, suggesting that RTO users are concentrated among the poor who are likely to experience unexpected income drops, and unstable financial circumstances. The design and features of the services and products offered at RTO stores may be especially attractive to individuals who are relatively poor and financially unstable. RTO stores typically provide easy access to households goods for a periodic fee with no credit check or down payment (Shobe et al., 2013). RTO agreements typically can be terminated by users at any time without further financial liability, a feature that may be well suited to individuals who are in a transient or unsettled living situations, or who have unstable incomes (Shobe et al., 2013).

**Impact of Payday Loan Use**

Using propensity score matching (PSM) as a main analytical approach, this study examined effects of payday loan use on household financial well-being. PSM methods were used to balance data by matching payday loan nonusers to payday loan users based on the probability
of using payday loans, in order to reduce selection bias and to yield a more accurate estimate of
the treatment effect (Guo & Fraser, 2010), which in this case is use of payday loans. Existing
studies on the impact of AFS use have solely focused on payday loan use, and the findings are
somewhat mixed. Furthermore, it is important to note that the research examining the effects of
payday loan has primarily focused on access to payday loans, rather than actual use. Thus, the
current study is one of the first investigation that links payday loan use to important financial
well-being indicators, and the findings suggest that payday loan can be harmful to household
financial stability and is likely to increase financial stress.

Findings of the current study indicated a complex relationship between use of payday
loan and financial security. First, results of the PS analysis showed that the use of payday loans
seemed to negatively affect participants’ ability to make ends meet, as well as to pay bills on
time. This latter finding is consistent with findings from a number of existing studies showing
that the use of payday loans contributes to difficulties in paying mortgage and rent on time (e.g.,
Melzer, 201), and it is related to the increased possibility of bankruptcy and greater amount of
debt (e.g., Mayer, 2004; Skiba & Tobacman, 2011). Conversely, other studies have showed that
having access to payday loans mitigated disaster-induced foreclosure (e.g., Morse, 2011) and
reduced debt payment delinquency rates (e.g., Morgan, 2007). However, these studies examined
access to payday loan rather than actual use, and the results should therefore be interpreted with
cautions. In contrast, the current study employed measures of actual payday loan use to assess its
effects, and the findings represent the impacts of self-reported actual use of payday loans on
financial well-being. There is considerable debate about the advantages and disadvantages of
payday lending on consumer well-being (Caskey, 2010; Hembruff & Soederberg, 2015).
Although no consensus has been achieved, the negative impact of using payday loans is due to
exorbitantly high interest rates, costly fees, and rollover design. The negative impact of payday loan use on making ends meet and paying bills that was demonstrated in the current study could reflect the incremental effects of repeated use and associated with high costs.

Another main finding is that use of payday loans showed a small positive effect on future financial security (i.e., having a rainy day fund and confidence in securing an emergency fund). No research to date has focused on the effects of payday loans on emergency savings; although a few studies have suggested that AFS users, including payday loan users, choose to use high-cost credit products simply because the AFS industry is the only place accessible to them for obtaining credit and coping with financial emergencies (Caplan, Kindle, & Nielsen, 2017; Servon, 2017, Hembruff & Soederberg, 2015). The relationship between payday loan use and future financial security suggests that payday lending may provide individuals with a sense of confidence and some assurance that they can cope with unexpected financial shocks and emergency expenses by obtaining a payday loan, if needed. Despite the fact that this strategy can be costly, payday and other AFS lenders may be the only option available when it comes to finding emergency funds (Caplan et al., 2017). However, this latter result should be interpreted with caution, because the effect sizes were small, and the results obtained from one of the three matching strategies indicated that payday loan use had no effect on ability to secure emergency funds, one indicator of future financial security. More research is needed to clarify the mechanisms by which payday loan use affects future financial security. Longitudinal studies are best suited to answer the fundamental questions about whether and to what extent payday loans exacerbate financial difficulties and economic insecurity among the general population as well as certain groups of payday loan user (e.g., racial minorities, welfare recipients, immigrants).
Limitations of the Study

There are several limitations to the current study, mainly due to issues around use of PSM methods, measurement, and sampling. The following paragraphs discuss the main limitations of this study.

Use of PSM Methods. Selection bias is one of the most common threats to internal validity in experimental and quasi-experimental designs (Shadish, Cook, & Campbell, 2002). The PSM method was employed to address selection bias in the current study, and the limitations of using PSM for inferring causality warrants discussion. For example, the results of PSM approaches are sensitive to careful model specifications that rest on the strength of existing research (Barth et al., 2008), therefore, it is important that extant research provides a relatively high level of knowledge regarding all known characteristics that are associated with receiving a particular treatment. This latter assumption was only partially met because studies examining predictors of AFS use are few in number, and there are mixed findings regarding the socioeconomic characteristics (e.g., household income, Elliehausen & Lawrence, 2001) that best predict use of AFS products. Given that the empirical knowledge is underdeveloped in this area, it is unlikely to ensure that the propensity score (PS) model tested in the current study included all potential variables that predict payday loan use (e.g., acculturation level of some minority group, financial knowledge specific to AFS products). Further, the literature has identified a number of potential predictors of payday loan use that were unavailable in the original dataset, and therefore were not included in the PS model, such as social support and social networks (Stoesz et al., 2016), geographic proximity to payday lenders (e.g., Cover et al., 2011; Smith et al., 2008), neighborhood-level factors (e.g., King et al., 2005), and state-level regulations (e.g., Friedline & Kepple, 2017).
Another limitation of using a PSM strategy for making causal inferences is that it is impossible to confirm that the cause (use of payday loans) precedes the effect (e.g., financial security) in time when re-analyzing existing cross-sectional survey (i.e., NFCS). Experimental studies that include randomization to treatment conditions, as well as maintain a detailed record of important events over time increase confidence for inferring causality (Shadish et al., 2002). However, with a PSM approach, the propensity to receive a treatment is likely to be a function of events that are happening at the same time that the treatment effect is being measured (Morgan & Winship, 2015). In this case, even with a robust PSM strategy, the current study cannot definitely determine whether the use of payday loans actually preceded the occurrence of the particular financial outcomes of interest. For example, the use of payday loans has been precipitated by late bill payments, rather than have resulted in late bill payments. Because of the very nature of NFCS cross-sectional survey data, the internal validity of the PSM analyses have been compromised in the current study.

It is also worth noting that resampling process as part of the PSM analysis used in this study led to the elimination of unmatched cases. The unmatched payday loan users were excluded from the analyses. The socioeconomic as well as financial well-being profiles of the unmatched participants could have differed from those who were included in the analysis. Elimination of the unmatches cases can possibly bias the estimates regarding the effects of payday loan use that were yielded in the current study. Additional analyses are needed to assess how certain characteristics of unmatched participants differ from those of the matched participants, and to what extent the differences affect the validity of findings.

**Measurement Issues.** There are several limitations related to measurement that largely derive from using secondary data. The current study used NFCS data, which is collected at the
national level to describe the financial activities and attitudes of U.S. adult population. Although the NFCS dataset includes rich and detailed information, it falls short on measurement of several variables. Specifically, variables such as household income, educational attainment, credit record were measured at the ordinal level in the original study, and the current study was unable to disaggregate these variables, nor can specify the precise degree of quantitative differences. For example, household income cannot be precisely identified for AFS users, which constrains the analysis of the current study.

In addition, the construct validity of concepts used in the current study may have been compromised by how the variables were measured in the 2015 NCFS study. Although the dependent variables were theoretically based, the current study included only two measures for each of the two dimensions of financial well-being. Therefore, the construct, financial well-being, may not have been fully captured by the way it was operationalized in the current study. Also, the response option for one measure of future financial security (i.e., having a rainy-day fund of $2,000) were improperly matched to the statement. In the original questionnaire, respondents were asked to report their confidence level regarding their ability to come up with $2,000 in rainy-day funds; however, the response options for this item were not worded correctly and did not accurately assess participants’ level of confidence. Lastly, the current study used data that were self-reported, and no triangulation strategy was used in the original NFCS study to verify the accuracy of self-reported financial behaviors and circumstances. These latter measurement issues may have compromised the validity of some of the findings of the current study.

**Sampling Issues.** Nonprobability sampling methods were employed to collect the original NFCS data, which limits the representativeness of the sample. Specifically, the non-
probability quota sampling method used for the 2015 NFCS state-by-state study may have biased the results. For example, bias can exist in the selection of sample elements within a given cell of the sampling matrix, even though its proportion of the population is accurately estimated (Rubin & Babbie, 2010). Unlike probability sampling methods, it is impossible to determine the degree of sampling error when employing a nonprobability quota sampling strategy.

In addition, ambiguity or brevity in reporting appears to be an issue in the NFCS data set. When nonprobability sampling methods are employed, it is important to detail the methods used to select the sample and collect the data. However, like other online surveys, the 2015 NFCS project does not include sufficient information to assess the survey methodology. For instance, it is unclear how respondents were recruited from the three original panels, and the criteria used to exclude certain participants from the study in order to meet pre-specified quotas were not articulated. In addition, low NFCS response rates can limit the generalizability of the findings of the current study. Only a small proportion (7.95%) of those who received an invitation to join the panel decided to opt in. Among the panelists, an even smaller proportion (3.08%) completed the 2015 NFCS state-by-state survey. Thus, the final set of NFCS responses likely were affected by certain exclusion, selection, and non-participation biases. The findings of the current study, therefore, may be generalizable only to those who completed the NCFS survey rather than the U. S. general population.

**Contribution of the Study**

Despite limitations, the current study makes a substantial, meaningful contribution to the knowledge base by identifying a distinct underbanked population, describing empirically- and theoretically relevant correlates that predict the use of bank accounts, and demonstrating heterogeneity among different AFS users with a national-level data set. First, although the underbanked represents a sizeable group (Burhouse et al., 2013; 2016), its unique characteristics
have been obscured by existing studies which investigated financial inclusion in a context of a dichotomous banked-unbanked framework. The current study is the first known investigation to explicitly examine the underbanked group, as well as delineate critical differences in financial circumstances between the underbanked and both the banked and the unbanked. The finding that experiencing income volatility and receiving welfare benefits predispose individuals to becoming underbanked, rather than unbanked, highlights the importance of differentiating among these three banking statuses in future research on financial inclusion.

The current research establishes a foundation for future investigations examining users of different AFS products. This is particularly critical in the two understudied areas of pawnshop and auto title loan use, given that empirical knowledge is limited regarding the characteristics of and types of financial decisions made by users of these particular AFS products. Only a handful of particular studies on auto title loan users have been published (e.g., Fox & Guy, 2005; Fritzdixon et al., 2012; Zywicki, 2009), and even fewer have focused on pawnshop users (Bos et al., 2012). Further, most of these latter studies are descriptive and employ small, unrepresentative samples. Using a national-level, relatively representative sample, the current study provides a comprehensive profile of each of the four types of AFS users and describes the factors that are associated with the use of each type of AFS product, thereby allowing for comparisons across the four groups of AFS users. The main finding that AFS users represent a heterogeneous group and that each AFS product can be linked to users with certain household characteristics and financial circumstances offers a comprehensive understanding of the fringe economy market and users of its key products, thereby laying a solid foundation for future research.

Lastly, the current study expands knowledge about the effects of payday loan use on household financial well-being. Previous research on payday loans has focused on only a few
indicators of economic well-being (e.g., Morse, 2006; 2011; Wilson et al., 2008), and most studies have employed relatively weak designs and rely on small, nonprobability samples (e.g., Bhutta, 2014, Skiba & Tobacman, 2011). The current study is the first known investigation to assess the impact of payday loan use on financial well-being from a consumer perspective. The relevance of the outcomes examined in the present study meaningfully contributes an expanded understanding of the fringe economy and its impact on American households. The current study employed a relatively rigorous research design and analytical strategy that yielded fairly accurate and valid estimates of the effects of payday loans. PSM strategies teased out selection biases, and the findings add to the growing corpus of knowledge on AFS use in the US.

**Implications for Social Work Practice, Education, and Research**

The current study sheds light on correlates of bank account ownership and AFS use, as well as the impact of payday loans on financial well-being. The results have implications for micro and macro practices, education, and research. New knowledge about the impact of payday loans on current and future financial stability is especially relevant to policies that aim to assist economically disadvantaged individuals and families with building financial security. The following paragraphs provide a discussion about implications for social work macro and micro practice, education, as well as research.

**Implications for Macro Practice**

Policy practice is a core function of the social work profession and is a primary method of promoting social and economic justice (Council of Social Work Education, 2008). From a macro perspective, the sizeable population of underbanked and unbanked participants identified in the current study highlights the fact that the current consumer financial marketplace lacks high-quality, affordable financial services and products, and inadequately meets the needs of
many low-to-moderate income families. The tremendous growth of the AFS industry and the volume of AFS products provided to the unbanked and underbanked populations indicate that the AFS sector fills an important niche in the consumer financial marketplace for facilitating transactions and credit. Although the Community Reinvestment Act was passed three decades ago to encourage banks to serve the financial needs of low-income families and communities, the prevalence of the unbanked and underbanked as indicated by the current study, underscores the importance of re-examining why individuals choose to live in the fringe economy (Caskey, 2010).

Previous research shows that individuals remain unbanked because they cannot afford the costs associated with traditional banking services (Baradaran, 2015; FIDC, 2012; 2014). To address the unbanked issue, some efforts are underway to provide low-cost bank accounts to the unbanked. For example, the U.S. Treasury Department has promoted “First Accounts” initiatives by subsidizing organizational-financial institution partnerships that bring low-income households into traditional banking systems and encourage the development of appropriate and affordable financial products and services (Birkenmaier, 2012). Banked On is another nationwide program that offers free bank accounts to low-income families (Caplan, 2014). These latter initiatives demonstrate that policy-driven collaborative efforts between banking institutions and organization that interface with the unbanked and underbanked hold promise for ensuring that mainstream banking systems meet the needs of financially vulnerable populations. Social workers should be familiar with these programs and gather information about financial institutions in the community that provide low-cost services to low-income families. In addition, social workers also should seek out community-based working groups (e.g., social service
organizations, insured financial institutions) to develop and implement efforts in activities that promote banking for the un- and underbanked groups.

In addition, findings about the predictors of bank account ownership suggest that certain products and services may be appropriate for families experiencing challenging financial circumstances (e.g., high income volatility, unemployment, poor credit). The Second Chance program, for example, offers financial education and access to bank accounts to individuals who are listed in the Chex Systems (Haynes-Bordas et al., 2008). Although polices that promote safe, affordable, transparent, and universally available financial products and services are desirable (Servon, 2017), interventions should also target specific populations, such as those who are underemployed, experience high levels of income volatility, or have poor credit records. Social workers should advocate for policies and programs that help financially vulnerable groups build credit record and establish financial stability. For instance, social workers can advocate for the expansion of type of data (e.g., positive utility payment) submitted to credit bureaus may benefit individuals with poor credit records, as well as expansion of savings programs towards building financial assets among low-income families.

**Implications for Micro Practice**

From a direct practice perspective, the findings yield implications for social work and practitioners and other human service providers. Social workers who are grounded in empowerment-oriented are well positioned to assess clients’ financial circumstances and overall financial health, and to facilitate referrals to appropriate and beneficial financial products, as well as provide education about financial matters. Given the negative effects of payday loans on individuals’ immediate financial security, social workers should include financial management practices and experiences as part of a comprehensive psychosocial assessment to identify factors
that contribute to financial stress, and to better understand the financial contexts in which clients live in. Routine identification of precursors to and outcomes of AFS use should be integrated into the assessment process in order to gain understand this important aspect of individuals’ financial lives. This latter practice has already occurred in a number of practice settings including community-based programs that address domestic violence (Sanders, 2017), employment and career services (Collins & Birkenmaier, 2013), asset building programs for low-income families (Parker, 2013), and protective services that investigate financial abuse among older adults (e.g., McCallion, Ferretti, & Park, 2013). Social workers regularly come into contact with financially vulnerable individuals who may be seeking services to address issues around physical health and safety, mental health, relationships, and family functioning. Financial assessment and intervention services are appropriate for settings that assist individuals and families with other needs, such as housing, child development, reentry and rehabilitation.

The finding that financial knowledge is associated with using some of the AFS products suggests that it may be appropriate to administer tests of financial knowledge to identify the particular content areas where client financial education is most needed (Kindle, 2009). Referring clients to community-based financial education programs is another approach for enhancing financial knowledge. Caseworkers employed in income maintenance programs (e.g., TANF), for example, can play a vital role by referring clients to financial education programs (Zhan et al., 2009). Financial education training also could be provided through community social service agencies. Collaborating with university extension programs may be an appropriate partnership in that social workers can contribute their specialized expertise in working with disadvantaged individuals and households, while drawing on the knowledge of consumer educators and others about financial matters (Kindle, 2009).
Implications for Social Work Education

Financial inclusion and capability is an important and timely for social work because lack of financial knowledge, skills, inclusion, and capability are key contributors to poverty and inequality (Sherraden et al., 2015). Aligned with professional values around economic justice and empowerment, social workers are well suited to help low-income populations increase their financial literacy and gain financial stability (Birkenmaier, 2012). Nevertheless, scholars have noted that social worker practitioners generally are ill-prepared to help clients address their financial difficulties. Although social workers historically have assisted low-income populations with financial matters, beginning with friendly visitors of charity organizations who helped the poor with budgeting and saving (Cruce, 2001), at present, the profession is more so focused on nonfinancial issues in family life such as aging, child welfare, and mental health (Stuart, 2013).

The dearth of social work training on finance and financial literacy has spawned several initiatives designed to enhance professional social work practice skills in the area of financial capability practice and education. For example, the Financial Capability and Asset Building (FCAB) initiative sponsored by the Center for Social Development is developing and testing financial capability curricula for social work professionals (Birkenmaier, Curley, & Sherraden, 2013). The Financial Social Work Initiative at the University of Maryland is another initiative dedicated to renewing the profession’s historical commitment to financial capability and to strengthening social work practitioners’ skill in helping vulnerable families build assets and financial security (Birkenmaier et al., 2013). As an emerging subfield of social work, FCAB has been deemed as one of the twelve “Grand Challenges” of Social Work for the 21st Century by the American Academy of Social Work and Social Welfare (Sherraden et al., 2015). The findings of the current study provide new knowledge about the underbanked population and the impact of
the fringe economy on household financial well-being. As such, the current research contributes to efforts that seek to address the Grand Challenge of building financial capability. The Council on Social Work Education updated its Educational Policy and Accreditation Standards (EPAS, 2015) requires social work schools to integrate content about economic well-being and personal finance in core curricula. The current study provides new information that can be included in coursework focused on financial well-being and economic justice. Specifically, concepts of financial inclusion and information on AFS products and its impact can be infused into several curricular areas including Human Behavior in the Social Environment, policy, practice, research, and field education, and other elective course (Birkenmaier, Kennedy, Kunz, Sander, & Horwitz, 2013).

**Implications for Research**

Findings from the current study have implications for research in the areas of design and measurement. A complex relationship between payday loan use and household financial well-being emerged in the present study. While payday loan use seemed to have negative impact on financial security, the effect was modest and likely can be attributed to issues around dosage. The effects of payday loan use might be greater for individuals who obtain multiple payday loans than for those obtained only one. This latter question about dosage effects is especially salient in light of the common claim that payday loans represent a debt trap that forces families into penury because of the rapid succession of loans taken and repayment (e.g., Barr, 2002; Hermbruff & Soedeberge, 2015). The extant research has focused on access to and effects of payday loans (Caskey, 2010), but no study has examined the impact of successive payday loan use on financial outcomes. Additionally, longitudinal research is needed to explore the dosage effects of payday loans.
loans and to gain a better understanding of the long-term financial outcomes of payday lending on its users.

Furthermore, the positive effects of payday loans on individuals’ ability to come with rainy day funds was unexpected, suggesting a need to understand mechanisms by which payday loans affect saving behaviors and financial outcomes. The finding that payday loans had no effect on the ability to come up with emergency funds is inconsistent with previous research (e.g., West & Friedline, 2016; Molzer, 2011), and adds questions to the area of relationship between the fringe economy and financial well-being. Future research should focus on clarifying the mechanisms by which payday loans and other AFS products affect individuals’ current and long-term financial outcomes. Although the PSM analysis employed in the current study yielded a relatively accurate estimate of the effects of payday loan use, research that employs rigorous experimental designs is needed to identify clear causal paths from using AFS products to potential impact on financial well-being.

The current study indicated that different AFS products are used by groups with different characteristics and financial circumstances. More work is needed to understand the discrete and summative effects of different AFS products use. While the current research unveiled several financial conditions that consistently predict AFS products, its examination is limited to four AFS products. Moreover, the analysis of the current study focused on one product at a time, and did not consider situations in which individuals used a mixed of different AFS products. The knowledge dearth regarding AFS products and their users creates an urgent need for more research efforts, especially on users who used a combination of AFS products, given that these latter groups likely rely heavily on the fringe economy and thus financially vulnerable. Greater clarity and understanding is needed to identify the key determinants of AFS singular use and
combination use in order to guide effective policy addressing the Grand Challenges of building financial capability and promoting economic stability.

**Conclusion**

As people’s lives have become more financialized, so has the need for access to safe, affordable financial services and products. Substantial numbers of individuals have withdrawn from mainstream financial systems in recent years, while participation in the fringe economy has increased during this time period (FIDC, 2014). Thus, questions about the impact of AFS use on financial well-being and security have become important to researchers and policy makers. Using data drawn from the 2015 National Financial Capability Study, this dissertation research investigated determinants of bank account ownership and AFS use, as well as identified the effects of payday loans on household financial well-being. Results indicated the underbanked represents a sizeable group that has distinct socioeconomic and financial characteristics as compared to both the unbanked and banked. PSM analysis showed that payday loan use had a negative impact on respondents’ current financial security, but had positive effects on their future financial security.

Despite methodological limitations, the current study is the first known study to describe the characteristics and develop a profile of the underbanked group. As such, the findings addresses gaps in the knowledge gaps and shed light on limitations of the existing banked-unbanked dichotomy that has framed much of the extent research. In addition, a complex relationship between payday loan use and household financial security emerged, a finding that lays a foundation for future research investigating whether and to what extent AFS use affects individuals’ current and future financial security. Findings of the current research yield several implications for social work practice, education and research. In terms of macro practice, results underscore the need for social workers to advocate for policies that promote access to affordable,
safe banking services and products. In addition, such policies need to target financially vulnerable populations (e.g., those experience income volatility and have poor credit records).

Social workers in micro practice settings should integrate information about clients’ financial circumstances into the standard psychosocial assessment process. Further, social worker should provide financial education when needed, as part of empowerment-oriented practice. In terms of social work education, knowledge gained from the current study regarding AFS use and its impact along with other financial capability substantive content can be infused throughout several areas of core curricular content, in keeping with EPAS requirements (CSWE, 2015).

Lastly, future research is warranted to more fully describe the mechanisms by which payday loan use impacts financial well-being by longitudinal studies that employ valid measures are needed to explore the dosage effect of payday loan use on individuals’ financial circumstance over time.
References


de Bassa Scheresberg, C. (2013). Financial Literacy and Financial Behavior among Young Adults: Evidence and Implications. *Numeracy, 6*(2). [https://doi.org/http://dx.doi.org/10.5038/1936-4660.6.2.5](https://doi.org/http://dx.doi.org/10.5038/1936-4660.6.2.5)


http://www.demos.org/publication/borrowing-make-ends-meet-rapid-growth-credit-card-debt-america


Rosenbaum, P. R., & Rubin, D. B. (1983). The central role of the propensity score in observational studies for causal effects. *Biometrika, 70*(1), 41–55. [https://doi.org/10.1093/biomet/70.1.41](https://doi.org/10.1093/biomet/70.1.41)


Appendix

Institutional Review Board Approval

ACTION ON EXEMPTION APPROVAL REQUEST

TO: Zibei Chen  
Social Work

FROM: Dennis Landin  
Chair, Institutional Review Board

DATE: October 18, 2017

RE: IRB# E10696

TITLE: Penny and pound: Unpacking the impacts of Fringe Economy on Household Economic Wellbeing


Review Date: 10/18/2017

Approved X Disapproved

Approval Date: 10/18/2017 Approval Expiration Date: 10/17/2020

Exemption Category/Paragraph: 4a Signed

Consent Waived?: N/A Re-review

frequency: (three years unless otherwise stated) LSU Proposal Number (if applicable):

Protocol Matches Scope of Work in Grant proposal: (if applicable)

By: Dennis Landin, Chairman

PRINCIPAL INVESTIGATOR: PLEASE READ THE FOLLOWING – Continuing approval is CONDITIONAL on:

1. Adherence to the approved protocol, familiarity with, and adherence to the ethical standards of the Belmont Report, and LSU's Assurance of Compliance with DHHS regulations for the protection of human subjects*

2. Prior approval of a change in protocol, including revision of the consent documents or an increase in the number of subjects over that approved.

3. Obtaining renewed approval (or submittal of a termination report), prior to the approval expiration date, upon request by the IRB office (irrespective of when the project actually begins); notification of project termination.

4. Retention of documentation of informed consent and study records for at least 3 years after the study ends.

5. Continuing attention to the physical and psychological well-being and informed consent of the individual participants, including notification of new information that might affect consent.

6. A prompt report to the IRB of any adverse event affecting a participant potentially arising from the study.


8. SPECIAL NOTE: When emailing more than one recipient, make sure you use bcc. Approvals will automatically be closed by the IRB on the expiration date unless the PI requests a continuation.

* All investigators and support staff have access to copies of the Belmont Report, LSU's Assurance with DHHS, DHHS (45 CFR 46) and FDA regulations governing use of human subjects, and other relevant documents in print in this office or on our World Wide Web site at http://www.lsu.edu/irb

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Vita

Zibei Chen, originally of Tongbai, China, is currently a resident of Baton Rouge, Louisiana. She received her bachelor’s degree from Shenyang Normal University, China in 2008, her master’s in social welfare policy from Beijing Normal University in 2011, her master’s in social work degree from Louisiana State University in 2015, and has been a licensed master social worker since 2015. Over the past seven years, she has worked in the Social Research and Evaluation Center, formerly known as Office of Social Services Research and Development at Louisiana State University. She has disseminated research at national and state conferences and authored several publications on peer-reviewed journals. She plans to graduate from Ph.D. program in social work in August 2018, and she will join the University of Michigan School of Social Work as a post doc fellow in July 2018.