

THE PENNSYLVANIA STATE UNIVERSITY
SCHREYER HONORS COLLEGE

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CASHLESS SOCIETY IN THE UNITED STATES:
THE FEASIBILITY OF INTEGRATING THE UNBANKED POPULATION

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SPRING 2023

A thesis
submitted in partial fulfillment
of the requirements
for a baccalaureate degree
in Finance
with honors in Finance

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ABSTRACT

This paper will examine the possibility and feasibility of a cashless society in the United States. The purpose of this paper revolves around the ability for the United States to continue innovating in the digital payments industry, while integrating the financially underserved population. Various population demographics will be studied in this paper, but the primary target will be the unbanked population. The feasibility will be evaluated with an original pilot project, combining the efforts and technologies of various companies. Social and economic cost-benefit analyses will be used to showcase the feasibility of integrating the underserved population into the rapidly growing digital payments market. A proposal was created to assist in the reduction of the financially underserved population in the United States, as the country inevitably trends toward a cashless society.

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ACKNOWLEDGEMENTS

I would like to express my deepest appreciation to Dr. Brian Davis for his role as my Thesis Supervisor. Brian willingly and happily devoted time to enhancing the quality of my thesis, providing constructive suggestions, and encouraging me to think outside of the box. Brian has been an incredible mentor for me throughout my time in college and it has been a pleasure working with him on my thesis.

Chapter 1

Introduction

The theory of a cashless society is a concept that has been looming since the 1950s as tech companies and banks developed innovative products that would forever change the way the world conducts financial transactions. A cashless society can be defined as an economy where coins and physical notes are not accepted forms of payment. Instead, transactions take place in other forms, such as credit or debit cards, mobile payment services, cryptocurrencies, or any other electronic alternatives to cash. The goal of a cashless society is to create a more efficient way of conducting financial transactions while reducing reliance on physical currency.

Looking back in time, it is extremely interesting to see the evolution of transaction methods throughout thousands of years. Understanding the transitions and adaptations is important to truly understand the future of payment systems. This paper will focus primarily on the idea of a cashless society, but the United States still has a long way to go until a fully cashless society is achieved.

History of Currency in the World

Money is a broad term. Money has no inherent value but instead places value on an object that allows for the exchange of goods and services. This can be seen in the earliest parts of civilization through the concept of bartering. Bartering is the exchanging of goods between two parties that share an equal value to both parties. Livestock, crops, weapons, and many others are some of the goods that were exchanged through early bartering methods. Although bartering is

not as common today, some civilizations throughout the world rely on bartering as a means of exchanging goods.

It wasn't until around 5000 B.C. that physical currency was introduced. The Mesopotamian shekel is the first known form of currency and was used throughout the civilization and in areas surrounding it (Ritchie). In China, the origins of metal currency date back to 1000 B.C., and were made out of precious metals such as bronze and copper. The importance of this evolution is that coins allowed people to pay by the number of coins compared to previous bartering methods of weight-based. Outside of China, other nations were developing coins out of silver and shaping them into the round form that is seen today. These silver coins were predominantly in present-day European nations such as Greece, Turkey, Macedonia, and the Roman Empire. Coins were an important and useful part of establishing currency systems in most nations around the world and led to the creation of paper currency.

Once again, China was a leader in the development of paper currency. Due to struggles with inflation, production, and determining the value of paper currency, it was in and out of use during ancient periods. In America, the earliest forms of paper currency were notes that were issued by the Massachusetts Bay Colony to fund military expeditions (*The History of U.S. currency*). As the nation grew and gained independence, the dollar sign was officially adopted in 1785 and The Bank of the United States was established by Alexander Hamilton in 1791. This was part of the beginning of banking in the United States.

Since there were issues regarding the store of value for paper currency, England established gold as the standard value in 1816 (Square). The United States followed behind slowly and President McKinley signed the Gold Standard act in 1900 which established gold as the sole basis for redeeming paper currency (Glass). The Gold Standard was in place in the

United States until 1933 when it was discontinued due to the depletion of the national gold supply while there was ongoing deflation in the economy. After this, the federal government became the official backer of the monetary system.

Around this same time, Frank McNamara and his business partner, Ralph Schneider, had a revolutionary idea that would disrupt the payments market forever. While dining in New York City, Frank forgot his wallet at home and was unable to pay his tab, forcing his wife to come bail him out. This made him think of a new way people could pay for goods without the use of cash, leading to the creation of the Diners Club card. The Diners Club card, created in 1950, was one of the original forms of a credit card in the United States. It allowed patrons to charge their meals and hotel stays to the card, and then Diners Club would send payment directly to the store where the charge was being made, taking a small commission for each transaction. On the first of each month, the cardholder would be responsible for paying their bill in full each month (Frankel and Lupini).

Using Diners Club as a motivation, American Express, a freight transport company, began focusing its efforts on money orders and checks. In 1958, American Express created its first version of a credit card and allowed customers to pay a monthly bill in exchange for an annual fee (Frankel and Lupini). As time continued, credit and debit cards continued to evolve into the cards that are used today. Reward programs were implemented as a marketing technique to draw in more customers, promising compensation in the form of points for loyal users. EMV chip cards were introduced in the last 1990s, which allowed for contactless payments through Near Field Communication (NFC) technology. NFC is a radio frequency that allows the EMV chip on a card to interact with a point-of-sale terminal to conduct transactions.

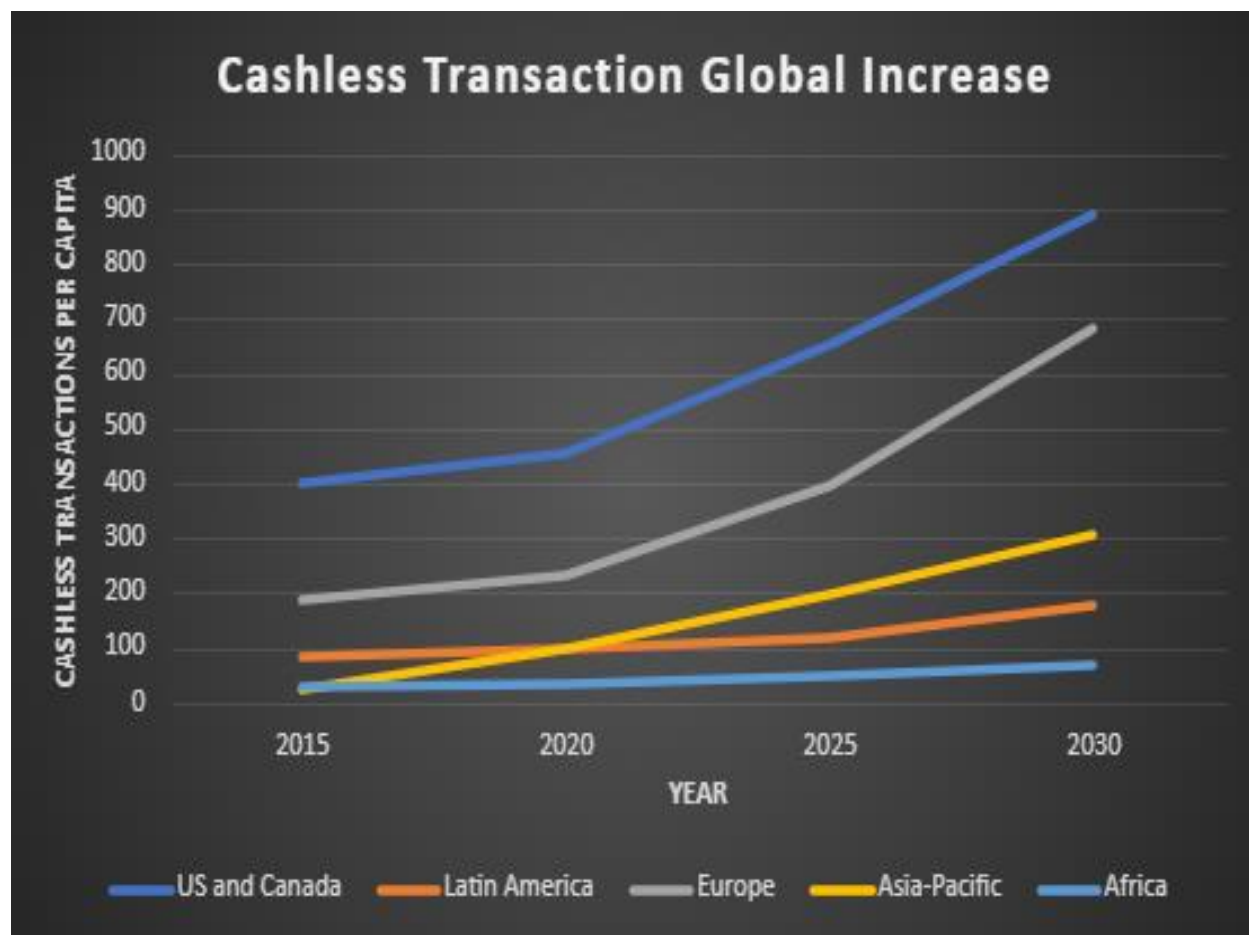
At this point in time, some of the newest technology within the space comes from digital payments and online alternatives. In the 1990s, Stanford Federal Credit Union was one of the first organizations in the United States that offered clients online payment systems. PayPal was another game-changing company in the industry for being considered one of the first companies to specialize in online payment systems. As technology continued to prosper, so have FinTech companies in the space. Companies like Venmo and Cash App have taken over the Peer-to-Peer space by allowing transfers of funds from one individual to another. Chime and Varo are companies that offer traditional bank accounts, checking and savings, without having prior credit experience.

FinTech companies like these have continued to shape the market for transactions and show how it is evolving daily. As this evolution continues, the United States will continue to trend toward a fully cashless society.

Digital Payments in the United States

Although the shift to digital payments in the United States has been on the rise over the last few years, the Covid-19 pandemic accelerated the acceptance. PwC consumer research shows that online purchases have increased from 33 percent to 45 percent since the start of the outbreak (Russel et al.). This shift displays the digital payments industry starting to become the number one choice for consumers. The graph below showcases the projected number of transactions that will occur per capita yearly. The clear trend from the graph is that over the next decade, the United States and Canada will increase per capita transactions by a factor of two, which would be the fastest-growing region in the world. On the other hand, one-third of

personal spending in the United States is still conducted via physical transactions (cash or check), a fully cashless society is not something that will be established in the next few years.



Big 4 Consulting firms estimate that there is around a \$60 billion market for the digital payments space. Even though there are a plethora of entry points into the market and vast amounts of profit to be made, there are many other opportunities that also extend from the basics. Digital platforms are extremely convenient and also provide much-needed security for finances. The expansion and adoption of digital payment platforms will continue to create new

opportunities for all stakeholders involved, but it will also display the many underlying weaknesses surrounding the individuals who are unwilling or unable to adapt.

While the benefits of payment innovation might be clear, there are societal costs to going cashless. Since economically disadvantaged households predominantly use cash transactions, an acceleration towards digital will inherently challenge financial inclusion. As consumers and businesses adjust their payment preferences, the payment industry at large will likely need to continue to provide choice and access to traditional and innovative options.

Current State of Financial Inclusion in the United States

Financial inclusion is defined by the World Bank as “facilitates day-to-day living, and helps families and businesses plan for everything from long-term goals to unexpected emergencies.” It also adds, “As accountholders, people are more likely to use other financial services, such as savings, credit, and insurance, start and expand businesses, invest in education or health, manage risk, and weather financial shocks, all of which can improve the overall quality of their lives” (*Financial Inclusion*). The ability for an individual to have access to some form of transaction account allows for greater financial inclusion because it is the primary step to saving and storing money, and being able to send and receive funds. Accessibility to financial services such as savings, credit, and other payment systems for individuals in underserved demographics, is a key aspect of financial inclusion. The overall goal is to promote financial stability and reduce poverty by advocating for greater participation in the economy.

Financial exclusion is a major dilemma for many nations around the globe. The United States is not fully financially inclusive but is trending that way. While there is a well-established financial system in place in the United States, around 5.9 million households were unbanked as

of 2021 (Federal Deposit Insurance Corporation). Unbanked can be defined as an individual who does not have access to banking tools or institutions in any capacity. In America, 4.5 percent of all adults are considered unbanked, which can be seen as an issue with the increased dependency on technology and cashless transactions. The majority of these households are in poverty and have barriers when accessing credit and loans due to a lack of account history. Many unbanked households live paycheck to paycheck because of the exclusion from conventional financial services. These unbanked households rely on alternative financial services to pay bills and cash checks, which leads to exploitation from high fees. Currently, there are efforts in place to bridge the gap between banked and unbanked households, but finding innovative, enticing programs has been proven extremely difficult in many circumstances. There is still significant progress that needs to be made in the United States to ensure all communities have equal access to financial products regardless of their income, race, age, education, or geographic location.

An article written by the Cleveland Fed claims that there is not a “most effective” way to reduce financial inclusion. Various proposals have been pitched such as Bank On, a project that promotes the use of low-cost commercial bank accounts; Baradaran who proposes reintroducing postal banking; the Board of Governors of the Federal Reserve System with an idea of a US central bank digital currency. All of these ideas are valid and could be a possible solution, but the most likely outcome will be a combination of multiple proposals to fight the problem (Boel and Zimmerman).

The most effective way to promote financial inclusion is still an open question. This paper proposes a potential solution for the United States to bridge the gap toward financial inclusion, and at the very least, provide a pathway for future ideas to be constructed so that one

day when the United States is cashless, consumers aren't blindsided and left behind. This paper will also examine the social and economic costs of promoting digital services to the unbanked population to evaluate the feasibility of the study. With a cashless future in the United States inevitable, finding a solution to incorporate underrepresented households into the digital revolution of payment systems is critical.

Chapter 2

Literature Review

A complete transformation of the entire payments system within a country like the United States is neither a quick nor an easy process. There are a variety of steps that need to be taken to ensure the functionality and prosperity of the system. Because of changes in technology, demographics, and spending patterns, there is no doubt that current trends point to the continued growth of the cashless economy. Below is a review of literature which compiles vital information supporting the ideas presented in this piece. Understanding the overall market was crucial in constructing a model that could potentially be viable in the future as the population shifts to a cashless based economy.

Advantages of a Cashless Society

Simplicity

One of the most apparent benefits of a cashless society is the simplicity that surrounds the transaction environment. Services like Venmo and other peer to peer (P2P) technologies allow users to send any amount of money to a recipient with just a click of a button. Mobile payment methods, such as Apple Pay, allow for users to pay at checkout with a single tap of a mobile device on a kiosk. Imagine never having to wait behind someone at the grocery store rummaging through their wallet to find enough nickels and dimes to make exact change on a \$23.87 bill.

Cashless technologies also allow for significantly easier options for budgeting as well as money management. Traditional cash transactions and receipts can get lost easily, making individual transaction tracking difficult. Using technologies such as budgeting apps allows users

to track all of their expenditures in one, easy-to-use, interface. Situations similar to this showcase how the efficiency of transactions would be multiplied if the United States were a cashless society. Not only would the consumers benefit from the simplicity, but businesses would also benefit through increased efficiency, and amplified reliance on technology to reduce costs.

Lower Crime Rates

Financial crimes are some of the most common forms of crime in the United States. According to Statista, property crime was the most often crime committed in the United States with over 6.5 million offenses. Of those crimes, larceny was the most common with almost 3 million offenses alone (*Committed Crimes by Type of Crime U.S. 2021*). Cash is typically the motive behind these crimes, so with less cash on the street, a decrease in crime would be seen.

A 2014 study by The National Bureau of Economic Research helps prove that crime would be reduced with less cash. The basic premise of the study was exploring the connection between crime and cash with the implementation of the Electronic Benefit Program (EBT) compared to the traditional welfare system of paper checks. The study measured the impact on various crimes throughout different Missouri counties as the EBT program was being laid out. With the shift to EBT payments, there was less cash in circulation which, in turn, led to a substantial drop in crime in the affected areas (Wright, Richard).

Another extremely costly crime is money laundering. In the United States alone, approximately \$300 billion is laundered each year (Kolmar, Chris). Money laundering typically works by moving illegal cash through various placing, essentially “cleaning it”, and making it legal to use. Although money laundering can be accomplished through other online methods, typically the smurfing method is one of the most common. Smurfing is where cash is broken up

into multiple small deposits and spread across multiple bank accounts to avoid detection (Chen and Anderson). If more companies are moving towards cashless environments, it would make traditional money laundering more difficult to accomplish, and therefore, easier to enforce. A push towards a cashless society obviously won't end all crime and theft, but could be a key factor in decreasing the number of crimes that take place within the United States.

Cash Management Costs

Another cost saving advantage to going cashless has to do with cash management. Cost savings due to cash could be seen from all levels of consumers from the government to businesses. Each year, the United States Government is responsible for printing new bills and minting new coins, which is extremely expensive. In 2022 alone, the currency operating budget was \$1.06 billion strictly for cash (*How much does it cost to produce currency and coin?*).

Banks are one of the most important players in the cashless society argument. As an example of cash management, banks have to spend large amounts of money on security, storage, and transportation. Without the physical cash present, there would not be a need for the intense security that is currently required by banks.

Facilitate International Exchange

Traveling between foreign nations would also be another positive advantage of a cashless society. Instead of visiting a local bank or AAA location to exchange the USD to Euros, mobile devices can be utilized to handle almost any transaction. This would eliminate the need to guess how much physical cash is needed and having to pay ridiculously high fees if funds run out while abroad.

Hygiene

Hygiene has always been a controversial issue when dealing with physical cash and coins, but hygiene concerns had skyrocketed during the COVID-19 pandemic. Globally, stores were changing their rules and only allowing for cashless transactions to prevent the spread of germs between customers. Contactless payment and digital transactions became an even larger part of the US economy throughout the pandemic and has continued to stay relevant as the pandemic slows. Even though the pandemic may be slowing, paper money is still home to millions of bacteria. Bacteria can live on most surfaces for up to 48 hours, but physical cash can house the flu virus for over two weeks (*Top 10 things you didn't know about money*). Touchless transactions would allow for much better hygiene practices and could help reduce the spread of bacteria and viruses.

Disadvantages of a Cashless Society

Privacy and Security

Cash has a predominantly anonymous exchange process meaning that it is difficult to track exchanges whether that be the government or businesses. Once a society becomes cashless, it essentially means that all transactions will be tracked and there will be a record of everything purchased.

With online transactions, the information is on the web and could be exposed to certain hackers. A study conducted by Elizabeth Warren in 2022 looked into fraudulent hack attempts tied to Zelle. Zelle is jointly owned by Bank of America, Capital One, JPMorgan Chase, PNC

Bank, Truist, U.S. Bank and Wells Fargo. The study concluded that over the course of 2021 and part of 2022, over 35,000 cases of scams involving nearly \$26 million occurred at PNC, Truist and U.S. Bank alone (*Big U.S. Banks Are Stiffing Account Takeover Victims*). Hackers are already a commonality within the digital environment, but with an increase in online programs the frequency of hacks will likely increase as well.

Technological Malfunctions

One of the greatest benefit of cash is its ability to be used in almost any circumstance. In an emergency, cash is a store of value that currently would be accepted and usable in any area in the country. With a transition to a cashless society, this guaranteed usability may not be a thing. For example, if all transactions were reliant on mobile payments, technological issues could be a major issue in many situations. Power outages, slow internet, or full-scale internet outages could cause serious disruption throughout the whole economy. Even something as simple as forgetting to charge a device overnight could lead to struggles for purchasing anything. At this point, cash could be a fallback option, but if cash were eliminated fully, there would be no other solution at this point, possibly leaving some people stranded.

Economic Inequality

One of the most pressing issues of becoming a cashless society is the effect that it would have on the unbanked/underbanked populations. The unbanked population in the United States in 2021 was approximately 4.5 percent of households, or about 5.9 million households (Federal Deposit Insurance Corporation). This rate has continually decreased over the years and has reached the lowest point ever, almost halving since 2011. The underbanked population is even

larger, compared to the unbanked, representing about 14.1 percent of United States households, or about 18.7 million households (Federal Deposit Insurance Corporation). The majority of the unbanked population falls below the poverty line within the United States. Because of this, reliance on cellphones and other sorts of technology may not be feasible for people living in poverty, so what could be done to accommodate people who are unable to afford these products? Even if the number of unbanked continues to trend downward, it will be nearly impossible to get everyone on board, which would lead to increased inequality if society were cashless. Unless special accommodation efforts are made, the unbanked population will have a difficult time adjusting to new societal norms within a cashless society.

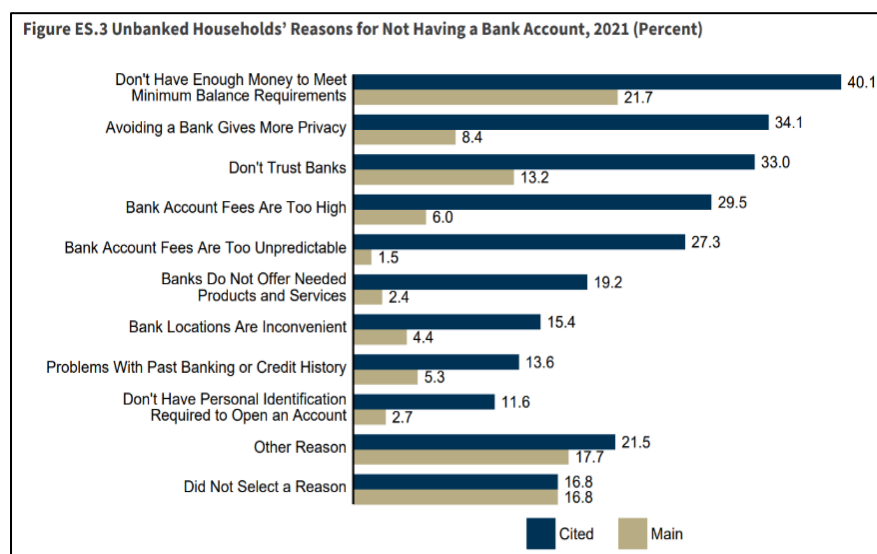
Fees

At this point, almost all transactions that involve cash include no fees since there is really no labor that goes into the transaction. With electronic payments, however, there typically are fees that can increase costs for not only the sender, but also the receiver. A cashless environment may spur further increases in fees since there really would not be any other alternatives for consumers to use. Fees imposed by banks are typically a major reason why individuals choose to remain unbanked, which could lead to issues in the transition to a cashless society.

Reasons Against Bank Account Ownership

As mentioned multiple times throughout this report, a large percentage of households in the United States do not currently have access to a bank account. Whether on purpose or not,

there are many reasons why individuals decide to forgo owning a bank account. As shown in the figure to the right, the top three cited reasons are the inability to meet balance requirements, desire for



more privacy, and a lack of trust in banks (Federal Deposit Insurance Corporation).

In the 1980s, the banking industry revolutionized by segmenting customers based on profitability. Instead of recruiting as many users as possible and using the profits from the larger accounts to cover the losses from smaller accounts, banks introduced account service fees and overdraft fees. While this made low-balance accounts profitable, it also led to closure of accounts increasing financial exclusion. The fees currently charge are inconsistent and severely penalize mistakes that are made. As a bypass to bank fees, many low-and-moderate-income households gravitated towards alternative financial services (AFS). Although the fees from AFS may be larger in value, they are transparent and the customer is aware of the fees they are paying.

Another example of a barrier to a mainstream bank account revolves around liquidity. Overdraft fees can be risky and an issue for people who are living paycheck to paycheck. An example of this could be someone with \$300 in their account and deposits another \$600 in order

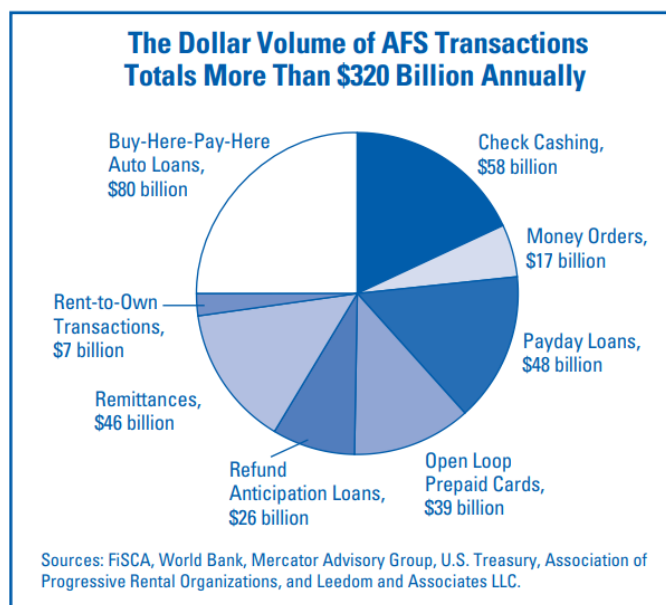
to pay their \$750 rent bill. If the deposit hasn't cleared and the payment is made, an overdraft fee would result. Transparent fees and liquidity are important for LMI individuals so situations like this could be avoided.

One final reason individuals may not have a bank account has to do with the location of bank branches throughout the area. The US Census and data from the FDIC show that households within a reasonable geographic distance to bank branches are more likely to have a bank account. This number is also larger when dealing with low-income households. Due to this, bank branch expansion will be an interesting factor to investigate deeper or an easier accessible method to banks. A 2019 study conducted by Célerier and Matray found that expanding bank branches was directly correlated to greater financial inclusion (Celerier and Matray). One counterargument to the increase of physical bank branches correlating with a higher banked population is the rise of mobile and online banking methods. From the years 2015 to 2019, online and mobile access methods have climbed by over 10% total and account for over 50% of the banked population's primary method to access a bank account (Boel and Zimmerman).

Alternatives Financial Services

There are many alternative ways that individuals can access money outside of the traditional realm of banking, but the true definition of alternative financial services (AFS) is tricky to narrow down due to the fractured nature of the industry. To some, alternative financial services are defined as products that are not provided by brick-and-mortar bank branch locations, such as mobile phones and other online services. For the purposes of this paper, AFS will be considered by the pie chart shown below. Services like check-cashing, money orders, payday loans and auto loans are some of the most utilized services in the industry. The overall market for

alternative financial services made up nearly \$320 billion annually in the United States in 2009, which is a significant amount of money that could be targeted (*Alternative Financial Services: A Primer*).



According to Financial Service Centers of America (FiSCA), there are over 13,000 nonbank financial service companies that are operational in the United States. Check-cashing alone in these institutions accounts for nearly \$58 billion annually with more than 170 million checks being processed (*Alternative Financial Services: A Primer*). Some of the largest companies in the industry include Ace Cash Express and Dollar Financial Corporation. These companies focus on check cashing, but also have many other revenue streams such as money orders, ATM access, payday loans, pawnbroking services and more.

The alternative financial services listed above provide what seems like fewer fees, but over time they add up to significantly more than what typical banks would be charging. Not only do these AFS charge fees, they also provide no gain for the consumer. One major benefit of

opening a bank account is access to building credit. With a prepaid card, you are doing similar transactions as a credit card without building your credit. This limits individuals from accessing loans and could even hinder one's ability to secure housing or insurance.

So, if there are clearly more fees and scams associated with AFS, why would individuals continue to use them? While there isn't a clear-cut answer to this question, it narrows down to two main reasons, convenience and accessibility. Being able to cash checks at a local gas station or grocery market is a lot easier than having to travel to a bank branch. Also, hours of branches are limited, making it difficult for some families to access during the window of time. Having accessibility almost 24/7 is a convenience that some are willing to pay for. Lastly, some areas are known as "bank deserts," where limited amounts of branches are available, making AFS some households' only option (Reeves et al.).

Unbanked Demographics in the United States

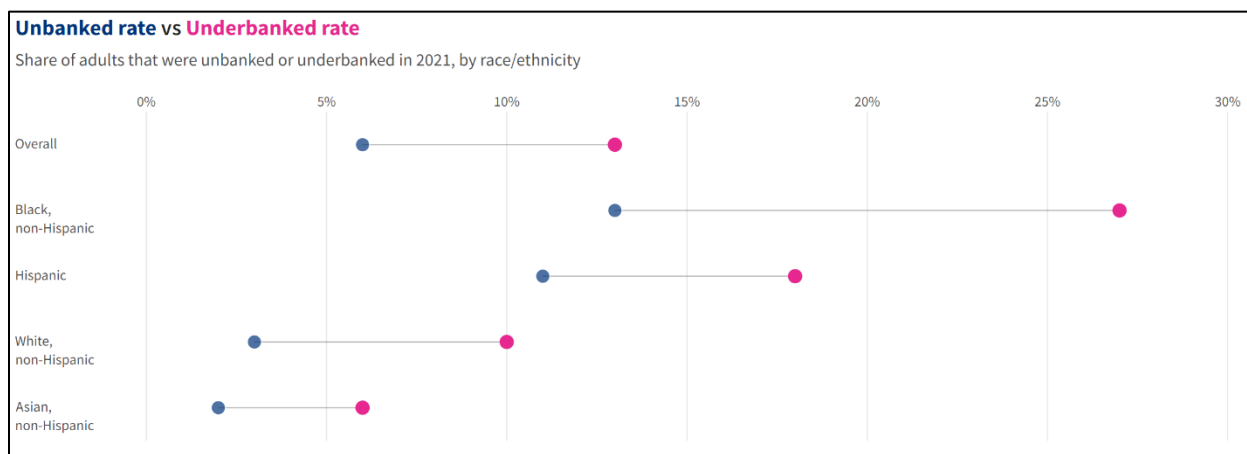
In the United States, around 4.5 percent of households were unbanked in 2021, meaning that nobody in the household had access to a checking or savings account at a bank. According to Census data, there were around 132.5 million total households in the United States in 2021, concluding that approximately six million households were unbanked. On the other hand, 95.5 percent of households were banked (126 million households). The United States has seen significant decline in the unbanked rate, almost halving since 2011 (Federal Deposit Insurance Corporation). Much of this can be attributed to changes in socio-economic circumstances throughout the periods.

Although this report mainly focuses on the unbanked, there is still emphasis on the underbanked population in the United States. Underbanked can be defined as households which

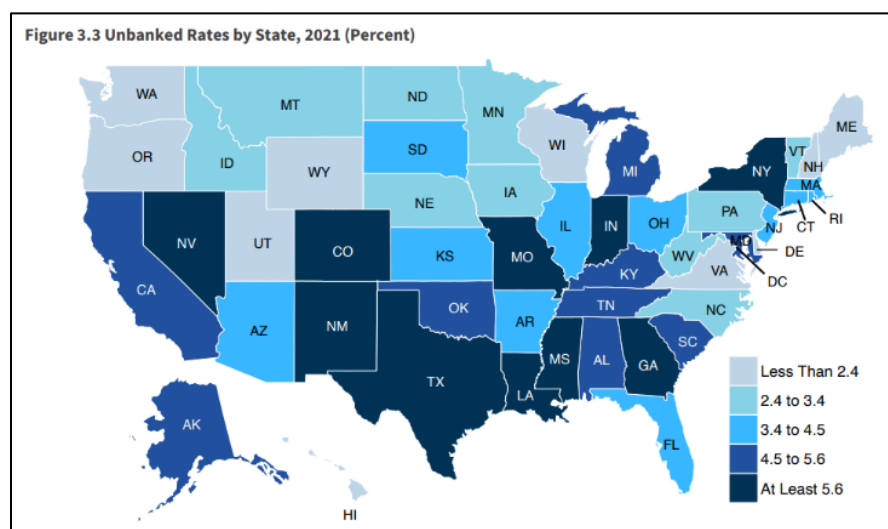
are banked but used some form of alternative financial service to meet their transaction or credit needs. In the United States, the underbanked population is an estimated 14.1 percent and represents approximately 18.7 million households.

There are some main characteristics that remain consistent as the unbanked rate changes over time. For example, unbanked rates are higher among lower-income households, less-educated households, Black and Hispanic households, as well working-age household with a disability. The next few paragraphs will categorize some of the key demographic characteristics of the unbanked, which are crucial to identify a target population for implementation of a pilot program.

Black and Hispanic households represent around 32 percent of the entire United States population. When examining unbanked demographic data, this same group represents 64 percent of the country's unbanked, as well as 47 percent of the underbanked households (USAFacts, *Who is the least likely to have a bank account in the US?*). As shown in the graph below, Black and Hispanic households significantly outnumber White and Asian households by more than double in some aspects.



Geographic categorizations of the unbanked are also common in the United States. For example, in 2021 Utah had an unbanked rate of 1.2 percent while Mississippi had an unbanked



rate of 11.1 percent. As you can see from the graphic on the left, there is not necessarily one specific region where the unbanked rates are out of control. From the graphic, the southern region has

the highest rates with New Mexico, Texas, Louisiana, and Mississippi all having over 5.6 percent unbanked rates. In 2021, the unbanked rate was 4.2 percent in the Northeast, 4.2 percent in the Midwest, 4.9 percent in the South, and 4.2 percent in the West (Federal Deposit Insurance Corporation).

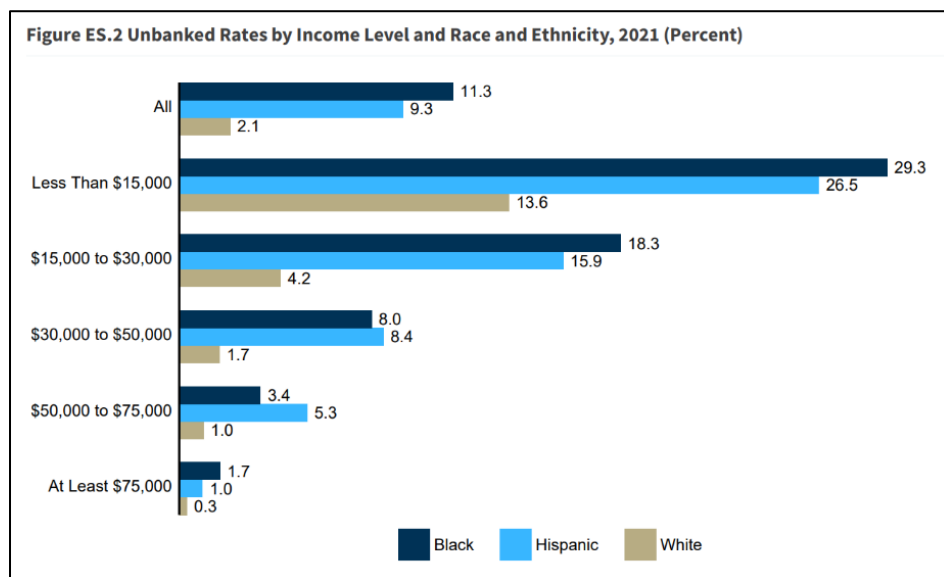
Although these rates are close to the average unbanked rate in the United States, there are a few outliers. For example, Mississippi had the highest unbanked rate in the country in 2021 at 11.1 percent and Louisiana's was 8.1 percent. The rates in these states have continually decreased over the past few years, and the outliers are slowly shifting closer to the mean. Texas has decreased their unbanked rate from 9.5 percent to 5.6 percent in four years (Federal Deposit Insurance Corporation). Many other states have seen similar trends, including West Virginia and Mississippi.

Low-income is a major reason why many households are currently unbanked in the United States. One of the main reasons households do not have a bank account is because they

do not have enough money to meet the minimum balance requirements. About 40 percent of households surveyed in an FDIC study responded this way, with about 21 percent of those households citing this as their main reason for not having a bank account. Another income related reason households do not have bank accounts is due to the fees that banks charge. 30 percent of the surveyed households cited this as a reason why they do not have a bank account.

The graph below shows the disparity between different income groups. There is a clear correlation between the amount of money the family makes compared to the unbanked rate.

Once a household income is higher than \$75,000, the unbanked rate decreases to only half a percent, while families making under \$15,000 have



an unbanked rate of nearly 20 percent. As shown in the graph, Black and Hispanic households have a higher unbanked percentage compared to White households at every level.

Interestingly enough, it seems as though age is not much of a contributing factor to the unbanked rate. In the chart below, age groups hover around the 5 percent unbanked range with the 15-24 group being the highest at 5.8 percent and the 65+ age group being the lowest at 2.7 percent. Also shown in the chart below is the relationship that education plays with the unbanked rate. The more educated the individual is, the more likely they are to have some sort of bank account. Only one percent of households where someone has a college degree are unbanked,

while nearly 20 percent of households where no one in the household has a high school degree are unbanked.

Characteristics	2017	2019	2021	Difference (2021-2019)
Education				
No High School Diploma	22.4	21.4	19.2	-2.2
High School Diploma	9.4	8.1	6.8	-1.3*
Some College	5.1	4.3	3.3	-1.0*
College Degree	1.3	0.8	0.9	0.1
Age Group				
15 to 24 Years	10.0	8.8	5.8	-3.0*
25 to 34 Years	8.5	6.9	5.1	-1.8*
35 to 44 Years	7.8	6.3	5.1	-1.1*
45 to 54 Years	6.9	5.1	5.2	0.1
55 to 64 Years	5.9	5.5	4.8	-0.7
65 Years or More	3.9	3.3	2.7	-0.6*

Covid-19 Pandemic Impacts on Digital Payments Market

In March of 2020, the World Health Organization officially announced that the COVID-19 outbreak was now a pandemic. As a result, the United States government established protocols to improve safety throughout the country. Many of these protocols were established within the retail industry, with barriers being imposed to limit contact between people. Over 300 million people in the United States were initially ordered to stay at home and businesses had to adapt due to the circumstances (R. Y. Kim). Due to orders from the government that only essential businesses could be operative, there was a huge shift to e-commerce activity. In the

United States, the e-commerce market grew by 25 percent between 2019 and 2020, resulting in over 14 percent of total retail sales (Shaw et al.). The FDIC chair in 2020, Jelena McWilliams,

believed that the pandemic would actually

increase the number of unbanked due to

inaccessibility, as well as other difficulties, but

	Longer-Term Unbanked	Recently Unbanked	Recently Banked	Longer-Term Banked
Category as Share of All Households	4.0	0.5	4.2	91.4

this was the opposite. Compared to 2019 figures, around 1.2 million more households are

banked, and many of the newly banked households attribute this to the pandemic stimulus that

they received. Looking at the table below, it shows the Transition in Bank Ownership as of June

2021. The main survey question asked if the household had experienced any bank account

changes since the start of the pandemic. To clarify further, the long-term unbanked did not have

a bank account at the time of the survey as well as at the beginning of the pandemic, while the

recently unbanked were not banked at the time of the survey, but had an account sometime in

those past 12 months. The recently banked category reflects the households which created a bank

account in the time between the pandemic and the survey. Many of these people attribute the

account openings to either government benefits (34.9 percent) or starting a new job a new job

(6.3 percent). This statistic shows that the increase in disposable income aids in the creation and

upholding of bank accounts. On the other hand, 21.1 percent of the recently unbanked stated that

the reason for bank account closure was due to some form of employment change

(losing/quitting job, reduced hours) (Federal Deposit Insurance Corporation).

Foreign Countries and Cashless Society

There are no countries throughout the world that experience full financial inclusion, and

most are still not close. The United States, a typical leader in the world, is leading developed

nations in a surprising area: the size of its unbanked and underbanked populations. Kenya, Japan, Sweden, and many more countries show high levels of access for their citizens compared to the United States. In Sweden, more than 99 percent of their total population has access to some form of banking account. This number also impressively includes 98 percent of the poorest 40 percent of the population (*The Cashless Society – Sweden leads the way*).

Sweden

Sweden is currently one of the World's leading innovators in the banking industry currently and has been at the forefront for many years. Similarly to many countries around the world, the shift to cashless in Sweden, in part, has to do with a global transition to e-commerce platforms. According to Eurostat, 87 percent of the Swedish population made a purchase online in 2021 (*E-commerce Statistics for Individuals*). This number is significantly higher than most countries and places Sweden among the top in Europe (*The Cashless Society – Sweden leads the way*).

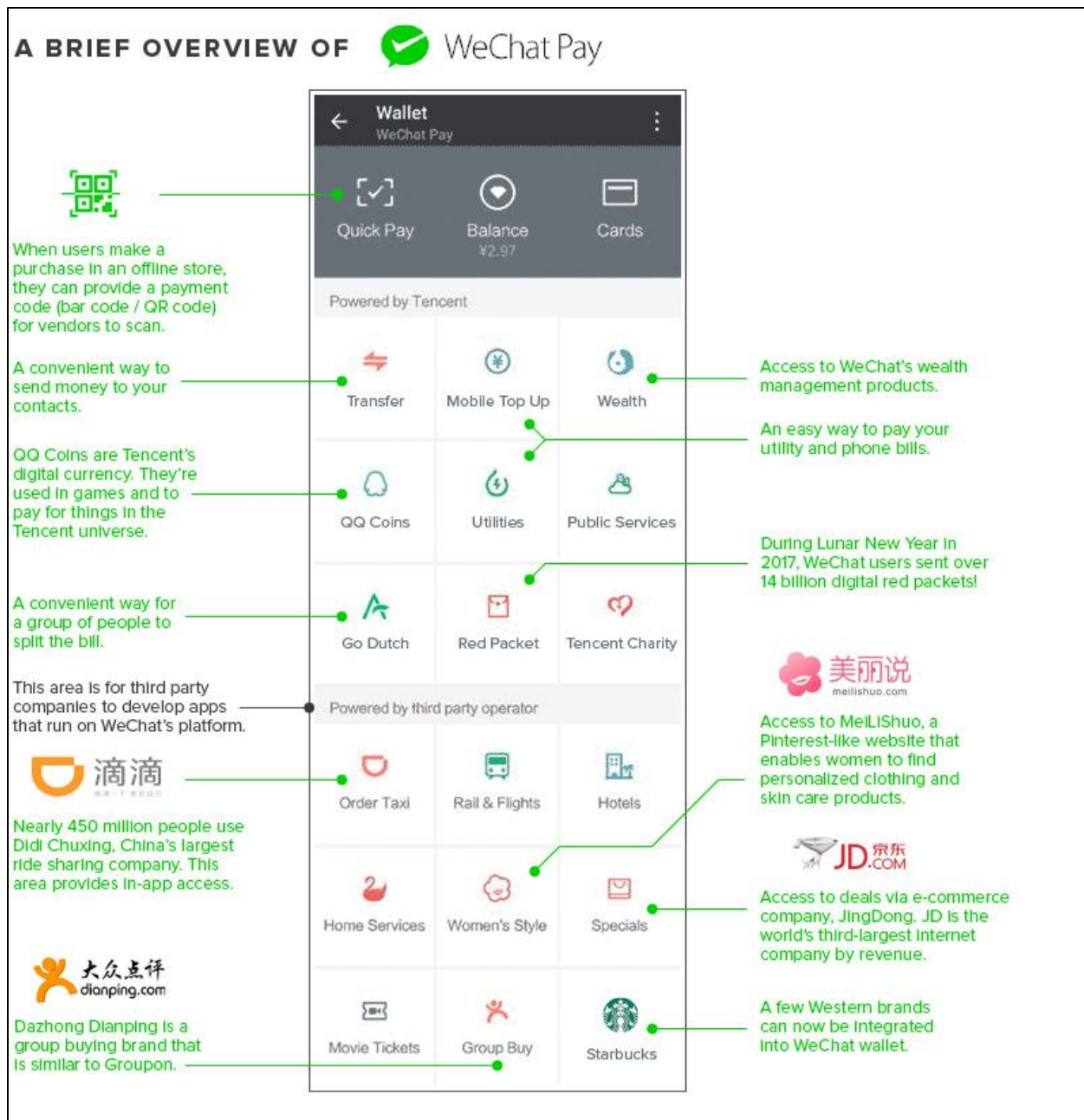
Sweden also currently uses advanced technology to power their transactions. Swish, an instant payments app, allows for users to make transactions with just a smartphone and a number. BankID is another app that is powering the trend towards cashless transactions in Sweden. The mobile app allows users to access digital services and online banking merely by using a code and or fingerprint. All that is needed to access the app is a Swedish person identification number (PIN).

China

Chinese consumers make over 11 times more mobile payments than consumers in the United States for a number of reasons, but a major reason is due to two large brands. WeChat and AliPay are the two major apps used in China and account for over a billion monthly users (Routley). Looking at the services offered by WeChat, it is completely different from any app used in America. As shown in the figure below, WeChat offers a variety of services, some of which are powered by Tencent and others that use third-party services. Looking at the services provided by Tencent, it focuses on more of the financial services. For example, transfer payments, wealth management services, utility bills and more can be accessed through the same interface. This makes everything a whole lot easier for users. Instead, in the United States, if a user wanted to use a wealth management service, let's say TD Ameritrade for example, there would be many steps to do so. After launching the TD Ameritrade application, the user would have to upload bank account information in order to transfer funds into the account which would require accessing the user's bank application. Although this doesn't seem work intensive, WeChat allows users to do all of that faster.

There are still many issues seen with these apps, and a lot of the backlash has to do with privacy. Since the app has so many different offerings, it holds a lot of data power. Because of this, there are many governmental regulations imposed on WeChat and AliPay, a source of anger to many consumers.

A BRIEF OVERVIEW OF WeChat Pay



The image shows a screenshot of the WeChat Pay 'Wallet' interface. The interface is divided into several sections: 'Powered by Tencent' (Transfer, Mobile Top Up, Wealth, QQ Coins, Utilities, Public Services, Go Dutch, Red Packet, Tencent Charity) and 'Powered by third party operator' (Order Taxi, Rail & Flights, Hotels, Home Services, Women's Style, Specials, Movie Tickets, Group Buy, Starbucks). Annotations with green lines point to various features, explaining their uses and providing context about their popularity and integration with other services.

When users make a purchase in an offline store, they can provide a payment code (bar code / QR code) for vendors to scan.

A convenient way to send money to your contacts.

QQ Coins are Tencent's digital currency. They're used in games and to pay for things in the Tencent universe.

A convenient way for a group of people to split the bill.

This area is for third party companies to develop apps that run on WeChat's platform.

Nearly 450 million people use Didi Chuxing, China's largest ride sharing company. This area provides in-app access.

Dazhong Dianping is a group buying brand that is similar to Groupon.

Access to WeChat's wealth management products.

An easy way to pay your utility and phone bills.

During Lunar New Year in 2017, WeChat users sent over 14 billion digital red packets!

Access to MeiliShuo, a Pinterest-like website that enables women to find personalized clothing and skin care products.

Access to deals via e-commerce company, JingDong. JD is the world's third-largest internet company by revenue.

A few Western brands can now be integrated into WeChat wallet.

Kenya

Kenya is one of the first pioneers of the cashless economy in Africa and this is primarily due to one company: Safaricom. In 2007, Safaricom launched M-Pesa which allows for almost all transactions to be conducted through it. M-Pesa is a virtual banking system that provides transaction services through a SIM card. Once the SIM is inserted to a mobile device, users can make payments or transfer money through normal SMS messages. Users are able to purchase goods and services, pay bills, health insurance, and many more through the same app. Although M-Pesa is not through a traditional bank, it is an innovative Fintech company that is geared towards enhancing financial inclusion for the unbanked and underbanked population (Quigley).

After conducting research to obtain a deeper knowledge of the market, a feasibility study was created with goals of lowering the unbanked population in the United States. By combining aspects of all areas discussed in the previous section, a comprehensive pilot project was created, intending to integrate the unbanked population into the digital payments market.

Chapter 3

Feasibility Study

As the United States continues to innovate and grow technologically, the use of cash in day-to-day life will continue to dwindle, as it has for the past decade. According to McKinsey, cash use has fallen by nearly half in the United States over the last ten years (Bruno). This trend has shown no signs of slowing down since the pandemic has made many consumers reliant on other forms of payments to complete transactions. This research will provide a solution that will increase the use of digital cash alternatives and allow the unbanked population to integrate with digital payment systems.

To study how to accelerate this integration across the United States, this paper proposes a feasibility study that might act as a model for a broader project in the future:

- Two Beta Test States
 - Using key demographic data and analyzing relationships between the unbanked population and welfare users in the United States, two states displayed high populations in both: Mississippi and New Mexico. These two states will be the focus of the study and are integral to understanding the initial success of the project.
- Accompanied SNAP study
 - In 2018, a pilot project was proposed by the USDA, attempting to transform the SNAP system into a digital system. The current process to use SNAP is through an EBT card, which acts similarly to a debit card. The proposed pilot is to transition the EBT card into a mobile app to continue digitizing the program. This pilot program will be important to follow because of the correlation of the target

demographic. Relating results between the SNAP pilot and the proposed feasibility study in this paper will help measure success.

- Reliance on FinTech Company
 - The market for digital payments is on the rise in today's economy. There are many products available, but some products exploit additional money through fees and other payments. Finding a FinTech company that would allow the unbanked to slowly become integrated into the digital payments market, without having to pay high fees, was a key factor in the project's implementation.
- Financial Education Programs
 - Although most of this feasibility study focuses on the incorporation of the unbanked into the digital transaction market, additional education is a key aspect. If the project is implemented with little training or education supporting it, it would fail as soon as questions arose. To educate the target population on financial literacy, a partnership is key to provide essential tools.

More detail and financial feasibility information will be discussed in the upcoming section. Since the trial only consists of two states, the funding will be relatively low (compared to a nationwide rollout), but the data results will be crucial in judging the success and future of the project. If the results are comparable to the projected values, then a nationwide rollout would be a possibility and something explore further.

SNAP Mobile Payment Pilot Program

The welfare program in the United States is a range of governmental programs designed to aid individuals or families who are unable to support themselves. Typically, these programs are funded by taxpayer dollars, and one of the purposes is to allow people to cope with financial stress during rough periods. One of the most prominent welfare programs is the Supplemental Nutrition Assistance Program, SNAP. SNAP is administered by the United States Department of Agriculture and issued over \$56 billion in benefits to over 18 million households in Fiscal Year 2019 (“Mobile Payment Pilot - RFV”, 6). Traditionally, SNAP benefits are issued through a technology called Electronic Benefits Transfer (EBT). This technology works similarly to a debit card where each user would have an account with funds, and can use those funds at participating vendors on a limited selection of approved items.

In 2018, Section 4006(e) of the Agricultural Act of 2018 allowed SNAP recipients to use mobile payments in place of EBT cards to conduct these transactions (“Mobile Payment Pilot - RFV”, 10). The stipulation was that there must be five successful mobile payment pilot projects. The pilot programs consist of five different states that submitted an application to the USDA consisting of a detailed work plan. This work plan is to consist of a clear implementation timeline, as well as the parameters of the pilot. Any supporting technology needed for a successful implementation would also need to be included in the proposed work plan.

In the layout of the program, the two main methods of transactions were established, Near Field Communication (NFC) and QR payments. Both technologies allow users to access their funds and pay with a tap of a mobile phone near a Point of Sale (POS) terminal. NFC payments are the more common of the two methods. NFC is a method of wireless data transfer that allows smartphones, laptops, tablets, and other devices to share data when nearby. Apple

Pay and Google Pay are two major products that use NFC transactions. NFC is considered similar to RFID technology, but it is limited to sharing its data within two to four inches from another POS terminal (Fintech Insights). The other payment form that will be tested in the program is QR code payments. Although QR codes and NFC payments are similar technologies, some differences need to be highlighted. In a QR code transaction, the customer will open their mobile payment app once ready to pay. When the app opens, a code will be displayed on the device where the user can place the code near the POS terminal where it will optically scan the device allowing for the transfer of funds.

The program specifically excludes three technologies from the pilot programs: online payments, P2P, and EMV chip cards. Online payments are discouraged for a multitude of reasons, but one of the main reasons is due to the development of alternative currencies such as Bitcoin. For this reason, the only currency that is permitted in the pilot is United States Dollar. Individual payments, peer-to-peer, are also not included in the pilot because EBT transactions are strictly between recipient and retailer. That means that apps such as Venmo, Zelle, and Cash App are irrelevant to this specific study. The final exclusion to the pilot program is EMV chip cards. EMV chip cards are the primary technology that appears in almost all credit, debit, and prepaid cards. Although there were nearly 11 billion EMV cards worldwide as of 2021, they are not considered mobile payments and are therefore not applicable to the study (Egan).

<i>Event</i>	<i>Date(s)</i>
<i>Release of RFV</i>	<i>July 12, 2022</i>
<i>Submission from Applicant State of Letter of Intent (LOI) and Questions Due</i>	<i>August 16, 2022</i>
<i>Conference Call with All Applicant States and Partner Stakeholders Submitting LOI</i>	<i>August 23, 2022</i>
<i>Addendum Release Date (if necessary)</i>	<i>August 30, 2022</i>
<i>Applications Submission Deadline</i>	<i>November 4, 2022</i>
<i>Evaluation Period Ends</i>	<i>December 16, 2022</i>
<i>Selection Announcement Date</i>	<i>Approximately February 1, 2023</i>

Since the approval of the Agricultural Act of 2018, there had not been many updates to the pilot program because of the pandemic. In August 2022, the USDA announced they were seeking volunteer states who were willing to implement this technology into their current process and allow for the results to be monitored to measure the success of the transition. As of early 2023, the USDA has chosen Illinois, Louisiana, Massachusetts, Missouri, and Oklahoma as the test states for the project.

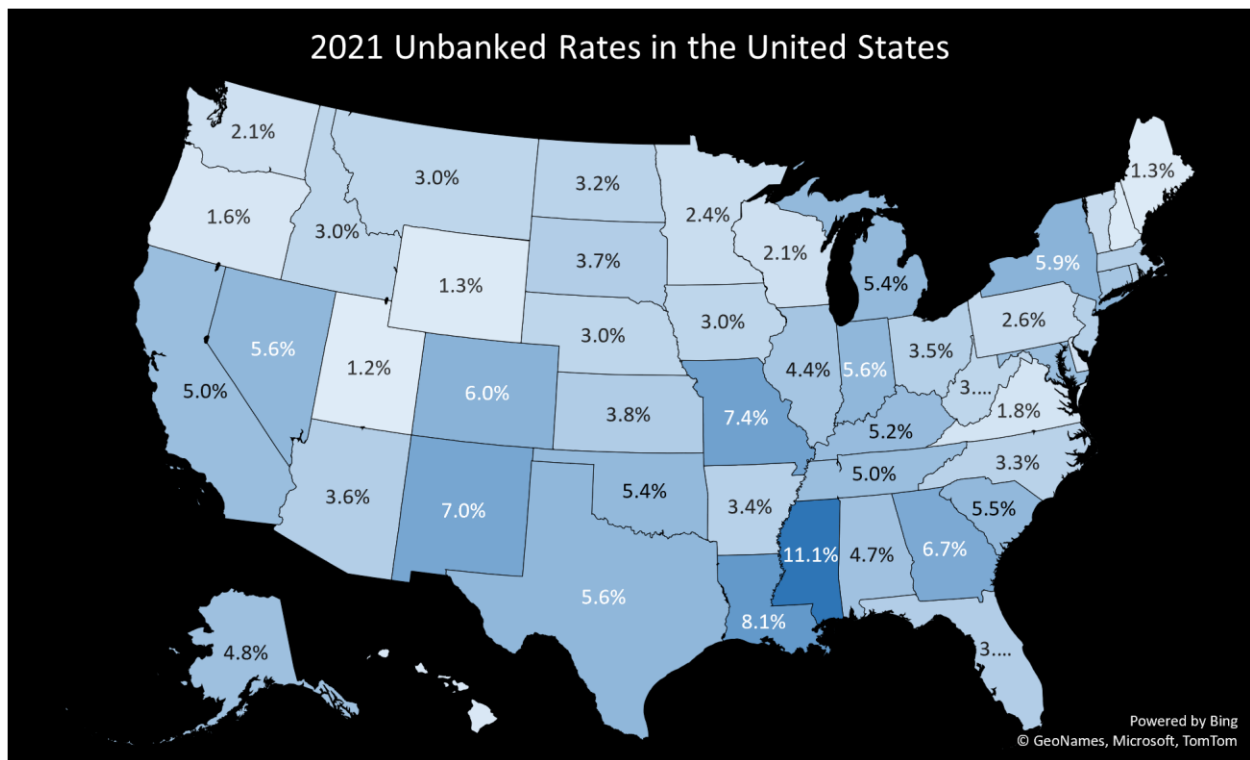
While the project proposed in this paper is different from that of the USDA, there will be many similarities between the two. Ideally, the project proposed in this paper would be subsequent to the digitization of the current EBT system. Once users can familiarize themselves with the technology and get into a routine of checking their EBT account regularly, it will establish new possibilities for FinTech firms and other banking companies to incorporate a budget-friendly alternative to their current habits.

Mississippi and New Mexico Unbanked Population

Although the feasibility study proposed in this paper will be similar to the SNAP mobile payment pilot, there will be some key differences that will be outlined in the next few paragraphs. The SNAP study is focused on government-selected states that fit certain criteria that was outlined in a survey. For this project, states were selected based on key demographic data that would facilitate and support the pilot roll-outs.

A common theme about the unbanked population within the United States is the correlation between lower-income households, welfare use, and the unbanked population. Due to this correlation, the best fitting location for the study would be one where both the welfare use, as well as unbanked rates, are significantly higher than average. After considering many factors,

the chosen states for this project are Mississippi and New Mexico. As shown in the map below, Mississippi has the highest unbanked rate in the United States as of 2021 at 11.1 percent (Federal Deposit Insurance Corporation, 16). New Mexico also has one of the highest unbanked rates in the country at 7.0 percent (“Unbanked Rates By Geography - 2021.”). Unbanked is not the only population that this project targets, however. Focusing on a deeper segmented demographic is important to truly understand the nature of the problem and work towards a solution.



Unbanked and SNAP Population Crossover

Of the total unbanked population in America, about 77 percent make less than \$30,000 annually, meaning they are below the United States poverty line (US Census Bureau). This information is essential in preparing a target demographic because it shows how closely connected the unbanked and the welfare participants in the United States are. 86 percent of SNAP participants, in 2020, were below the poverty threshold (Hall, Lauren, and Catlin Nchako). These two percentages show the direct and highly correlated nature of the unbanked population, low-income households, and welfare recipients. This relationship also contributes to the selection of Mississippi and New Mexico as test states for the implementation. As of 2019, New Mexico (1) and Mississippi (4) ranked in the top five of welfare recipients per 100,000 residents. New Mexico ranked first with over 25,000 residents per 100,000 and Mississippi followed closely behind with over 14,000 residents per 100,000 (“Welfare Recipients by State 2023.”).

With all of these statistics, finding the approximate target population was possible. To start, there were a few main data points that needed to be solved: Mississippi and New Mexico unbanked populations, Mississippi and New Mexico welfare users, and Mississippi and New Mexico income demographics.

Household Groupings for Study

The most important demographic aspect to examine was the unbanked population in each state. Since both Mississippi and New Mexico have high unbanked rates compared to the national average, these numbers will be higher per capita, but it is important to see the total number of users targeted. The first part of finding the unbanked population in each state was to find the overall population of that state. Using United States Census data, the overall population

in Mississippi as of 2023 was 2,959,273 people. For the sake of consistency within this paper and with other sources where the source data comes from, the measurement of most populations will be converted to households. To convert population size from people to households, the

factor 2.6 was used which is the average household size in the United States (ESRI). So, for

Mississippi Unbanked Population		
Mississippi total population	2,959,473	people
Mississippi total households	1,138,259	households
Mississippi unbanked rate	11.1%	
Mississippi unbanked population	126,347	households

Mississippi, the total number of households would be 1,138,259 ($2,959,273/2.6 = 1,138,259$).

Using this value along with the unbanked percentage given by the FDIC of 11.1 percent in Mississippi, it can be approximated that the unbanked population in Mississippi would be around 126,347 households.

The same calculation can be completed to find the unbanked population in New Mexico, using an unbanked rate of 7.0 percent. When the calculation is completed, the unbanked population in New Mexico is 57,481 households. The result shows a total target demographic of a little over 183,000 households or roughly 3 percent of the total unbanked population in the United States. Although this isn't an incredibly large target pool of households, starting in two states that differ from the SNAP study is important to compare the results, and to find the strengths and pitfalls.

New Mexico Unbanked Population		
New Mexico Population (July 2023)	2,135,024	people
New Mexico Households	821,163	households
New Mexico Unbanked Rate	7.0%	
New Mexico Unbanked Population	57,481	households

Both Mississippi and New Mexico have highly concentrated welfare participation rates among residents. Using estimates from World Population Review, the total welfare population in each state could be figured out. The same population number that was used in the unbanked population calculation was also used in the overall welfare participant calculation, 2,959,473 for Mississippi and 2,135,024 for New Mexico. With 14.49 percent of the population in Mississippi using welfare and 25.0 percent in New Mexico, about 165,000 and 205,000 households use welfare in Mississippi and New Mexico, respectively.

Additional Income Insight

The final comparison that allowed for these states to be chosen is income level of residents. Income is a major determinant of banking and money, or lack of it, is seen to be one of the main reasons why individuals will have a bank account or not. Mississippi and New Mexico are in the top three states with the highest poverty rates, both around 20 percent (“Poverty Rate by State 2023.”). The correlation between unbanked, welfare, and income level is clearly shown here and the two states chosen are ideal candidates within all three categories. 86 percent of welfare users in these states earn less than the poverty level and 77 percent of the total unbanked population in America also earn less than the poverty level.

Jackson and Albuquerque

After researching both the welfare system in the United States, as well as the unbanked populations in the United States, it would be important to see how the results differ between metropolitan statistical areas (MSA) in the state versus rural areas. In New Mexico, four MSAs are recognized: Albuquerque, Las Cruces, Santa Fe, and Farmington (“New Mexico Metropolitan

& Micropolitan Statistical Areas.”). Mississippi has five MSAs: Jackson, Gulfport-Biloxi, Memphis, Pascagoula, and Hattiesburg (“Mississippi Metropolitan & Micropolitan Statistical Areas.”). The Memphis MSA is split between Tennessee, Arkansas, and Mississippi, so analyzing that data could prove difficult. These MSA regions would be ideal locations to gather data on urban environments.

The feasibility study would look closely into the results from Albuquerque, New Mexico, and Jackson, Mississippi. Since these MSA regions are the most densely populated, it makes sense to look further into the results to use as a comparison. Focusing on capital cities is important in the initial rollout due to proximity within the city and data accessibility. Both Albuquerque and Jackson are in the 200 most populous cities in America. Albuquerque and Jackson were both in high percentiles of welfare use as well as the unbanked population, making these cities prime candidates for the feasibility study.

Accessing the cities mentioned provides a baseline that would still reach a large portion of the population. While an overall study would be conducted throughout the entire state, cities like Albuquerque and Jackson may have a different reaction to the rollout than the rest of the state. Albuquerque alone accounts for over 25 percent of the total population in New Mexico with over 570,000 residents in 2023 (“Albuquerque, New Mexico Population 2023.”). While not as large, Jackson still represents 5 percent of Mississippi's total population with nearly 150,000 residents (“Mississippi State Capital: Jackson.”). Even though the study will target the entire state, understanding the trends in the densest parts of the area is critical in analyzing the results.

Implementation of a Mobile App

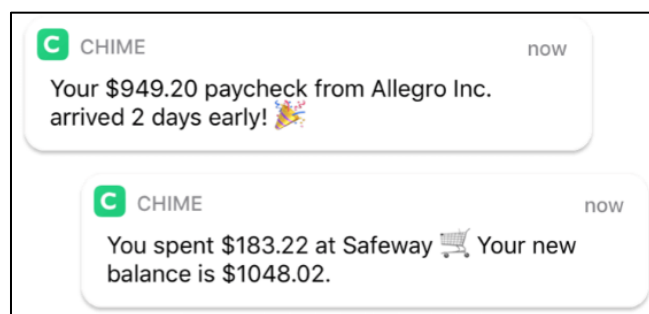
The overarching theme of this paper is to find a method to get the unbanked population in America to begin using methods of payment that are not cash. In an ideal world, converting the unbanked population to using bank accounts would be simple, but there are many reasons why individuals are against owning a bank account. Therefore, the project proposed in this paper does not revolve solely around bank accounts, but rather around a collection of FinTech products that would allow the unbanked population to gain financial literacy. If successful, there could be a potential transformation of the traditional banking system that would benefit not only the unbanked users, but also the economy as a whole.

After researching many potential companies to partner with for this project, Chime was the company that stood out most. Chime is not a bank, but a financial technology company that operates entirely through its mobile app platform. Some of the services Chime offers include checking and savings accounts, debit cards, and credit-building tools. The company's mission is, "We created Chime because we believe everyone deserves financial peace of mind. We're building a new kind of online bank account that helps members get ahead by making managing money easy. It's your money. It's your life. Chime in." This mission is supported by their goal to "profit with our members, not from them." There are no overdraft fees, service fees, or minimum balance requirements associated with Chime, which was one of the main reasons why unbanked people are against bank accounts. Finding a company that provides many offerings like Chime was important because it would give users experiencing mobile payments systems for the first-time flexibility while figuring out how the technology works. Chime offers two main bank account options to help users manage their money, Chime Checking Account and Chime High-

Yield Savings Account. The checking account charges \$0 in monthly maintenance fees and there is no minimum balance requirement for the account (“Chime Home Page.”).

Although Chime may not offer a full selection of banking services, it is perfect for users starting their financial journey. The company provides a multipurpose app that is user-friendly and covers the financial basics well, which is ideal for the demographic being targeted in this study. Some other features of the checking account include automated saving features, sending money without fees, 60,000+ ATMs, and compatibility with Google and Apple Pay. Another benefit to the checking account is that no credit check is required to open an account. Once a Chime Checking Account is created, users can create a Chime Savings Account. The savings account has similar highlights, such as no monthly fees, no minimum balance requirements, no cap on interest earned, and no minimum deposit (“Chime Home Page.”).

While these cards are key aspects of the services offered by Chime, the main service offered is the mobile banking platform. Chime is offered both on the Google Play and App store and has received an average of 4.75 stars out of 5. Similarly to the accounts offered by Chime, the mobile app is targeted towards individuals who may not necessarily be familiar with the traditional banking system or do not have the means to open an account. For consumers with a smartphone that can download the Chime app, it is an easy-to-use interface with helpful reminders. Daily notifications are sent out to remind users of their bank account balance as well as transaction notifications, which are shown anytime money enters or leaves the account. An example of two different types of notifications sent by Chime can be seen on the right. These app notifications allow



for transparency between Chime and the user to ensure the user is always aware of their bank balance and is never surprised. Along with notifications, security is also a bonus of Chime. Debit card transactions can be blocked with a single button and international transactions are also easily blocked from the app. Check sending and receiving is also significantly easier via the mobile app. Chime offers check deposits through the mobile app, which eliminates the use of check-cashing services that are typically used by the unbanked. Not only can users deposit checks through the app, but checks can also be sent by simply inputting the recipient, the amount, and the address. Once these are inputted, Chime will mail the check. These are some of the many positive aspects of the Chime platform as a whole that would allow users with little to no experience with financial tools to gain an understanding of the environment.

Although Chime was the chosen company for this project, many other viable options could be looked at if a partnership with Chime could not be achieved. Varo is another online-only bank that offers checking and savings accounts. In 2020, Varo became the first U.S. consumer FinTech company to receive a national bank charter that allows it to offer FDIC insurance and expand into different banking services (Rowan, Lisa). Varo offers similar products compared to Chime, but the hesitancy to choose Varo came with the association with banks. Many unbanked individuals do not have a bank account due to their lack of trust in banks. Since Varo has a bank charter, it may lead to distrust.

Cell Phone Issue

With the rollout of a mobile app that would allow users to have easier and cheaper access to banking services, a few problems could arise during implementation. One of the main problems encountered during the brainstorming of the project was the issue of cell phone

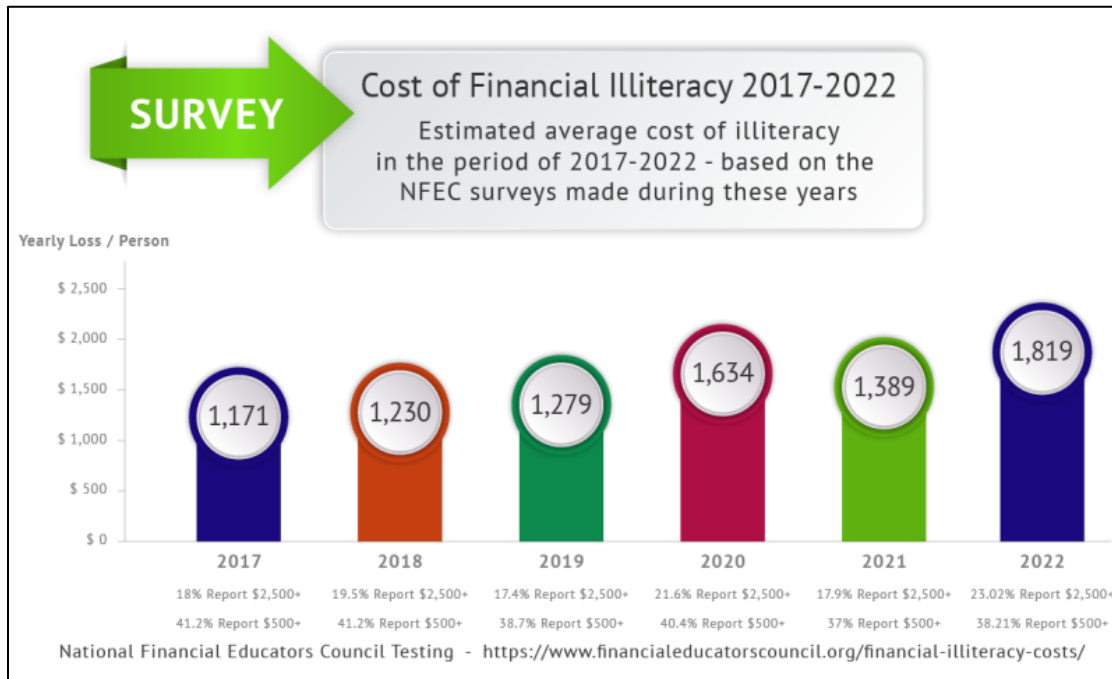
ownership. While a majority of households in the United States have access to a cell phone or smartphone technology, there is still a disconnect between cell phone ownership within the banked and unbanked populations. According to Pew, about 60 percent of the unbanked population in America has access to smartphones (Pew). The lack of cell phone ownership could be a serious issue in the implementation process due to the inability to access the main technology that is being offered.

A possible solution to this issue is providing a specific phone that would allow the users without access to smartphones to have access through a device with preloaded features allowing for only the functions outlined to be utilized. This smartphone would not be a brand-new iPhone 14, but the opposite. The smartphone provided would be able to download and run the specific applications outlined, but contain no other advanced characteristics. While this is a potential solution, it doesn't necessarily fix all problems. Some new issues may arise, such as: what happens when somebody breaks or loses a phone, do users who currently have smartphones also get one of these smartphones, and how do you prove you don't currently have a smartphone?

Educational Efforts

One of the most pressing reasons why the unbanked consistently remains unbanked in the United States is a lack of financial education. Lacking financial literacy and the knowledge to manage one's finances not only has a social cost, but also a large economic cost. A survey question from the National Financial Educators Council asked U.S. residents, "During the past year (2022), about how much money do you think you lost because you lacked knowledge about personal finances?" Of the respondents, the average amount of money lost due to a lack of financial literacy was \$1,819. Approximating this to reflect the entire U.S. population, it

translates to over \$436 billion in 2022 (NFEC). As shown in the graph below, the yearly loss per person has steadily increased over the last five years. Without a foundational understanding of finance, there is a large risk of individuals falling into debt, which leads to increased fees and other risks. Along similar lines, 78 percent of adults live paycheck to paycheck, and almost two-thirds of American households do not have the equivalent of a six weeks' savings. One in four explained that if an emergency were to happen, they would charge the expenses to a credit card or take out a loan, increasing their debt (NFEC).



What this survey is saying is that there is a desire for financial education in the United States. Many of the programs that are being implemented into society are starting at a younger age, focusing on high school students. While this is a great start for younger individuals, that leaves a large portion of the population without the education that they need. With greater

reliance on technology and a plethora of options when it comes to financial products, the complexity within the financial world is increasing.

Although the study in this paper is targeting a specific population of the United States, the unbanked, establishing financial literacy for the entirety of the United States population is something that should be emphasized. Hopefully, the steps outlined in this study and the recommendations provided will translate to populations outside of the unbanked and help to lower the amount of money wasted on unnecessary fees.

Since the target group is the unbanked population, there is a different approach to educating this demographic. With the previous connection made between the unbanked population and the use of welfare, there are several potential partners to look into to reach the intended audience.

Walmart and Operation HOPE

Large retailers and grocery outlets like Walmart, Target, Kroger, and Dollar general have some of the highest SNAP redemptions in the country. One of the largest retailers that have been at the forefront of EBT and SNAP evolutions has been Walmart. Walmart has continuously profited from the use of SNAP benefits in its stores. In 2014, Walmart realized about 4 percent of its total revenue from SNAP benefits, roughly \$13 billion (Clark, Krissy). Along similar lines, that same year Walmart accounted for 18 percent of all SNAP transactions. It is safe to say that Walmart benefits greatly from the SNAP program and would potentially be interested in a partnership.

With a large portion of the target demographic redeeming their SNAP benefits at Walmart, this would be an ideal starting point to introduce financial education. Walmart is

already a catalyst in the financial education movement by partnering with Operation HOPE to provide their employees with financial education to help them "make the most of their money" (*Wal-Mart Operation Hope: Team Member Financial Literacy*). Operation HOPE is the nation's largest non-profit dedicated to financial empowerment for the underserved. Operation HOPE provides educational tools in areas such as credit and money management, homeownership, small business development, financial disaster recovery, and more (*Our Mission*). These tools have already helped Walmart employees become educated on various financial tools and would be beneficial in the success of the rollout.

With both Walmart and Operation HOPE as potential partner options, it leads to what would be included in the education. Since the feasibility study is aimed at transitioning the unbanked into the digital transaction space, there are many avenues through that educational information could be spread. Solely looking at Walmart and Operation HOPE, the most efficient way for information to be spread is through the store itself. One of the most impactful ways of learning is through interactive presentations with real-life examples. These would take place in the Walmart buildings and be open to the targeted individuals. Operation HOPE has educational resources that could be taught directly to the consumers in the physical Walmart locations, whether in one of the vacant rooms or directly at the front of the store. A booth could also be set up with a knowledgeable representative which would allow customers to ask any questions they may have about the process. Not only would this allow for an increase in financial literacy, but would also promote the usage of the platform introduced through the feasibility study and answer any questions or concerns that may arise.

Partnership

With all of the moving parts established, the overall project can be assembled. There are many aspects to this proposal, meaning that complications will arise during all parts of the process. While this paper will not focus on those complications, it will lay out the basic framework of a potential solution to decrease the unbanked population in America.

The goal of the partnership is to increase the use of digital transactions, hopefully leading to an increased reliance on bank accounts as opposed to cash. The major parties involved in this feasibility study include the United States Department of Agriculture, Chime, and Walmart. All three of these stakeholders have been outlined in detail in previous sections, and the rationale was explained.

The USDA is a crucial stakeholder for many reasons. A target demographic group pointed to two test states that were optimal for this feasibility study, Mississippi and New Mexico. These states were chosen based on the extensive population of both unbanked and SNAP users in comparison to other states.

With the test states chosen, a central component had to be chosen for the study, in this case, Chime. For the study to work, a reputable company was needed to provide credibility for potential users. Chime is not a bank, but a FinTech company that is aimed toward underserved populations and allows them to establish relevance in the digital payments industry. One of the sole reasons Chime was chosen was the nature of its online-only platform. While cash can still be used through ATMs, the primary method of transactions would ultimately happen through card or mobile payments. While the adoption of this technology does not necessarily solve the

unbanked problem in the United States, it is a small step toward bridging the gap between the banked and unbanked populations.

To maintain the feasibility study and ensure that it continues to grow, financial education tools are required to inform about crucial information not everyone has access to. A majority of the population in the United States claim that they lack basic financial skills and fundamentals, and it leads them to lose money from fees. The feasibility study would help provide the unbanked populations with a platform for online banking, and also reinforce the importance of key financial fundamentals. A partnership with Walmart seems to be the most efficient way to reach the target pool. Walmart accounts for almost 20 percent of all SNAP transactions annually, so clearly it can be assumed that many SNAP users are spending time in Walmart stores. Walmart also currently partners with Operation HOPE, a non-profit with goals to enhance financial literacy for underserved communities. The partnership is focused on Walmart employees at the moment. With this partnership already established, it will allow for easier implementation of educational efforts to the new demographic being targeted.

Finally, one of the key points to the success of this feasibility study is to keep up to date with the USDA SNAP mobile payments pilot. Since these studies go hand in hand, making sure to observe key trends and understand where changes need to be made is important. A total shift in transaction types is not something that will happen immediately for users, but will take time to get used to.

Economic and Social Benefits of Digitally Integrating the Unbanked

There is a large market segment within the United States for these alternative financial services. As of 2021, there are nearly 50 million people in the United States that are considered

underbanked (Federal Deposit Insurance Corporation). Being underbanked means that although someone in the household may have access to a traditional bank account, some forms of alternative financial services are used consistently. According to the Financial Health Networks' study on the Financially Underserved markets, approximately \$189 billion was spent on fees and interest on financial products in 2018 (Graham, Karen, and Elaine Golden). This number has continued to grow at an annual rate of around 4 percent each year. In 2023, the amount spent on fees and interest on these products in the United States will amass almost \$230 billion. According to NEFC, the average amount of money that lacking knowledge about personal finances cost people \$1,819 (NEFC). The market is highly accessible with significant profitability potential. With appropriate technology and increased awareness of the benefit of using other products, this number can be redistributed into different areas without having to charge substantial fees.

Looking solely at the numbers in the chart below, the amount of wealth that could be created through the simplicity of avoiding fees due to AFS is astounding. The chart below shows how the money would be created by simply allowing it to sit in a savings or investment account for years and letting the power of compounding interest work its magic. The first row in the chart is titled "Money Compounded @ 2%." This row shows how much money people could be made if they put the \$1,819 that is lost to fees on average each year into a Chime savings account. The Chime savings account pays around two percent interest each year, which is high for a savings account. If left untouched, the original value could potentially multiply by 220x in a period of 50 years for a value of over \$400,000. The next row in the chart is titled, "Money Compounded @ 7%." This row in the chart uses the same assumptions as the row above, but this time considers an interest rate of seven percent. The S&P 500 is a key investment indicator for many financial

advisors, and many judge their rate of returns against this index. Over the last 100 years, the S&P 500 has provided an average yearly return of around 7.2 percent when adjusted for inflation, and also assuming dividends are being reinvested. Since approximately seven percent can be a conservative estimate for growth in the stock market, this is the number chosen to present the money creation if an individual were to roll their fee savings into an investment account. Instead of \$400,000, like in the savings account example, an investment account could potentially lead to over \$1.3 million in 50 years.

	Year 1	Year 5	Year 10	Year 30	Year 50
Money Compounded @ 2%	\$ 1,819.00	\$ 10,238.43	\$ 23,760.68	\$ 130,243.67	\$ 401,552.92
Money Compounded @ 7%	\$ 1,819.00	\$ 11,271.67	\$ 29,522.80	\$ 264,898.40	\$ 1,355,175.72

Even though it is unlikely that many individuals would put all of their savings from fees into a savings or investment account, \$1,819 is still a significant amount of money. That money could be used for multiple rent payments, extra food on the table, the ability to afford better transportation, etc. Any extra disposable income is treasured by individuals living below the poverty line. While that \$1,819 may not turn into \$400,000, it could help change people's lives and could be the boost needed to exit poverty.

Measuring Success in the Feasibility Study

A contributing factor to the success of the implementation of the feasibility study is the dependency on the SNAP mobile payments pilot. If the SNAP mobile payments pilot is successful from a consumer standpoint (i.e., users conduct more transactions on mobile devices), then it can be assumed that this project would be successful, as well. In this project, success

would be measured by increased utilization of the Chime platform by the established target demographic. This study does not necessarily have to increase bank account ownership, but get users acclimated to FinTech products, and hopefully, lead to the eventual creation of bank accounts.

Chapter 4

Conclusion

Digital transactions and mobile payments are not news concept in the United States, or anywhere else in the world. Like almost all aspects of the world, evolution of products and technology occur daily. In the world of digital transactions, this evolution is occurring rapidly as FinTech startups continue to innovate and expand digital products, transitioning away from the reliance on cash. As the United States continues the shift toward a cashless society, it is imperative that the impact on all demographics is understood. There is a current lag in acceptance of digital products from the unbanked population that needs to be addressed. As more products are introduced, the gap between the banked and unbanked population will stretch further, creating more expensive alternatives in the future. Focusing on the issue in the present will eliminate scrambling when the United States inevitably becomes cashless.

The feasibility study proposed in this paper provides a road map for a potential solution to the unbanked issue in the United States. A partnership between the USDA, Walmart, and Chime creates credibility that would be recognized by the participants. The participants already have interactions with both the USDA, as well as Walmart due to the high correlation established. Since the participants already trust these two organizations, acceptance of this new product would be easier. While there is potential profit to be made from the study, the more important part of the results are the social and economic benefits.

The United States will eventually be a fully cashless economy, it is just a matter of when. With nearly six million households in the United States unbanked, the likelihood of abandoning part of that population is high. Attacking the problem early is urgent to ensure families do not get left behind during the digital payment revolution. This study is focused on gathering the

unbanked population and equipping them with the skills and tools necessary to function in a cashless society. As shown throughout this paper, there are many social and economic benefits for both the participants in the study, as well as the entities that partner.

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ACADEMIC VITA

CARTER J. BUCKS

EDUCATION

The Pennsylvania State University | Schreyer Honors College **University Park, PA**
Smeal College of Business | Bachelor of Science, Finance *Class of May 2023*
Smeal College of Business | Minor, Supply Chain and Information Sciences & Technology
Smeal College of Business | Certificate, Real Estate Analysis and Development

WORK EXPERIENCE

Deloitte Services LP **Charlotte, NC**
Engagement Financial Advisor Intern *June 2022 – August 2022*

- Monitored project performance by frequently communicating with the engagement team, finance department, partners, and other stakeholders ensuring engagements were within the scope of cost
- Worked with consulting teams to provide financial services and validate the company's success and viability
- Updated and reconciled weekly changes in project financial forecasts and ensured profitability quotas were reached
- Utilized professional data tools such as CP3, SWIFT, and the Unified Standard Tracking Tool daily

Polaris Advisors LLC **Camp Hill, PA**
Financial Advisor Intern *May 2021 - August 2021*

- Improved firm's retirement portfolio draining approach by shifting to Income Solver's unconventional wisdom spending strategy leading to an average of 12 additional years of portfolio longevity
- Established a 401(k) plan for 10 employees of Zimmerman Plumbing with more than 8% savings for each client
- Generated Riskalyze reports, net worth statements and Morningstar reports in preparation of annual client meetings
- Transferred 25 years' worth of client data into new, updated platforms such as Outlook and Microsoft Teams in preparation of firm's upcoming move from MassMutual Life Insurance to LPL Financial Holdings

Mt. Gretna Hideaway **Mt. Gretna, PA**
Server *July 2020 - May 2021*

- Worked with serving staff to accurately record food and drink orders, run multi-course meals, and tally bills

LEADERSHIP AND INVOLVEMENT

Delta Sigma Pi Professional Fraternity – Alpha Gamma Chapter **University Park, PA**
Vice President of Finance *April 2021 – January 2021*

- Gathered over \$10,000 in dues from over 100 brothers while creating an appropriate budget for all organization operations to guarantee the Fraternity break-even point
- Cultivated an inclusive environment for the chapter by serving as an integral role on the executive committee
- Collaborated with a CPA to audit the previous year's financial statements to assure accuracy and completeness
- Supervised the Director of Fundraising to ensure appropriate funds were being raised throughout the semester

Recruitment Implementation Supervisor *August 2021 - October 2021*

- Navigated a virtual, pandemic environment as the only Fraternity to obtain a pledge class during the fall semester
- Supported the Senior Vice President by creating slide decks and other deliverables to create a positive experience for the incoming recruits and brothers, resulting in the largest pledge class in recent history

Committee of Pledge Education *February 2020 - May 2020*

- Coordinated professional development events and seminars for incoming brothers focused on resume-building, enhancing networking skills, interview preparation, and job search techniques

Smeal Student Mentors **University Park, PA**
Mentor *March 2020 - Present*

- Functioned as a business and academic mentor to a group of 12 first-year students throughout the year
- Scheduled and facilitated numerous meetings throughout the semester for mentees to learn valuable skills for success such as networking, interview prep, and resume reviews

Deloitte Undergraduate Case Competition **University Park, PA**
3rd Place Team Member *February 2021*

Smeal Undergraduate Sustainability Case Competition **University Park, PA**
2nd Place Team Member *March 2021*