

Banking Characteristics of Millennials

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This paper looks at the characteristics of the Millennial generation, compares them to other generations, and explores how the characteristics of Millennials influence their banking behavior, specifically their choice to utilize financial products and services commonly associated with financial institutions. The results indicate that Millennials differ from Generation X and Baby Boomers in several aspects, including utilization of mobile banking, accumulation of student loan debt, and perception of financial knowledge. Through differences in means tests and probit regression, the results from this study reflect how these factors influence Millennials' interest in and utilization of financial products and services typically offered by banks.

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JEL Classification: G21, G23, G30

1 Introduction

The Millennial population is ascendant on both a domestic and international scale, with half of the global population being younger than 30 as of 2012 (Boumphrey, 2012). Fry (2015) states that "More than one-in-three American workers today are Millennials (adults ages 18 to 34 in 2015), and this year they surpassed Generation X to become the largest share of the American workforce." Figure 1 shows the upward trend of

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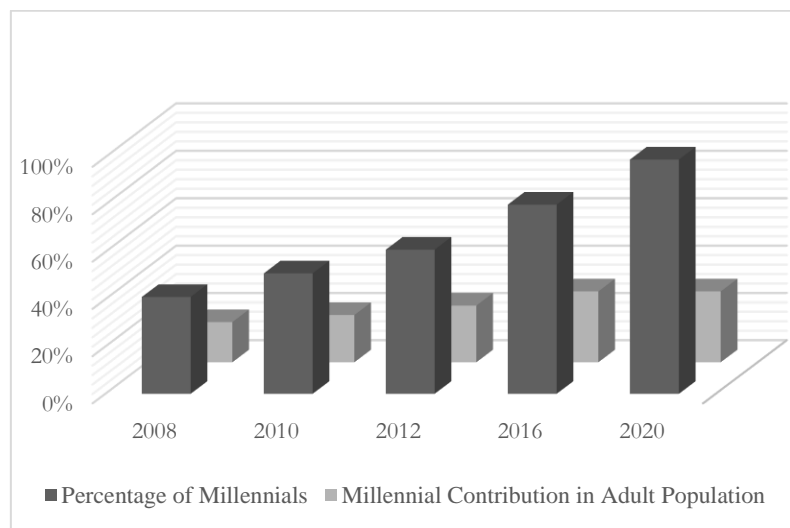
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Millennial dominance in the U.S. adult population from the U.S. Census Bureau. Cudmore, Patton, Ng, and McClure (2010) state that “Millennial spending power is a market force of significance that captures the interest of many players in the economy, to include the financial services firms, trying to capture some of this wealth.” This study categorizes the Millennial generation as individuals who are 13 to 34 years of age. We examine the differences in characteristics of the Millennial generation in comparison to the two preceding generations, Generation X (Gen X), and Baby Boomers.

The Millennial generation is going through major milestones that include pursuing general education, college education, and employment. There are several ways that Millennials differ from past generations. In contrast to the Gen X and Baby Boomer generations, Millennials are the most diverse generation in American history (Wey Smola and Sutton, 2002). Moreover, a vast majority of Millennials have attended college and have college degrees, even more so than other generations (Levenson, 2010).

Figure 1: The Increase of Millennial Dominance in the U.S. Adult Population



Source: US Census Bureau

In addition, the Baby Boomer generation is entering retirement age while the Millennials are entering the workforce (Dohm, 2000; Perry, 2015). The Council of Economic Advisers (2014) found that over 60 percent of adult Millennials have attended college, exceeding the Baby Boomers, 46

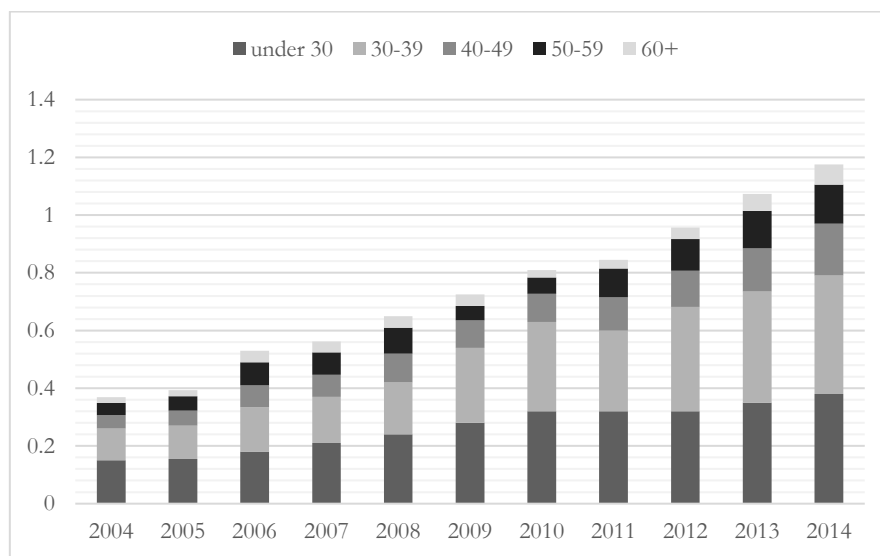
percent of whom attended college. Furthermore, Millennials are the first generation to grow up enjoying both the access to and the benefits of the internet, which has shaped their views on technology, communication, and commerce. Their early adoption of technology and internet utilization has provided opportunities for alternative financial services that target this generation of consumers. Payment transfers can now be done through internet-based service providers such as Paypal, Venmo, Square, Stripe, and Braintree. Financing can be accessed through peer-to-peer lending platforms such as Zopa, Prosper, and Lending Club, which are marketplaces where lenders can issue loans to individuals and small businesses (Mateescu, 2015).

Survey studies have been conducted by financial institutions and firms that specialize in financial services, such as Wells Fargo, Standard & Poor's, KPMG Capital, and Oracle. Pew Research Center (2014) shows that previous generations think Millennials face a tougher economy than they faced when starting out, which reflects the current public sentiment on the U.S. economy and employment opportunities for previous generations.

Previous literature finds that student loan debt is a major factor affecting the personal finance decisions of Millennials. Levenson (2010) states, "Millennials have about twice the college credentials than their predecessors in the tail end of the Baby Boom and leading edge of Generation X, and they reached that point by doubling both college attendance (without graduation) and 4-year college graduation." Millennials have higher levels of debt in comparison to previous generations due to the necessity of obtaining student loans to cover rising education costs while earning college degrees (Nava, Karp, and Nash-Stacey, 2014; Kern, 2016). The student loan debt burden is also more pronounced, exceeding the national average, for young adult students from lower socioeconomic status (Houle, 2013). Efforts for addressing this student loan issue have led to alternative financing methods such as Income Sharing Agreements (ISA) where universities advance the student money to cover education expenses, and in turn, the student agrees to pay a fixed percentage of their income for a set amount of years (Friedman, 2015). Student loan refinancing demand is also rising, with financial institutions providing refinancing options for students to obtain more affordable interest rates, which has been considered more advantageous for college graduates with higher incomes (Paquette, 2014). The rise in

student loan balances is seen in Figure 2 which shows student loan balance growth by age group in 2015.

Figure 2: Total Student Loan Balance Growth by Age Group 2015



Source: FRBNY Consumer Credit Panel/Equifax, Standard & Poor's 2015

Since the Millennial generation is comprised mainly of college educated and college graduates, two primary outcomes arise. Student loan debt is high amongst Millennials, and there is greater competition in obtaining work with more of the workforce having college degrees. Total student loan growth, seen in Figure 2, consists primarily of people who are 39 years or younger in age, which consists mostly of Millennials. Because of this, there is growing pressure for Millennials to obtain a job after graduation and pay off student loan debt.

There are several factors that may influence a Millennial's financial decisions, such as student loan debt, relocation, and level of education. Demographic characteristics and characteristics of financial institutions come into play in a Millennial's decision to invest in financial services and products and to use a given financial institution. This paper examines the characteristics of the Millennial, what influences Millennials' financial decisions, and what types of financial products and services are of interest to and utilized by Millennials.

2 Literature Review

Millennials have entered and dominated the workforce (DelCampo, Haggerty, Haney, and Knippel, 2011), which makes them the largest consumption targets for traditional financial institutions. Cudmore, Patton, Ng, & McClure (2010) emphasize that each generation cohort embraces distinctive characteristics and that financial institutions must customize their offerings to accommodate the demand of that targeted generation – the Millennial. Research reveals that Millennials are delaying marriage and household formation; this factor contributes to the slow recovery of the housing market, the decline in rates of homeownership, and the increase in demand for housing rentals (Nava, Karp, Nash-Stacey, 2014). In agreement with this, another research paper furthered the discussion on Millennials having higher levels of debt in comparison to previous generations due to Millennials obtaining student loans to cover rising education costs (Kern 2016). Another study sampled a large proportion of Millennials, especially ones with lower-income, having sufficient savings to cover unexpected expenses. That study emphasized the need for a combination of initiatives that promotes financial capability and financial inclusion for effective determinants of “financial outcomes.” (Friedline and West, 2015). Millennials, when compared to previous generations, have incurred different demands and preferences for financial services.

The retirement preparedness of different generations is explored in several research studies. Lee, Hassan, & Lawrence (2016a) examines the differences in retirement preparedness of the Generation X, Y, and “hippie” generations and finds that the “hippie” generation is more prepared for retirement compared to Generation X and Y. Hassan & Lawrence (2001) studies gender differences in retirement preparedness and states that women have higher chances of facing events that can reduce their economic well-being and can be subject to pay inequality, which can impact their level of retirement savings. Hassan & Lawrence (2011) analyze how individuals in their fifties from the 1995 Survey of Consumer Finances have prepared for retirement and find that good health, work history, and income have a positive effect on retirement eligibility and that age and education levels have a negative effect on pension plan eligibility. Lee, Hassan, & Lawrence (2016b) study the 2016 Survey of Consumer Finances and find that health, age, and gender effect retirement planning.

The loyalty of Millennials towards any specific financial institution depends on their satisfaction, lower fees, relevant product options, and helpful customer service (Perry, 2015). Millennials have been exposed to technology at early ages, and many use both personal and internet banking; yet factors such as marriage status, education level, and utilization of ATMs, direct deposit, direct bill payment, and computer software tremendously affect the inclination of Millennials to become tech-savvy and to adopt internet banking (Kim and DeVaney, 2016). Interestingly, a study on the use of internet banking among Millennials in Trinidad and Tobago questions the validity of technological inclination being the reason Millennials continue to use internet banking despite the limited access to these services at those physical locations. Indeed, its findings support the initial proposition that loyalty towards internet banking depends both on customers' rational consideration, rather than innovative inclinations, and on governmental support (Rambocas and Arjoon, 2012). That research, however, was only limited to students as its main subjects, which is a relatively homogeneous group and therefore cannot be generalized to portray a more diverse population.

This paper looks to fill this gap in the academic literature by constructing a national scale survey administered to respondents throughout the United States. This study aims to provide additional insight into the characteristics of potential Millennial bank clients, including what financial institution characteristics they perceive to be important in their choice of utilizing financial products and services. The final sample consists of university students, professors, young professionals, and Amazon Mechanical Turk (AMT) panelists in the United States. Several studies utilize AMTs for survey respondents. Mason and Suri (2012) conclude that utilizing AMTs as respondents can be used as a "useful tool" to conduct research studies. Shapiro, Chandler, and Mueller (2013) find that AMTs provide "several advantages for clinical research while providing insight into potential problems, such as misrepresentation, that researchers should address when collecting data online." We have screened our AMT respondents by adding in screening questions to make sure that the respondents were seriously answering the questions.

Among current research literature, Hussain and Wong (2015) embrace similar perspectives and methods, constructing the quantitative description of Millennials as consumers for banks for marketing purposes targeting product demands. Specifically, the Millennial generation

(sometimes referred to as Generation Y) was segmented based on different demographic factors. However, the Hussain and Wong (2015) survey was limited to a sample of 110 Millennial students from a university in Northern California; most of the respondents were between the ages of 21 and 23. Remediating that limitation, this paper contributes to the existing literature by examining a larger dataset consisting of 400 respondents spanning from Baby Boomers to Millennials. A comparison study is conducted to examine the differences in characteristics between generations as well as to gauge the interest and probability of generations to utilize financial institutions.

Alternative financial services should be further examined for financial institutions to effectively compete in a changing industry. Traditional financial institutions need to not only adjust for the shift of customer generation mentioned above but also prepare for threats coming from alternative financial services competing for current market shares. Peer-to-peer lending operations – “which provide efficient alternative markets for lending and saving” – and Neobanks – “which offer highly accessible yet purely online services that compete directly with retail banks” are new forms of financial services available to Millennials that provide valuable services without requiring consumers to have access to a physical banking branch. Despite this rigorous competition, traditional banking remains stable. “Even among Millennials, branches are still key, as 53 percent say they visit a branch because they feel it is more secure and they seek more personalized service, especially for their own personal finances” (Chang, 2014). However, the reality that Millennials are more inclined to use new and alternative financial services and providers in comparison to previous generations (Herbst-Murphy and Weed, 2015) deserves attention from traditional banks in consideration of modifying their products to maintain their competitive advantages in the current and future marketplace. The objective of this study is not just collecting and compiling data, but also developing empirical models that can be used to estimate the propensity to utilize financial products and services that are associated with financial institutions.

3 Hypotheses

Findings from previous survey reports have outlined the bank characteristics that Millennials value, namely mobile banking, ethical business practices, low fees, and low transactions costs. KPMG Capital

(2014) found four clear bank characteristics that Millennials in their sample wanted: personalized service, a focus on convenience, being progressive with social and technological advancement, and taking a results-oriented approach to helping the Millennial bank client.

Pew Research Center (2015) stated that 84 percent of American adults utilize the internet and that young adults are more inclined to use the internet in comparison to previous generations. This has been a growing trend, which the report has tracked from 2000 to 2015 and can be seen in Figures 3 and 4. Gattiker and Stollemeir (1992) proposed that there is a strong relationship between a person's age and the level of acceptance of new technology. Millennials have grown up with wider access to the internet, personal computers, and smartphones in comparison to previous generations. The Board of Governors of the Federal Reserve System (2014) suggested that an increase in smartphone use leads to an increase in the usage of mobile banking services. Thus, a bank offering mobile and online banking could have the potential to influence a Millennial's choice in using a given financial institution. We hypothesize that access to mobile and online banking will have a significant impact on a Millennial's propensity to bank with a given banking entity.

Hypothesis 1 (H1): Millennials value mobile banking and online banking more than previous generations do.

Hypothesis 1 relates Millennials' banking habits to available technology. To investigate this hypothesis, we employ several methods. Panel A of Table 4 shows the mean of the variables of interest. In Panel A, we conduct a difference in means tests for each of the generations measuring *Smartphone Use*, *Laptop Use*, *Use Mobile Banking*, and *Use Online Banking*. In addition, we conduct one-tailed tests to determine whether the Millennial generation differs in *Smartphone Use*, *Laptop Use*, *Use Mobile Banking*, and *Use Online Banking*. We employ one-sided tests to determine if mobile banking is greater in the Millennial generation compared to others. If the value is positive and significant, it indicates that the Millennial response for any given variable is larger. The results of Millennials and Generation X, Generation Z and X, Millennial and Generation Z, and *Smartphone Use*, *Laptop Use*, and *Use Mobile Banking* are positive and significant. Millennial and Generation Z and *Use Online Banking* is positive and significant. Overall, the data shows significant heterogeneity between generations at almost all levels.

In Panel B, we employ a probit regression with the dependent variable being *Mobile Banking Value* and the independent variables being *Millennial*, *Generation X*, and *Baby Boomer*. We specify two interaction terms. The first independent variable is *Use Laptop*Millennial*. The second independent variable is *Use Smartphone* Millennial*. We also include controls for each generation. The final specification for Table IV Panel B is reflected in Equation (1).

$$(1) \quad \begin{aligned} & \textit{Mobile Banking Value} \\ &= \beta_{\textit{controls for generation}} + \beta_{\textit{Laptop*Millennial}} \\ &+ \beta_{\textit{Smartphone* Millennial}} + \epsilon \end{aligned}$$

Survey respondents were asked if they value mobile banking. From this question, we create the variable *Mobile Banking Value*. Using this response, we employ a second probit regression with additional controls for both bank and individual characteristics. Those controls include *Low transaction costs and fees*, *ATM vicinity*, *Customer Service*, *Financial Advising*, *Financial Coaching*, *Online Banking*, *Ethical Business Practices*, *Community Involvement*, and *Networking Events*. Our main variable of interest is a Millennial indicator variable which equals 1 if the respondent is a Millennial and zero otherwise. The final specification for this model is shown in Equation (2).

$$(2) \quad \begin{aligned} & \textit{Mobile Banking Value} = \\ & \alpha + \beta_{\textit{millennial}} + \beta_{\textit{Low costs and fees}} + \beta_{\textit{ATM vicinity}} \\ & + \beta_{\textit{Customer Service}} + \beta_{\textit{Financial Advising}} \\ & + \beta_{\textit{Financial Coaching}} + \beta_{\textit{Online Banking}} \\ & + \beta_{\textit{Ethical Business Practices}} \\ & + \beta_{\textit{Community Involvement}} + \beta_{\textit{Networking}} + \epsilon \end{aligned}$$

Hypothesis 2 (H2): Student loan debt hinders financial product utilization.

For Hypothesis 2, we investigate the relationship between Millennials' economic circumstances and financial product use. We categorize these variables as "wealth formation" variables because they are products generally associated with wealth formation. The literature shows Millennials are affected by student loans in several ways. Millennials may delay household formation, a major vessel of wealth, for a variety of

reasons. A major factor can be rising student loan debt. Rising college costs are also keeping Millennials in co-residence with their parents (Bleemer, Brown, Lee, and Van der Klaauw, 2014). In addition, Millennials are choosing to have fewer children in comparison to previous generations, due to increases in costs of living and day care (Astone, Martin, and Peters, 2015).

We investigate Millennials' relationship with banking using two methods. To provide initial evidence we employ analysis of a difference in means testing. Table III reports difference in mean testing for several survey questions administered. The second method employs a probit regression to investigate products associated with wealth formation, *Mutual Funds*, *Stocks*, and *Savings*. We categorize the savings variable by the subject's propensity to save—Disagree, Somewhat Disagree, Neutral, Somewhat Agree, Agree, and Strongly Agree. After adding controls for age, the final specification is reflected in Equation (3).

$$(3) \quad \text{Student Loans} = \alpha + \beta_{\text{Mutual Fund}} + \beta_{\text{Stocks}} + \beta_{\text{Savings},i} + \beta_{\text{Generation Controls},i} + \epsilon$$

Hypothesis 3 (H3): Millennials' perceived financial knowledge affects utilization of financial products and services.

For Hypothesis 3, we investigate the impact of perceived financial knowledge on the interest in and utilization of financial products and services by Millennials, Generation X, and Baby Boomers. Several terms have been used interchangeably to refer to the concept of financial knowledge throughout the extant literature. Huston (2010) found that financial literacy and financial knowledge have been used synonymously in previous academic literature, specifically 76 percent of the research studies included in his paper's sample. In contrast, Remund (2010) stated that the academic literature concurrent with his paper considered financial literacy to be a combination of financial knowledge, financial ability, and skills. For the sake of clarity, we will solely use the term "financial knowledge." The survey question assessing this factor states "What would you consider to be your level of financial knowledge, overall?"

Increased access to the internet and technology has given Millennials the opportunity to utilize social networks and research services and products from financial institutions in a faster, possibly more efficient, manner, which can impact their level of financial knowledge. Even though this access to new technology may impact Millennials' financial knowledge level, Friedline and West (2015) have found that the financial capability of Millennials is quite low, especially for low-income Millennials. Yet, Millennials who have even taken personal finance classes at the university level may not have higher levels of financial literacy due to lack of motivation (Mandell and Klein, 2007). Gender differences have been found to impact enthusiasm for learning personal finance topics (Chen and Volpe, 2002). We examine the difference between the level of perceived financial knowledge the Millennial asserts and the interest in and utilization of financial products and services in this paper's administered survey. To test Hypothesis 3, we employ the following probit regression seen in Equation (4):

$$(4) \quad \text{Perceived Fin Knowledge} = \alpha + \beta_{\text{financial products},i} + \epsilon$$

4 Data and Results

National data regarding the ways in which financial institutions should approach serving this new generation is collected using a survey administered to potential Millennial banking clients through the survey software Qualtrics. The survey was developed by referencing two Generation Y surveys conducted by Azmi and Madden (2015a, 2015b). Questions were added and updated to suit testing this study's three hypotheses, which assess bank characteristics, utilization of and interest in financial products and services, and perceived financial knowledge. The survey used in this study was administered to 468 total respondents. The respondents consisted of university students, professors, young professionals, and Amazon Mechanical Turks (AMT). Amazon Mechanical Turks are Human Intelligence Task Workers who can be contracted out to take surveys. AMTs have been included as respondents for academic behavioral research studies (see Buhrmester, Kwang, & Gosling, 2011). Paolacci and Chandler, J. (2014) states that "MTurk data facilitates the collection of well-powered samples that, ceteris paribus, better reflect the available workforce."

The total sample consists of 468 responses. Table I shows the characteristics of the full survey sample, first with all generations and then segmented by Millennials, Generation X, and Baby Boomers. The majority of Millennials, Generation X, and Baby Boomers work in the for-profit sector (49% of all generations and 53%, 54%, 51% for each generation respectively). The majority of Millennials have annual income below \$50,000 (33% from \$50,000 to \$25,001 and 35% below \$25,000). This reflects the segmentation of labor in the workforce by generation.

For job-level, Millennials primarily are at entry-level (58%) and mid-level (33%). Generation X and Baby Boomers are predominantly at mid-level (51% and 48% respectively). For education level, 51 percent of Millennials have an associate's degree, 58.06 percent have a Bachelor's degree, 16 percent have a Master's degree, and 12 percent had some college but did not graduate. 43 percent of Generation X have an associate's degree, and 24 percent have a Master's degree, which is a greater percentage than both Millennials (16%) and Baby Boomers (21%). For marital status, 60 percent of Millennials are single, and 28 percent are married. The plurality of Generation X is married at 47 percent, with 31 percent being single and 12 percent being divorced/widowed. The plurality of Baby Boomers is married at 49 percent, with 31 percent being divorced/widowed. In addition, domestic partnerships have almost doubled from the Baby Boomers to Generation X from 6 to 11 percent and remained steady with Millennials at 11 percent.

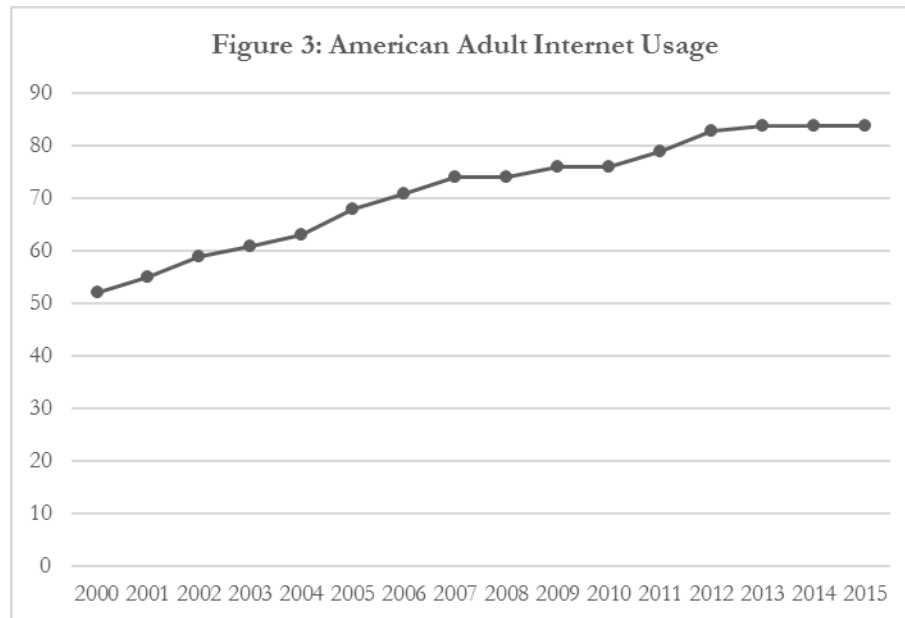
Table II shows the descriptive statistics. The mean age of the full sample is 37 years. More than half (56 percent) of the respondents are Millennials. Generation X comprises 26 percent and Baby Boomers comprise 18 percent of the sample. The sample consists of 262 Millennial respondents, with a mean age of 27 years. The mean number of dependents for Millennials is 1.51, 2.09 for Generation X, and 1.87 for Baby Boomers. The mean level of financial knowledge is 47.45 for Millennials, 49.74 for Generation X, and 61.25 for Baby Boomers. The difference in financial knowledge between Millennials and Generation X is relatively small, yet there is a much larger difference in financial knowledge between Generation X and Baby Boomers (difference of 11.51). This jump in perceived financial knowledge from Generation X to Baby Boomers may stem from Baby Boomers being more acclimated to personal finance and financial planning for a longer period of time. Baek and DeVaney (2004)

have found that the majority of Baby Boomers are comfortable with investing and have adequate investment and debt-to-asset ratios, which may explain their heightened level of perceived financial knowledge.

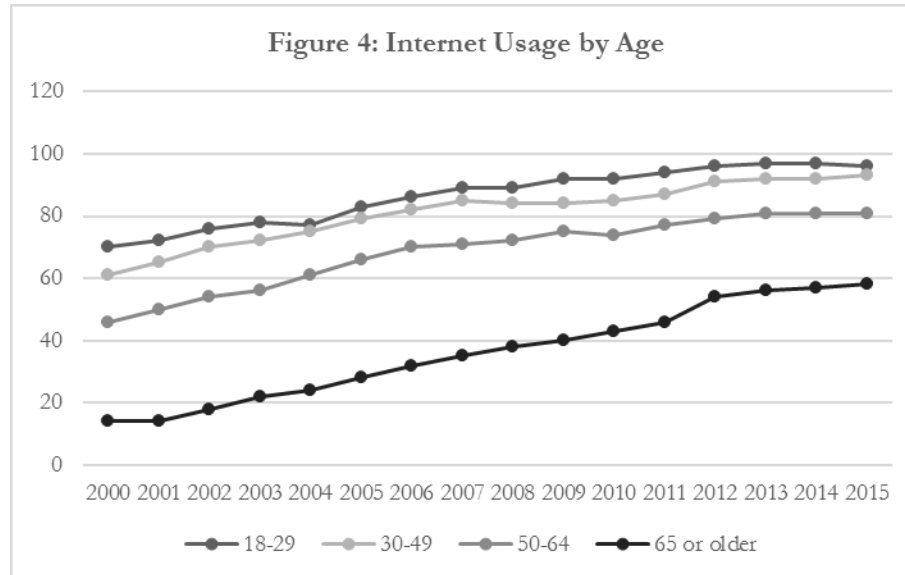
Table III shows difference in means testing for some variables of interest. We employ two-tailed testing to not to imply any specific direction for the difference. Many of the differences across generations are significant. We see the number of dependents is significant across generations, reaching a peak for Generation X. We do not see a significant difference between Millennials and Baby Boomers. Annual income seems to increase with age from \$46,320 for Millennials to \$55,600 for Generation X to \$79,950 for Baby Boomers.

The number of relocations increases with each generation. However, if we consider the number of relocations controlled for generation or age, we can conclude that Millennials on average relocate more. Further studies should include more analysis on this result. Lastly, perceived financial knowledge provides interesting results; while it would seem that perceived financial knowledge should increase with generation, we do not see a significant difference between Millennials and Generation X. This invites more analysis which we interpret in Hypothesis 3.

Hypothesis 1 is *Millennials value mobile banking and online banking more than previous generations*. The results of the analysis are shown in Table IV. This relationship between customers and technology is important because of the increased frequency of mobile use. Table IV, Panel A shows that there is greater use of smartphones by the Millennial generation. Figure 3 and 4 illustrates how mobile banking is becoming increasingly important. Figure 4 shows that while internet usage has increased overtime, Millennials tend to use the internet in greater proportions. Because of their familiarity with internet technology, Millennials may value mobile and online technology more than other generations.



Source: Pew Research Center Surveys 2000-2015



Source: Pew Research Center Surveys 2000-2015

To further investigate this relationship, we employ a probit model in Panel B. The dependent variable is *Mobile Banking Value* and the independent variables are control variables for *Millennial*, *Generation X*, and the *Baby*

Boomer generation. To investigate the interest of Millennials in online and mobile banking, we employ two interaction terms *Use Laptop * Millennial* and *Use Smartphone * Millennial*. The results show little evidence that Millennials value online banking. However, the results show that millennials have a strong preference for mobile banking.

To further test this relationship, we employ a second probit model. This model regresses *Mobile Banking Value* on several control variables and a Millennial indicator variable. The model results reveal that, after controlling for several other bank preferences, if Millennials prefer mobile banking services. We expect a positive and significant coefficient for the Millennial indicator variable. Table IV, Panel C displays the results of this model. The results suggest that millennials prefer mobile banking.

Hypothesis 2 is *Student loan debt hinders financial product utilization*. Student loans have been shown to impact financial decisions such as homeownership (Cooper and Wang, 2014; Houle and Berger, 2014). If student loans are affecting the wealth formation of Millennials, then demand for these financial products may also be affected.

To test this hypothesis, we employ a probit regression. The results can be found in Table V. For the dependent variable, we use student loans. We use the independent variables *Use of Mutual Funds*, *Stock Investments*, and *Savings*. For savings, we use propensity to save and we control for generation. We find that people who use mutual funds are less likely to have student loans and those who do not use savings are more likely to have student loans.

We use all response options for savings. The results indicate that when a someone saves less, they are more likely to have student loans. These results indicate that student loan debt may drive down use of traditional financial products. If these financial products offer a greater rate of return for financial institutions, this may become a problem in the future.

Hypothesis 3 is *Millennials' perceived financial knowledge affects utilization of financial products and services*. To test this hypothesis, we employ a linear regression. For the dependent variable, we use perceived financial knowledge. This number is calculated by asking respondents their financial knowledge on a scale of 0 to 100. Subsequently, we use

this number as the dependent variable in a regression and include the use of several financial products. Controlling for several financial products allows us to determine if there is strong correlation between any financial product and perceived financial knowledge. The results of the regression are in Table VI.

Table VI shows that perceived financial knowledge is increasing between generations except for Millennials and Generation X. Panel 1 reports the results for only the Millennials subgroup. The relation between perceived financial knowledge and financial products is relatively weak, apart from stocks. The level of stock investment is positively related to perceived financial knowledge. This would seem to indicate that financial knowledge translates to more investments in the stock market.

We also investigate the relationship between perceived financial knowledge and financial products for all generations. This regression tells a similar story. Financial knowledge is not only remaining positively related to stock investments, but also to mutual funds. The coefficient on mutual funds is larger in magnitude to stock investment. We hypothesize that greater financial knowledge is correlated with complex financial products, such as stocks and mutual funds.

5 Conclusion

The findings of this study suggest that there are several ways that Millennials differ from older and younger generations. This can be seen from their marital status, education level, income, and adoption of new technology. Results from the survey reflect that the majority of Millennials are using laptops and online banking as well as smartphones and mobile banking, yet prefer mobile banking over online banking due to high smartphone usage. We determine that Millennials prefer mobile to online banking. This relationship is unique to the Millennial generation. Millennials' economic circumstances, such as student loans, may prevent them from consuming financial products generally associated with wealth formation.

Millennials have lower levels of perceived financial knowledge in comparison to Generation X and Baby Boomers. As perceived financial knowledge grows, Millennials and other generations tend to invest in complex financial products such as stocks and bonds. Previous studies

have found a relationship between financial education, financial literacy, and beneficial financial outcomes (Fox, Bartholomae, and Lee, 2005; Lusardi, 2003). Simplified training to improve knowledge of finance can be effective at increasing financial literacy (Drexler, Fischer, and Schoar, 2014). Financial coaching may also be an effective way to increase financial knowledge and literacy by providing individual support through setting and monitoring goals (Collins and O'Rourke, 2010). Young Americans may have limited financial literacy and rely heavily on debt (Brown, Grigsby, van der Klaauw, Wen, and Zafar, 2016). Our study reveals that over half of Millennials respondents are burdened with student loan debt. Incorporating means of training Millennial consumers may potentially increase financial literacy, thereby increasing perceived financial knowledge, and ultimately improving debt repayment behavior.

The findings also reveal how much Millennials value mobile banking, as they consider it to be the most important bank characteristic. Financial institutions should adopt mobile and online banking services to garner client interest from Millennials and members of Generation X. The collected data and empirical results suggest ways in which financial institutions can best approach serving the Millennial generation.

This study has limitations as well as potential extensions. A factor that can affect Millennial utilization of financial products and services is risk tolerance, which was not included in this study. Hallahan, Faff, and McKenzie (2004) have found that there is a negative and significant relationship between age and risk tolerance. The level of risk tolerance associated with age may influence Millennials' interest in and utilization of financial products and services. This can be further explored in future research. Perceived control over outcomes can affect an individual's propensity to save, maintain a budget, and control spending (Perry and Morris, 2005). Measures to control for this should be added in future studies. Also, perceived financial knowledge, not actual financial knowledge, was addressed. Huston (2010) examined the various types of measures used in academic literature to assess financial literacy. These measures, administered through interviews and surveys, incorporated four distinct content areas, namely the basics of money, borrowing, investing, and resource protection. Pursuing a study that compares perceived financial knowledge to actual knowledge would further extend the current research literature.

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Appendix A: Profile of Survey sample, Descriptive Statistics and Regression Tables

Table I: Characteristics of All Generations of the Survey Sample

Panel A:

	Respondents Characteristics	Number of Respondents	% of Sample
All Generations			
Industry			
	Non-profit Sector	58	12%
	For-profit Sector	230	49%
	Government/Public Sector	65	14%
	Other	80	17%
Job Level			
	Entry-level	202	43%
	Mid-level	186	40%
	Divisional Management	43	9%
	Upper-level Management	18	4%
	C-suite Executive	12	3%
Level of Education			
	High School	47	10.11%
	Some College	43	9.25%
	Associate's Degree	168	36.13%
	Bachelor's Degree	104	22.37%
	Masters' Degree	70	15.05%
	PhD	33	7.10%
Marital Status			
	Single	206	44%
	Domestic Partnership	46	10%
	Married	171	37%
	Divorced Widowed	42	9%
Annual Income (thousands)			
	Below 25,000	137	29%
	25,001 - 50,000	131	28%
	50,001 - 75,000	99	21%
	75,001 - 100,000	41	9%
	Above 100,001	47	10%
	Student Loan	250	53%

Data was taken from the 2015-2016 Qualtrics survey administered in this study. The results include the characteristics of all generations and segmented by Millennials, Generation X, and Baby Boomers for the respondents in the survey. Table I represents summary statistics for the survey. Panel A represents survey responses in aggregate, and Panel B represents responses in proportion to each generation.

Table I: continued:
Panel B: Responses by generation

	Millennial Generation	Generation X	Baby Boomer
Respondents Characteristics			
<i>Industry</i>			
Non-profit Sector	14.04%	14.91%	9.52%
For-profit Sector	53.19%	54.39%	51.19%
Government/Public Sector	14.47%	14.04%	17.86%
Other	18.30%	16.67%	21.43%
<i>Job Level</i>			
Entry-level	58.08%	25.00%	25.93%
Mid-level	33.08%	50.83%	48.15%
Divisional Management	5.38%	14.17%	14.81%
Upper-level Management	1.92%	5.00%	8.64%
C-suite Executive	1.54%	5.00%	2.47%
<i>Level of Education</i>			
High School	6.45%	1.72%	1.94%
Some College	4.95%	3.01%	1.29%
Associate's Degree	21.51%	8.82%	5.81%
Bachelor's Degree	58.06%	79.35%	84.95%
Master's Degree	6.88%	4.95%	3.23%
PhD	2.15%	2.15%	2.80%
<i>Marital Status</i>			
Single	60.38%	30.58%	14.29%
Domestic Partnership	10.77%	10.74%	5.95%
Married	28.08%	47.11%	48.81%
Divorced Widowed	0.77%	11.57%	30.95%
<i>Annual Income (thousands)</i>			
Below 25,000	34.78%	22.69%	26.51%
25,001 - 50,000	32.81%	27.73%	18.07%
50,001 - 75,000	19.76%	25.21%	22.89%
75,001 - 100,000	5.93%	14.29%	10.84%
Above 100,001	6.72%	10.08%	21.69%
<i>Student Loan (Across Sample)</i>	55.20%	28.40%	16.40%

Table II: Summary Statistics

		Mean	Median	Standard Deviation
Variable				
All Generations	n = 468			
Age		36.74	33	13.34
Number of Dependents		1.73	1	1.11
Annual Income (thousands)		54.89	40	63.42
Number of Relocation		7.11	5	6.06
Financial Knowledge		50.56	55	26.03
Millennial Generation	n = 262			
Age		27.36	28	4.06
Number of Dependents		1.51	1	0.93
Annual Income (thousands)		46.32	31	55.97
Number of Relocation		3.62	4	4.20
Financial Knowledge		47.45	51	27.31
Generation X	n = 122			
Age		40.93	40	4.78
Number of Dependents		2.09	2	1.29
Annual Income (thousands)		55.61	46.5	47.10
Number of Relocation		3.54	6	6.07
Financial Knowledge		49.74	53.5	23.69
Baby Boomer	n = 84			
Age		59.93	59.5	8.24
Number of Dependents		1.87	1	1.24
Annual Income (thousands)		79.95	55.5	92.14
Number of Relocation		4.00	10	8.20
Financial Knowledge		61.25	63.5	25.13

Data was taken from the 2015-2016 Qualtrics survey administered in this study. The results include the characteristics of all generations and segmented by Millennials, Generation X, and Baby Boomers for the respondents in the survey.

Table III: Two-tailed t-tests of means

Variable	Mean				Absolute Difference		
	<i>Millennial</i> \bar{X}	<i>Baby Boomers</i> \bar{X}	<i>Millennial - Gen X</i> \bar{X}	<i>Millennial - Baby Boomers</i> \bar{X}	<i>Millennial - Baby Boomers</i> \bar{X}	<i>Baby Boomers - Gen X</i> \bar{X}	
<i>Age</i>	27.35	40.92	13.57	32.57	***	19.00	***
<i>Number of Dependents</i>	1.50	2.09	0.58	0.36	**	0.22	
<i>Annual Income (thousands)</i>	46.32	55.61	9.28	33.63	***	24.34	**
<i>Number of Relocation</i>	3.61	3.54	0.08	0.38	***	0.46	***
<i>Financial Knowledge</i>	47.44	49.74	2.30	13.80	***	11.51	***

Data was taken from the 2015-2016 Qualtrics survey administered in this study. We test the mean to determine differences between generations. The leftmost columns represent the conditional means from respondent answers. The rightmost columns represent the absolute difference of the conditional means. Significance was calculated using two-tailed P-values. The results show responses vary by generation in the sample.
 * 10% significance, ** 5% significance, *** 1% significance

Table IV: Hypothesis 1 Test Results from Differences in Means and Probit Regression

Panel A: Means	<i>Millennial</i>	Mean		Difference in Means Testing			
		<i>Gen X</i>	<i>Baby Boomers</i>	<i>Millennial > Gen Z</i>	<i>Millennial > Gen X</i>	<i>Gen Z > Gen X</i>	<i>Millennial > Gen Z</i>
Smartphone use	0.96	0.92	0.79	0.06***	0.11***	0.11***	0.06***
Laptop use	6.14	6.08	5.92	-0.03*	0.05***	0.05***	-0.03
Use Mobile Banking	0.75	0.55	0.34	0.2***	0.21***	0.21***	0.2***
Use Online banking	0.74	0.66	0.61	0.08**	0.03	0.03	0.08**
Panel B: Probit Regression							
<i>Dependent: Mobile Banking Value</i>	Coefficient	SE	t-stat	p-value			
Millennial	-0.8787	0.5757	-1.5151	0.1313			
Gen X	0.12	0.11	1.13	0.26			
Baby Boomer	-0.44	0.14	-3.24	0.00	***		
Use Laptop * Millennial	-0.1111	0.4646	-0.2525	0.8080			
Use Smartphone * Millennial	1.7272	0.5252	3.3232	0.00	***		
Panel C: Probit Regression							
<i>Dependent: Mobile Banking Value</i>	Coefficient	SE	t-stat	p-value			
Intercept	-1.1313	0.0303	-37.3535	0.0000	***		
Millennial	0.1212	0.0101	12.23	0.0000	***		
Low transaction costs and fees	0.00	0.00	-5.5454	0.000000	***		

ATM vicinity	0.00	0.00	3.57	0.0000	***	
Customer Service	0.00	0.00	-2.3737	0.0202	**	
Financial Advising	0.0000000	0.0000000	-2.5151	0.0101	**	
Financial Coaching	0.0000	0.00	5.34	0.0000	*****	
Online Banking	0.01	0.00	35.5454	0.00	***	
Ethical Business Practices	0.00	0.00	-0.2121	0.8383		
Involved in the Community	0.0000	0.00	-1.1111	0.2727		
Networking Events	0.00	0.00	7.44	0.0000	***	

Panel A represents the conditional means for respondent's conditional on generation. We conduct a one tail hypothesis test between each generation and variable. Panel B is a probit regression Mobil Banking Value = $\alpha + \beta_{\text{(Laptop *Millennial)}} + \beta_{\text{(Smartphone * Millennial)}}$ where Millennial is a dummy variable for a Millennial respondent. This model shows that Millennials prefer mobile banking. For robustness, we control for additional bank characteristics in Panel C. Panel C is the probit regression, which is a similar model with additional controls for banking characteristics. After including additional controls for banking characteristics, mobile banking is still preferred by the Millennial bank customers. * 10% significance, ** 5% significance, *** 1% significance

Table V: Hypothesis 2 Results from Probit Regression

Dependent: Student Loans	Coefficient	Standard Error	t-Stat	p-value
(Intercept)	-0.81	0.44	-1.83	0.07 *
Use Mutual Fund	-0.41	0.26	-1.54	0.10 *
Invest in Stocks	0.36	0.25	1.44	0.15
Savings Disagree	1.36	0.47	2.89	0.00 ****
Savings Somewhat Disagree	1.77	0.39	4.53	0.00 ****
Savings Neutral	1.79	0.44	4.07	0.00 ****
Savings Somewhat Agree	-0.001	0.516	2.396	0.02 **
Savings Agree	-0.003	0.4035	2.997	0.00 **
Savings Strongly Agree	-0.81	0.44	-1.83	0.07 *

Table V represents a probit model with student loans as the dependent variable and wealth formation products as independent variables. Generation controls are also included. The results show that a respondent who invests in mutual funds and has savings is less likely to have student loans. * 10% significance, ** 5% significance, *** 1% significance

Table VI: Hypothesis 3**Panel 1: Millennial Generation Only**

<i>Dependent: Perceived Financial Knowledge</i>	Coefficient	Standard Error	T-Stat	P-value	
(Intercept)	44.85	6.80	6.60	0.00	***
Savings Accounts	-1.97	4.31	-0.46	0.65	
Fixed Deposit Accounts	5.44	5.09	1.07	0.29	
Credit Cards	1.74	4.14	0.42	0.67	
Debit Cards	-6.14	7.72	-0.80	0.43	
Mutual Funds	5.70	5.43	1.05	0.29	
Mortgage (Property, Land)	4.94	4.69	1.05	0.29	
Construction Loan	8.62	13.86	0.62	0.53	
Auto Loan	-0.12	4.18	-0.03	0.98	
Student Loan	1.07	3.52	0.31	0.76	
Insurance	2.83	4.16	0.68	0.50	
Pension Funds	-0.99	5.87	-0.17	0.87	
Mortgage Refinance	1.76	8.86	0.20	0.84	
Stocks	9.92	5.16	1.92	0.06	**
Bonds	-5.84	6.44	-0.91	0.37	
IRA	5.02	5.05	0.99	0.32	
Credit Lines	-1.27	4.59	-0.28	0.78	
Certificate of Deposit	4.54	5.75	0.79	0.43	
Panel 2: Full Sample					
<i>Dependent: Perceived Financial Knowledge</i>	Coefficient	Standard Error	T-Stat	P-value	
(Intercept)	46.25	4.39	10.53	0.00	***
Savings Accounts	0.34	3.13	0.11	0.91	
Fixed Deposit Accounts	1.66	3.04	0.55	0.59	
Credit Cards	3.26	3.19	1.02	0.31	
Debit Cards	-9.13	4.55	-2.01	0.05	*
Mutual Funds	10.61	3.36	3.16	0.00	**
Mortgage (Property, Land)	4.33	3.00	1.44	0.15	
Construction Loan	3.36	5.03	0.67	0.50	
Auto Loan	-0.68	2.90	-0.24	0.81	
Student Loan	2.05	2.41	0.85	0.40	
Insurance	-0.08	3.29	-0.02	0.98	
Pension Funds	-1.80	3.22	-0.56	0.58	
Mortgage Refinance	-2.05	3.72	-0.55	0.58	
Stocks	8.29	3.42	2.42	0.02	*
Bonds	0.66	3.66	0.18	0.86	
IRA	1.76	3.14	0.56	0.58	
Credit Lines	-1.32	2.88	-0.46	0.65	
Certificate of Deposit	3.36	3.27	1.03	0.30	

Table VI is an investigation into how the use of financial products is affected by perceived financial knowledge. Panel A is a subset of only Millennials, and Panel B represents the full sample. Results show that as perceived financial knowledge increases so does use of complex financial products (Stocks and Mutual Funds).

* 10% significance, ** 5% significance, *** 1% significance