From Intention to Adequate Emergency Fund Savings through Fintech Use: Evidence from a U.S. Survey Study

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Abstract

This study applied the theory of planned behavior and technology adoption models to investigate consumers' adequate emergency fund savings through the intention to use fintech to save and actual fintech use. A structural equation model with a confirmatory factor analysis was employed to analyze primary data from a sample of 453 U.S. respondents collected in July 2021. The results show that attitudes toward adequate emergency fund savings were negatively associated with the intention to use fintech to save. Subjective norms and perceived behavioral control, respectively, were positively associated with the intention to use fintech to save. Perceived behavioral control showed a positive direct relationship with adequate emergency fund savings. Intention to use fintech to save showed positive relationships with using saving apps and websites, respectively. However, only saving website use was positively associated with adequate emergency fund savings. The results suggest that the intention to use fintech to save and actual fintech use connect attitudes, subjective norms, and perceived behavioral control with adequate emergency fund savings. The findings shed light on empirical evidence in the current literature regarding the importance of intention to use fintech to save. Financial institutions, financial advisors, and policymakers should be aware of the significance of intention to use fintech and actual fintech use in households' savings behaviors.

Recommended Citation

Chen, Y., Asebedo, S. D., Little, T. D., & Ning, W. (2025). From intention to adequate emergency fund savings through fintech use: Evidence from a U.S. survey study. *Financial Services Review, 33*(3), 20-47.

Introduction

The unpreparedness for unexpected events before the COVID-19 pandemic (FINRA, 2022) highlighted the need to address U.S. households' financial vulnerability. During the pandemic, researchers, financial professionals, governments, and policymakers underscored the importance of adequate emergency fund savings in dealing with unexpected events, such as layoffs, sicknesses, and medical expenses. Even though the importance of maintaining adequate emergency fund savings has been called for attention (Gjertson, 2016), U.S. households still face challenges in achieving financial stability (Chen et al., 2024) and are advised to reevaluate their portfolios to better prepare for economic fallouts (Despard & Roll, 2024). Despite an increasing

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number of U.S. households reporting adequate emergency fund savings – the 2021 National Financial Capability Survey (NFCS) Report shows that more than half of the households reported having at least three months equivalent of living expenses as emergency fund savings (FINRA, 2022) – many Americans still struggle to pay bills and meet basic needs (Despard & Roll, 2024). When asked about confidence in coming up with $2,000 within the next month in the face of financial hardships, only 43% of U.S. households reported being able to meet this balance in emergency fund savings in 2021 (FINRA, 2022).

From a behavioral perspective, the theory of planned behavior (TPB) emphasizes that behavioral and psychological factors (i.e., attitudes, subjective norms, perceived behavioral control, and intention) might explain savings behavior (Ajzen, 1991). Attitudes towards savings, subjective norms, and perceived behavioral control are significant predictors of households' intention to save and thus affect their saving behaviors (Satsios & Hadjidakis, 2018). When it comes to emergency fund savings, financial professionals recommend at least three months' equivalent of living expenses as adequate emergency fund savings (FINRA, 2022). However, while households often value short-term savings, they do not always have enough liquid funds to adequately protect themselves from unexpected financial shocks in the form of adequate emergency fund savings (Chase et al., 2011). In the short term, households often overlook the importance of adequate emergency fund savings and, thus, lack such savings to cover unexpected life events because the intention-behavior relationship varies depending on specific behavior, habits, and experiences (Conner & Armitage, 1998). Households with an intention to save might still fail to act to save (Gollwitzer, 1999). This intention-to-behavior gap could represent opportunities for financial technology (fintech) to connect the path from the intention to use fintech to save to actual savings behavior of maintaining adequate emergency fund savings.

Fintech refers to applying technology to financial services and products to facilitate and improve financial activities (Bajunaied et al., 2023; Feyen et al., 2023; Schueffel, 2016; Setiawan et al., 2022). It covers various financial domains, including account management, savings, payments, investment, and insurance, depending on the purposes of financial activities (Demirgüç-Kunt et al., 2018; Thakor, 2020). Fintech has dramatically drawn the attention of financial institutions, researchers, governments, and policymakers over the past decades. Behavioral intention of using technology determines actual fintech use, implying that fintech companies should evaluate and predict whether fintech users will accept the new technology (Bajunaied et al., 2023). Actual fintech adoption has expanded its benefits (i.e., low costs, convenience, easy access) from financial sectors to their clients and provided opportunities to improve financial behaviors and outcomes (Demirgüç-Kunt et al., 2018; Feyen et al., 2023; Ouma et al., 2017; Thakor, 2020). During the COVID-19 pandemic, an emerging trend for fintech adoption in financial services markets has consistently grown for two reasons: first, the financial services industry can widely use fintech to serve their clients better; second, actual fintech use provides opportunities for households' access to services and products such as savings, insurance, and credit management with low cost (Feyen et al., 2023).

Furthermore, promoting banking and online account combinations encourages bank account holders to learn how to use technology to manage finances, such as savings and investments. Research shows that bank account holders have more opportunities to access financial products and services through websites and apps (Abis et al., 2025; Demirgüç-Kunt et al., 2022; Thakor, 2020). Although 96% of U.S. households were banked in 2023, only 48% of the bank account holders used mobile banking (Federal Deposit Insurance Corporation [FDIC], 2023), indicating the opportunity to promote fintech to customers in the United States.

While research has emphasized the vital role of fintech use, it is critical to apply the TPB to predict adequate emergency fund savings through the intention to use fintech to save and actual fintech use. To our knowledge, extant studies have focused on the intention to conduct savings behavior (i.e., Lučić et al., 2025; Widjaja et al.,

2020), credit borrowing behavior (i.e., Xiao et al., 2011), or on the intention to use fintech (i.e., Bajunaied et al., 2023). There is a dearth of research on the association between the intention to use fintech for emergency fund savings and the actual use of fintech products and services to save for emergencies. Establishing and maintaining adequate emergency fund savings reduces financial vulnerability (Stavins, 2021) and enhances overall financial well-being (Anvari-Clark & Ansong, 2022; Nourallah et al., 2025). However, a mechanism is needed to trigger households' action to save for adequate emergencies. Fintech can be an effective way to motivate households to save and maintain their savings. Therefore, there it can be fruitful to introduce a comprehensive model to explain households' motivation and actual use of fintech products and services for financial behaviors (Löwgren, 2023).

This study applies the TPB (Ajzen, 1991), technology acceptance model (TAM) (Davis, 1989; Davis et al., 1989), and unified theory of acceptance and use of technology (UTAUT) (Venkatesh et al., 2003) to address households' adequate emergency fund savings while accounting for the intention to use fintech to accomplish their savings behavior through actual fintech use. Using primary data with a sample size of 453 respondents collected from U.S. adults in July 2021, this study examines the path from attitudes toward adequate emergency fund savings, subjective norms, and perceived behavioral control to adequate emergency fund savings through the intention to use fintech to save and to actually use fintech. Our study has two main contributions. First, it advances the literature on savings behavior in personal financial planning by integrating the impact of psychological characteristics and actual fintech use. Second, it provides empirical evidence of fintech as a mechanism to facilitate households' adequate emergency fund savings with practical implications.

The remainder of this paper is organized as follows. Section Two reviews previous literature and develops a research model and the hypotheses. Section Three explains empirical methodology and data analysis. Section Four presents empirical results. Section Five discusses our research findings. Section Six concludes the paper.

Theoretical Framework and Hypothesis Development

Adequate Emergency Fund Savings

Savings behavior exists when people spend less than earnings (Heckman & Hanna, 2015). Households are motivated by reserving the excess current income to smooth consumption over their lifetime (Ando & Modigliani, 1963). Many extant studies have extended topics related to savings behavior or wealth accumulation from a long-term perspective (Anderson et al., 2017; Asebedo et al., 2022; Bi & Montalto, 2004; Cole et al., 1992; Ouma et al., 2017; Peiris, 2021; Shefrin & Thaler, 1988; Strömbäck et al., 2017). Built upon the economic theory of savings, Heckman and Hanna (2015) proposed that social impacts and psychological factors combined with financial access, incentives, and facilitations might encourage savings behavior among low-income households. Asebedo et al. (2019) found that financial self-efficacy (FSE) explained savings behavior among U.S. older adults. In other words, people who reported more control over their financial situation tended to save more. Similarly, applying the social cognitive theory of self-regulation, Asebedo and Seay (2018) found that FSE was associated with increased wealth accumulation among U.S. pre-retirees.

From a short-term perspective, Leland (1968) proposed that individuals were motivated to make financial decisions between savings and consumption based on their current and expected future income strains in accounting for the uncertainty about the future. Skinner (1988) proposed that the accumulated precautionary savings to protect against future income shocks accounted for a large portion of accumulated capital. Chase et al. (2011) summarized that emergency fund savings differed from precautionary savings. Precautionary savings are assets set aside to respond to income shocks, such as unemployment and pay cuts; emergency fund savings are money set aside to respond to medical or dental expenses and household expenses (i.e., auto and home repairs). As mentioned, a stricter definition of adequate emergency fund savings is similar to the precautionary savings

recommended to save at least three months equivalent of living expenses. Emergency fund savings are short-term money reserves earmarked for unexpected events (Chase et al., 2011). Johnson and Widdows (1985) suggested that emergency fund savings be equivalent to two to six months of living expenses to cover income shocks. There are two main emergency fund measures present in the literature: (a) a dichotomous measure indicating whether an adequate emergency fund savings account exists (Johnson & Widdows, 1985), and (b) a continuous measure of the actual dollar amount of emergency fund savings (Anong & DeVaney, 2010; Bi & Montalto, 2004; Brobeck, 2008; Gjertson, 2016). Precautionary savings and emergency fund savings have been used interchangeably. The current study followed the definition of adequate emergency fund savings to cover unexpected events, such as layoffs, medical expenses, and repairs for at least three months of living expenses.

Researchers have been investigating the factors associated with short-term emergency fund savings (Chase et al., 2011; Despard & Roll, 2024). Firstly, previous empirical studies have shown that financial factors affect households' adequate emergency fund savings (Brobeck, 2008; Satsios et al., 2020). For example, income was positively associated with adequate emergency fund savings (Babiarz & Robb, 2014). Bank account ownership strongly predicted short-term savings, such as emergency fund savings with at least three months of living expenses (Despard et al., 2020). Secondly, researchers have investigated the impact of objective and subjective financial knowledge on short-term financial behaviors and found mixed results (Tang & Baker, 2016). For example, Fan and Zhang (2021) found that objective and subjective financial knowledge were positively associated with emergency fund savings. Henager and Cude (2016) found similar results and indicated that subjective financial knowledge was more strongly associated with emergency fund savings in younger age groups. In comparison, objective financial knowledge substantially impacted emergency fund savings in older age groups. Other studies found that only subjective financial knowledge was positively associated with adequate emergency fund savings (Babiarz & Robb, 2014; Chen et al., 2024; Despard et al., 2020; Ismail et al., 2017).

A variety of demographic characteristics are associated with holding adequate emergency fund savings. First, age was positively associated with adequate emergency fund savings (Bi & Montalto, 2004). Old adults were more likely to have emergency fund savings of $500 or higher than young adults (Brobeck, 2008). Second, some studies found that men were more likely than women to hold adequate emergency fund savings (Wagner & Walstad, 2019). Finally, White households had a higher probability of having adequate emergency fund savings than non-white households (Bi & Montalto, 2004; Chase et al., 2011; Despard et al., 2020).

Fintech Use

Fintech, an application of technology to financial services, has attracted the attention of researchers, policymakers, and industry over the decades (Feyen et al., 2023; Schueffel, 2016; Setiawan et al., 2022; Thakor, 2020). Fintech was initially intended to facilitate payments in consumption activities and has expanded its services to lending, investing, and savings in financial sectors through digital payments, robo-advisors, online banking, and financial apps (Abis et al., 2025; Bajunaied et al., 2023; Risman et al., 2022). Financial services companies have increasingly adopted fintech to offer timely information and enhance client interactions (Nicoletti et al., 2017). The ongoing innovation of fintech has created an efficient and effective bridge between fintech use and financial capability (Demirgüç-Kunt et al., 2022; Ouma et al., 2017). For example, Yeo and Fisher (2017) found that Americans who frequently used fintech were more likely to manage their money, make savings decisions, and understand their financial issues. Similarly, Nourallah et al. (2024) concluded that fintech use was positively associated with financial capability in the European Union. Depending on the forms and functions, fintech has been used to perform various financial activities and assist households in making sound financial decisions. For example, mobile bank apps have been developed to facilitate households in conducting day-to-day financial activities, while robo-

advisors are widely used in investment activities (Nourallah & Öhman, 2021). In the current study, we focus on using fintech to save for emergency fund savings; thus, actual fintech use limits its forms of saving apps use and saving websites use.

Theoretical foundation

Ajzen (1991) proposed the TPB to address psychological characteristics associated with a specific behavior. It states that an individual's behavior depends on three antecedents (i.e., attitude, subjective norms, and perceived behavioral control) and motivation (i.e., intention). An attitude is an individual's tendency to favor or disfavor a specific behavior (Ajzen, 1991). It aggregates one's knowledge, evaluation, and positive or negative prejudices toward the behavior. Subjective norms refer to an individual's perception of others' ideas or attitudes about performing or not performing a specific behavior. It can be considered as social pressure or influence from others, such as family and friends, which affects how much the individual values their expectations. Perceived behavioral control refers to an individual's self-assessed ability to perform a behavior. Such perception depends on the individual's internal and external factors. The internal factors include determination and ability, while the external factors include resources, opportunities, and support. Intention refers to an individual's psychological disposition to act on a specific behavior. It indicates how much the individual plans to exert to perform a specific behavior.

The TPB has been widely used to explain human behaviors in various domains, such as health-related behaviors (Conner & Sparks, 2005; Godin & Kok, 1996), public health and political science (Bosnjak et al., 2020), energy savings behaviors (Cheung et al., 1999; Lin & Shi, 2022), and consumer behaviors (George, 2004; Paramita et al., 2018; Sharif & Naghavi, 2021; Shih & Fang, 2004; Xiao et al., 2011). Although extant literature has applied TPB to explain financial behaviors, the results indicated that the impacts of the three TPB components (attitude, subjective norms, and perceived behavioral control) on the intention varied. Sharif and Naghavi (2021) found that all TPB components were significantly correlated with college students' intention to use online financial trading. Shih and Fang (2004) indicated that attitude and perceived behavior control were significantly related to consumers' intention to use online banking, but subject norms were not. Paramita et al. (2018) showed that none of the TPB components were significantly associated with college students' intention to make stock investments.

Furthermore, the technology acceptance model (TAM) (Davis, 1989; Davis et al., 1989), and the unified theory of acceptance and use of technology (UTAUT) (Venkatesh et al., 2003) are the most widely utilized models of acceptance and usage of innovative technology. Generally, these models indicate that users' behavioral attributes of a specific technology, including perceived usefulness, perceived ease of use, and social influence, determine their attitude and intention to use the technology. The intention, in turn, predicts their actual technology usage. With the ubiquity of fintech products and services, scholars have explored the TAM and UTAUT in this domain (i.e., Hu et al., 2019; Shih & Fang, 2004; Singh et al., 2020; Samartha et al., 2022; Wang, 2021) with an emphasis on how behavioral attributes influence attitude and intention to use fintech. Wang (2021) revealed that face and voice recognition were the most preferred identifications methods in fintech apps, which positively influenced users' perceived trust and perceived privacy. Hu et al. (2019) showed that bank users' trust in fintech services indirectly predicted their attitudes, which consequently positively impacted their intention to adopt these services for a better experience. Using the UTAUT model, Samartha et al. (2022) found similar results that ease of use and trust positively influenced the intention to adopt mobile banking apps. So far, a few studies have examined the impact of the intention to use fintech on actual fintech use but have not provided conclusive findings. Shih and Fang (2004) found a positive relationship between the intention to use online banking and the actual fintech use of online banking services. However, Singh et al. (2020) showed that intention to use fintech did not determine actual fintech use frequency.

Thus, our study extends the use of the TPB to the phenomenon of adequate emergency fund savings through the lens of technology adoption.

Based on the TPB and technology adoption models (i.e., TAM, UTAUT), we posit that these three antecedents (i.e., attitude, subjective norms, and perceived behavioral control) will determine an individual's intention to use fintech to save, which will then influence them to actually use saving-related fintech products or services. Finally, the actual use of fintech will affect their adequate emergency fund savings.

Hypotheses

As previously mentioned, the three antecedents of TPB influence an individual's intention. In the context of saving behaviors, research has found that attitude, subjective norms, and perceived behavior control toward savings directly affect individuals' intention to save and thus affect actual savings behaviors such as saving for security needs (DeVaney et al., 2007) and retirement (Magwegwe & Lim, 2021). Regarding the attitude toward savings, Magwegwe and Lim (2021) showed that attitudes toward savings directly affect individuals' intentions and actual IRA ownership. People might be motivated to save for basic or security needs (DeVaney et al., 2007). For example, young people who need to meet their monthly basic needs might not intend to save. When their basic needs have been achieved, they might move up to the next level of savings motives and thus intend to save for security needs to cover unexpected financial shocks. On the one hand, maintaining adequate emergency fund savings can help people achieve the goal of financial security (Despard & Roll, 2024). On the other hand, with the advancement of fintech and its prevalence, the benefits of fintech use have been promoted regarding its usefulness (i.e., savings, account monitoring, security) and ease of use (Abis et al., 2025; Bajunaied et al., 2023; Risman et al., 2022). These factors might enhance households' attitudes toward adequate emergency fund savings with fintech. Thus, we hypothesized as follows:

> H1: A favorable attitude toward adequate emergency fund savings is positively associated with the intention to use fintech to save.

Regarding subjective norms, families' and friends' perceptions of savings are positively associated with the intention to save (Duflo & Saez, 2003; Lučić et al., 2025; Magwegwe & Lim, 2021). For example, Lučić et al. (2025) found that parents' and peers' norms significantly and positively affected children's intention to save. Similarly, Magwegwe and Lim (2021) revealed that subjective norms positively affected individuals' intention to save for retirement. Moreover, peer norms influenced the contribution portion of retirement savings (Beshears et al., 2015). Venkatesh et al.'s UTAUT (2003) suggested that subjective norms influenced individuals' intention to use fintech under voluntariness and limited experience. We argue that people might voluntarily save for emergency funds but have limited experience using fintech. Families' and friends' perceptions of adequate emergency fund savings with fintech use might affect their intention to use fintech to save. Additionally, an individual's intention to use fintech to save can also be influenced by social media influencers (Safitri et al., 2021). Thus, we hypothesized as follows:

> H2: The subjective norm regarding emergency fund savings is positively associated with the intention to use fintech to save.

Ajzen (1991) suggested that perceived behavioral control could be internally evaluated by individuals' confidence or self-efficacy in specific situations. The current study measured perceived behavioral control through an individual's confidence in managing emergency fund savings. Researchers have found that perceived behavioral control had a direct positive relationship with the intention to save (Lučić et al., 2025; Satsio & Hadjidakis, 2018). Moreover, individuals' perceptions and evaluations depend on external factors, such as resources, opportunities, and support (Ajzen, 1991). Fintech, serving as a tool, provides opportunities and technology support to motivate households to save. For example, financial institutions encourage clients to activate online banking services, which usually make money management tools available (Becker, 2017; Löwgren, 2023). Given that perceived behavioral control is determined by internal factors (i.e., confidence, self-efficacy) and external factors (i.e., technology support), we argue that

perceived behavioral control will affect intention to use fintech to save and hypothesized as follows:

> H3: Perceived behavioral control is positively associated with the intention to use fintech to save.

The uniqueness of the TPB is that perceived behavioral control directly impacts the action. Perceived behavioral control serves as a proxy of actual behavioral control and, thus, reflects an actual behavioral control measurement. Asebedo and Seay (2018) found that an individual's self-perception of control of financial situations was positively associated with savings behavior among U.S. pre-retirees. Accordingly, perceived behavioral control over emergency fund savings could directly affect adequate emergency fund savings. Thus, we hypothesized as follows:

> H4: Perceived behavioral control over emergency fund savings is positively associated with adequate emergency fund savings.

The intention-behavior relation delineated in TAM (Davis, 1989; Davis et al., 1989) suggested that an individual's intention to use fintech should influence their actual fintech usage. Various fintech products and services, such as apps and websites, have been developed and used in financial planning to meet households' needs. The effects on financial outcomes depend on the fintech form(s) used (Abis et al., 2025). For example, Lee (2019) found that a push notification about outstanding balances from the mobile app reduced credit cardholders' consumption. Households tended to use fintech if they believed the benefits of using fintech were greater than its costs (Al Nawayseh, 2020). Most young consumers intended to use mobile bank apps and online banking services to enhance their savings behavior and thus used fintech to save (Daqar et al., 2020). Accordingly, we expect that if an individual has a strong intention to use fintech to save, they are more likely to actually use fintech (i.e., saving apps or saving websites) to manage their savings. Thus, we hypothesized as follows:

> H5: Intention to use fintech to save is positively associated with *saving apps use*.

> H6: Intention to use fintech to save is positively associated with *saving websites use*.

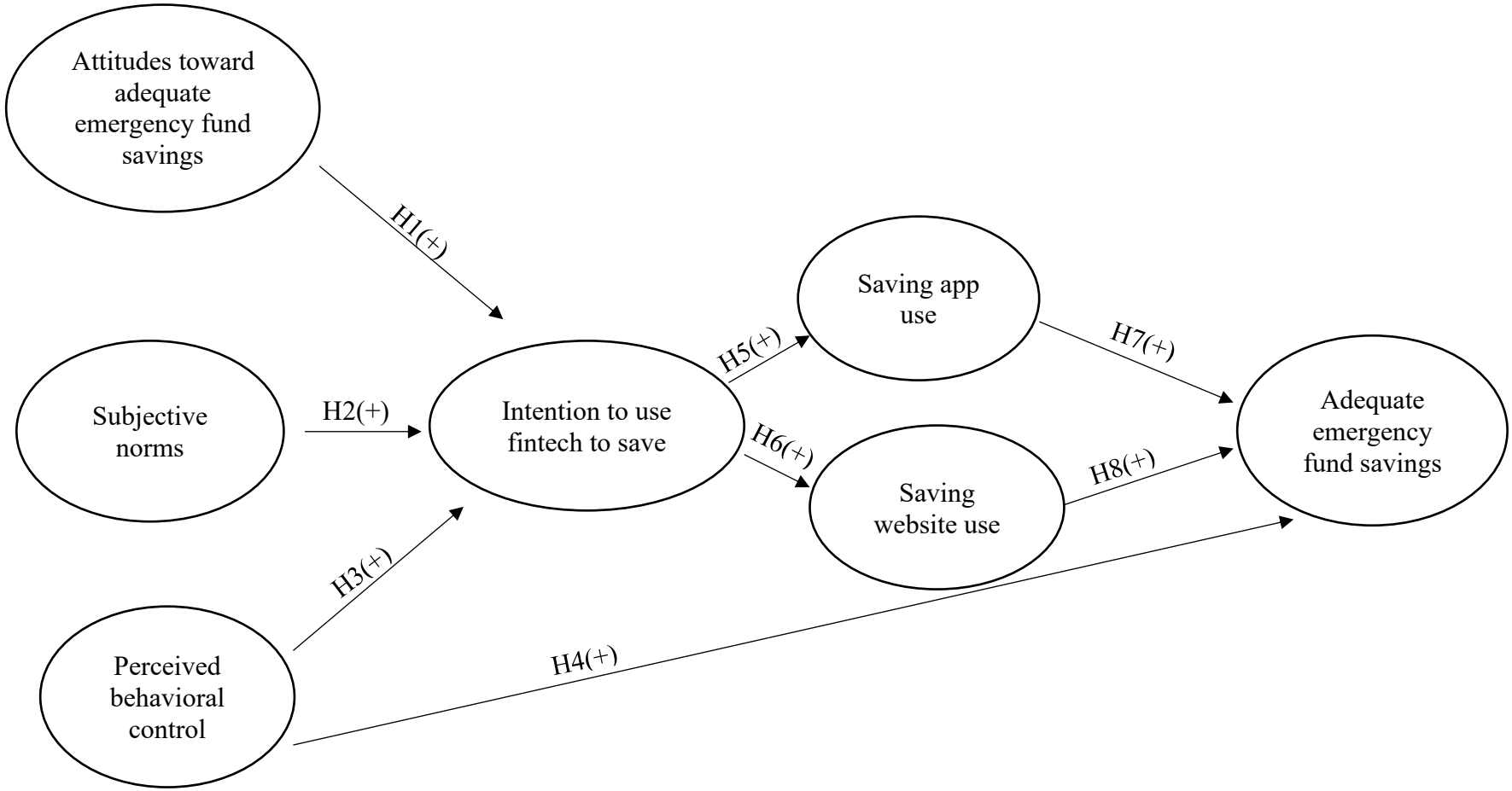
Previous research about the impact of fintech use has been mainly focused on households' spending and investment (Lee, 2019; Ouma et al., 2017; Sharif & Naghavi, 2021; Thakor, 2020). However, Nourallah et al. (2024) implied that fintech use affected households' financial capability (i.e., savings behaviors). For example, Becker (2017) found that first-time savers significantly increase their savings after activating and using fintech. Demirgüç-Kunt et al. (2018) suggested that fintech promotion might help households increase the probability of regular savings if they have a mobile bank account with low costs. Becker (2017) highlighted that fintech, such as savings apps and websites (Guittierrez Ramirez, 2023), could serve as money management tools to save and manage money. Löwgren (2023) and Ouma et al. (2017) found that saving apps triggered households' savings behaviors, encouraged their savings engagements, and increased the dollar amount saved. Using the 2018 NFCS data, Chen et al. (2024) found that fintech use positively affected households' adequate emergency fund savings. Based on the above literature, actual fintech use can enhance households' financial capability to manage their savings accounts and thus increase their adequate emergency fund savings. Therefore, we hypothesized as follows:

> H7: Saving *app* use is positively associated with adequate emergency fund savings.

> H8: Saving *website* use is positively associated with adequate emergency fund savings.

Given the above hypotheses, Figure 1 was developed to illustrate the research model of the current study.

Figure 1: Proposed Research Model



Methods

Survey Design, Data, and Sample

This study randomly collected primary data from 491 U.S. working adults aged 18 and above from Amazon MTurk in July 2021 (cf. Litman et al., 2017). Given the nature of the human subject research, this study was reviewed and approved by the Institution Human Research Protection Program (IRB2021- 390). A survey with fintech use, psychological factors, and emergency fund savings based on the TPB (Ajzen, 1991; 2006) was designed and distributed to MTurk users through Qualtrics. Before the full data project, a pilot study was conducted to determine whether the proposed survey and procedures were appropriate for a more extensive sample. The pilot study consisted of 45 respondents, including 25 unpaid family members, friends, colleagues, professionals, and 20 paid participants from MTurk (Litman et al., 2017). In the complete data collection project, the targeted sample size of 450 was calculated based on a 5% margin of error and a 95% confidence level. MTurk automatically excluded 21 respondents who did not meet the requirements and paid 470 respondents, including 17 who completed less than 40% of the questionnaire. After excluding these 17 observations, the sample size was 453 in the final analysis. Note that two respondents with illogical data reported numbers that suggested the survey was completed without attention or artificially (i.e., income reported as $50,006,000, expenses reported as $70,008,000, and emergency fund reported as $6,000,000 while income reported as $50,000). We used the full information maximum likelihood (FIML) estimation method to deal with missing data (cf. Little, 2024).

Furthermore, content validity was applied in the survey by including questions about highly valid demographic characteristics (Ruel et al., 2015). For example, respondents can easily answer questions regarding their age, gender, and race. However, some questions include jargon and are more difficult to answer, such as emergency fund savings, saving accounts, income, and expenses. When asked about emergency fund savings in savings accounts, few respondents might know that emergency fund savings are usually located in liquid accounts such as checking, savings, and money market accounts. To account for this potential ambiguity, the survey question defined and listed all possible liquid accounts, including checking accounts, savings accounts, money market accounts, and Certificate Deposits (CDs), that respondents might use for their emergency fund savings.

Variable Measurement

The dependent variable is *adequate emergency fund savings,* calculated by whether respondents had at least three months of living expenses in their liquid savings accounts (i.e., checking and savings accounts, money market accounts, and short-term CDs). Following this minimum recommended guideline, we calculated the dollar amount needed for adequate emergency fund savings by multiplying the monthly living expenses by three. Then, we compared the dollar amount required with the self-reported emergency fund balance. If the self-reported emergency fund balance was equal to or greater than the dollar amount needed, we coded it as 1; otherwise, 0.

The primary explanatory concepts of interest are *attitudes toward emergency fund savings, subjective norms, perceived behavioral control over emergency fund savings, intention to use fintech to save for emergencies, and actual fintech use*. Three latent variables, i.e., attitude, subjective norms, and perceived behavioral control, were utilized to measure respondents' motivations and perceptions of emergency fund savings. Indicators were constructed following a recommended methodology based on the TPB Questionnaire (Ajzen, 2006) (see Appendix). The seven-point scale was used for respondents to answer the survey questions of the three latent variables. The attitudes, subjective norms, and perceived behavioral control constructs demonstrated a good ($0.7 \leq \alpha \leq 0.8$) internal reliability (cf. Taber, 2018). *Intention to use fintech to save* is an observed variable operationalized through a 7-point Likert-type question. Based on the model, intention was a key variable in the path from attitudes, subjective norms, and perceived behavioral control to emergency fund savings through actual fintech use. As mentioned, *actual fintech use* was categorized into two observed variables: *saving apps* and *saving websites*.

Objective financial knowledge was derived from Houts and Knoll's (2020) Financial Knowledge Scale (FKS) and constructed by ten objective financial knowledge questions (see Appendix). Respondents' correct responses represent the value of objective financial knowledge ranging from zero to ten. Subjective financial knowledge was derived from a

self-assessment of their overall financial knowledge. The analysis also included covariate variables (i.e., wealth, income, bank account holders, age, gender, race, educational achievement, marital status, employment, and the number of children).

Data Analysis

A Structural Equation Model (SEM) with a Confirmatory Factor Analysis (CFA) was employed for the psychological constructs in Mplus. The model tested the following effects: (a) the direct effects of attitudes, subjective norms, and perceived behavioral control on the intention to use fintech to save; (b) the direct effects of perceived behavioral control on emergency fund savings based on the assumption that behavioral perceptions (i.e., self-reported emergency fund level) are close enough to actual behavior (Ajzen, 1991); (c) the direct effect of intention to use fintech to save on actual fintech use, measured by saving *app* use and saving *website* use, respectively; (d) the indirect effects of attitudes, subjective norms, and perceived behavioral control on the actual emergency fund savings through intention to use fintech to save and to actually use fintech.

The covariate variables are controlled based on a full partial approach. All constructs are regressed on the covariates but only for the significant effects (Little, 2024). The significant effects of control variables on the latent construct predictors represent the measurement of noninvariance (Brown, 2015). The variance inflation factors (VIFs) test was run to diagnose collinearity/multicollinearity issues in the analysis (Henager & Cude, 2016). The VIFs indicated low multicollinearity concerns between independent variables (mean VIF = 1.44; lowest VIF = 1.05; highest VIF = 1.91).

Results

Descriptive Statistics

Tables 1 and 2 show the sample characteristics of continuous and categorical variables. The results indicated that approximately 39% of respondents had adequate emergency fund savings. Respondents had a strong intention to use fintech to save (5 out of 7). Meanwhile, they did not frequently use saving apps (3.3 out of 7) or websites (3.4 out of 7). The average objective financial knowledge was 5.2 out of 10, and the average subjective financial knowledge was 5.3 out of 7. The mean log wealth was 5.5 out of 7.8 with a standard deviation of 0.2. The mean log income was 4.7 out of 6.3 with a standard deviation of 0.3. The average age of the respondents was 37 years old. The majority were bank account holders (98%), men (66%), White (70%), holding a bachelor's degree (62%), married (67%), full-time employed (90%), and having one child or two (58%).

Table 1. Sample Characteristics of Continuous Variables

Variables	Mean (SD)
Attitudes toward adequate emergency fund savings	
AT1: bad to good (1-7)	5.902 (1.307)
AT2: unpleasant to pleasant (1-7)	5.907 (1.232)
AT3: harmful to beneficial (1-7)	6.158 (1.091)
Subjective norms	
SN1: family's impact (1-7)	5.951 (1.078)
SN2: friend's impact (1-7)	5.715 (1.156)
Perceived behavioral control	
PC1: Self-confidence (1-7)	5.344 (1.664)
PC2: Emergency fund savings control (1-7)	5.409 (1.486)
Intention to use fintech to save (1-7)	5.000 (1.801)
Actual fintech use	
Saving app use (1-7)	3.254 (1.908)
Saving website use (1-7)	3.372 (1.861)
Objective financial knowledge (0-10)	5.236 (2.493)
Subjective financial knowledge (1-7)	5.260 (1.346)
Log wealth (4.819 – 7.780)	5.530 (0.230)
Log income (3.146 – 6.301)	4.721 (0.311)
Age (21 – 71)	36.815 (9.412)

Source: Primary data collected through MTurk in July 2021. N = 453

Table 2. Sample Characteristics of Categorical Variables

Variables	N (Percent)
Adequate emergency fund savings	175 (38.63%)
Bank account holders	446 (98.45%)
Gender	
Female	156 (34.44%)
Male	297 (65.56%)
Race	
White	318 (70.20%)
Non-white	135 (29.80%)
Educational attainment	
High school graduate or less	35 (7.73%)
Some colleges, no degree	52 (11.48%)
Bachelor's degree	279 (61.59%)
Graduate degree or higher	87 (19.21%)
Marital status	
Married	305 (67.33%)
Non-married	148 (32.67%)
Employment	
Full-time employed	408 (90.07%)
Others	45 (9.93%)
Children	
Zero	169 (37.31%)
One	149 (32.89%)
Two	114 (25.17%)
Three and more	21 (4.64%)

Source: Primary data collected through MTurk in July 2021. N = 453

Table 3 displays the reliability and correlation results of variables. The measures of attitude, subjective norms, and perceived control were internally reliable because all the values of composite reliability exceeded the 0.70 threshold (Nunnally & Bernstein, 1994).

Table 3. Reliability and Correlation Matrix

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	C.R.
1	1.00																		
2	0.20	1.00																	
3	0.04	-0.05	1.00																
4	0.03	-0.01	-0.10*	1.00															
5	0.17***	0.03	0.08	-0.11*	1.00														
6	-0.21***	0.05	0.11*	0.10*	-0.33***	1.00													
7	-0.09*	0.04	-0.15**	-0.01	-0.17***	0.19***	1.00												
8	0.13**	0.06	0.01	-0.14**	0.14**	-0.49***	-0.25***	1.00											
9	0.06	0.08	-0.21***	0.01	0.03	-0.05	0.13**	0.05	1.00										
10	0.50***	0.02	0.08	0.00	0.17***	-0.22***	-0.11*	0.09	0.01	1.00									
11	0.03	0.02	0.06	0.13**	0.10*	-0.05	-0.07	-0.07	-0.01	0.20***	1.00								
12	-0.15**	0.11*	-0.13**	0.06	-0.20***	0.39***	0.27***	-0.34***	0.19***	0.03	0.07	1.00							
13	0.15**	-0.01	0.16**	0.02	0.19***	-0.21***	-0.24***	0.26***	-0.03	0.15**	0.06	-0.22***	1.00						
14	0.14**	0.02	0.12**	-0.12*	0.23***	-0.32***	-0.27***	0.28***	-0.11*	0.11*	0.10*	-0.37***	0.45***	1.00					
15	0.24***	0.12**	0.04	-0.08	0.19***	-0.34***	-0.21***	0.28***	0.01	0.13**	-0.05	-0.33***	0.30***	0.45***	1.00				
16	0.16**	0.09*	0.09	-0.13**	0.22***	-0.29***	-0.15**	0.27***	0.04	0.08	-0.04	-0.22***	0.23***	0.27***	0.43***	1.00			
17	-0.04	0.16**	-0.21***	0.03	-0.08	0.20***	0.16**	-0.08	0.20***	0.02	-0.08	0.36***	0.07	-0.03	-0.08	-0.09	1.00		0.88
18	0.08	0.03	-0.05	-0.04	0.10*	-0.10*	-0.03	0.12**	0.01	0.07	0.05	0.07	0.28***	0.29***	0.14**	0.14**	0.36***	1.00	0.87
19	0.12*	0.03	0.12*	-0.07	0.20***	-0.30***	-0.19***	0.22***	0.02	0.22***	0.19***	-0.21***	0.54***	0.43***	0.24***	0.29***	0.06	0.35***	0.88

Notes: 1-adequate emergency fund savings; 2-bank account holders; 3-gender; 4-race; 5-educational attainment; 6-marital status; 7-employment; 8-number of children; 9-age; 10-income; 11-wealth; 12-objective financial knowledge; 13-subjective financial knowledge; 14-intention; 15-savings app use; 16-savings website use; 17-attitudes; 18-subjective norms; 19-perceived behavioral control.

C.R. – Composite Reliability

**p < 0.05, **p < 0.01, ***p < 0.001*

Model Results

The study used SEM with a CFA to test the theoretical hypotheses. All latent means were fixed to 0; the latent variances were fixed to 1 for two- and three-item constructs, and the loadings were freely estimated (Little, 2024). Table 4 displays factor loadings and cross-loadings of the multi-item measures of attitudes, subjective norms, and perceived behavioral control. Besides, each of the measurement items loaded significantly higher on their focal construct than on the other construct, which indicated the validity of these measures (Chin, 1998).

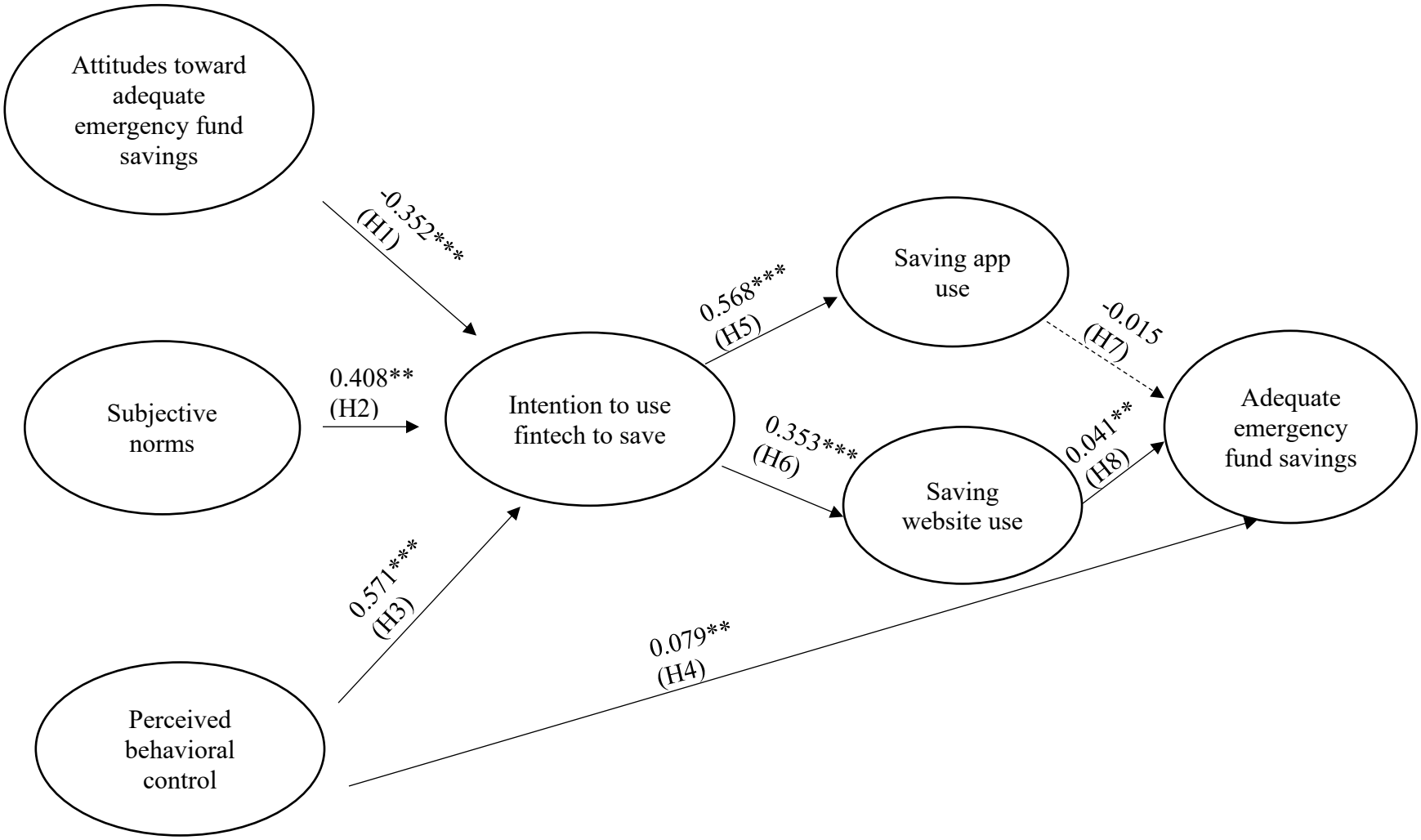
Table 4. Loadings and Cross-loadings

Construct	Indicators	Factor 1	Factor 2	Factor 3
Attitudes	AT1	**0.819**	-0.021	0.071
	AT2	**0.828**	0.048	-0.035
	AT3	**0.864**	-0.027	-0.033
Subjective norms	SN1	0.114	**0.828**	0.011
	SN2	-0.091	**0.925**	-0.007
Perceived behavioral control	PC1	-0.040	0.070	**0.863**
	PC2	0.038	-0.061	**0.916**

Source: Primary data collected through MTurk in July 2021. N = 453

Figure 2 shows the statistical results with maximum likelihood (ML) estimators within the SEM framework. Specifically, the model results with an acceptable model fit are as follows: $\chi 2(df\ 132) = 333.421$, $p = < 0.001$; RMSEA = 0.044; 90% CI [0.050, 0.066], CFI = 0.900, TLI = 0.849; SRMR=0.057.

Figure 2: Research Model Results (Standardized)



*p < 0.05, **p < 0.01, ***p < 0.001

Table 5 shows the standardized estimates of direct effects between the variables in the current study. Attitudes toward adequate emergency fund savings were negatively associated with intention to use fintech to save (b = -0.352, p < 0.001). Subjective norms (b = 0.408, p < 0.01) and perceived behavioral control (b = 0.571, p < 0.001) were positively associated with the intention to use fintech to save, respectively. Furthermore, perceived behavioral control (b = 0.079, p < 0.001) was positively associated with adequate emergency fund savings. The intention to use fintech to save was positively and significantly associated with both saving apps (b = 0.568, p < 0.001) and websites (b = 0.353, p < 0.001) use. However, only saving websites use (b = 0.041, p < 0.01) significantly predicted adequate emergency fund savings. Thus, our research hypotheses for the direct effect were supported except for H1 (i.e., wrong direction) and H7 (i.e., insignificant).

Table 5. Standardized Estimates for the Proposed SEM Model (Direct Effect)

	Standardized Estimate
	(SE)
H1: Attitudes toward adequate emergency fund savings → Intention to use fintech to save	**-0.352*****
	(0.098)
H2: Subjective norm → Intention to use fintech to save	**0.408****
	(0.144)
H3: Perceived behavioral control →Intention to use fintech to save	**0.571*****
	(0.078)
H4: Perceived behavioral control → Adequate emergency fund savings	**0.079*****
	(0.021)
H5: Intention to use fintech to save → Saving app use	**0.568*****
	(0.042)
H6: Intention to use fintech to save → Saving website use	**0.353*****
	(0.046)
H7: Saving app use → Adequate emergency fund savings	-0.015
	(0.014)
H8: Saving website use → Adequate emergency fund savings	**0.041****
	(0.014)

Source: Primary data collected through MTurk in July 2021. N = 453

SE: standard error

*Covariate variables included in the analysis. *p < 0.05, **p < 0.01, ***p < 0.001*

Table 6 shows the standardized estimates of the indirect effects with 95% confidence intervals. Three indirect effect paths were significant. First, the path from attitudes to adequate emergency fund savings through the intention to use fintech to save and saving websites use was negative and significant (b = -0.005, p < 0.05; 95% CI [-0.009, -0.001]). Second, the path from the subjective norms to adequate emergency

fund savings through intention to use fintech to save and saving website use was positive and significant (b = 0.006, p < 0.05; 95% CI [0.001, 0.011]). Third, the path from perceived behavioral control to adequate emergency fund savings through intention to use fintech to save and saving website use was positive and significant (b = 0.008, p < 0.01; 95% CI [0.003, 0.014]). The results indicated that the intention to use fintech to save and saving website use mediated the relationships between antecedents (i.e., attitudes toward adequate emergency fund savings, subjective norms, and perceived behavioral control) and adequate emergency fund savings.

Table 6. Standardized Estimates for the Proposed SEM Model (Indirect Effect)

	Standardized Estimate (SE)	**95% CI**	
		LL	**UL**
Attitudes toward adequate emergency fund savings → Intention to use fintech to save → Saving app use → Aadequate emergency fund savings	0.003 (0.003)	-0.002	0.008
Subjective norm → Intention to use fintech to save → Saving app use → Aadequate emergency fund savings	-0.003 (0.003)	-0.009	0.002
Perceived behavioral control → Intention to use fintech to save → Saving app use → Aadequate emergency fund savings	-0.005 (0.005)	-0.012	0.003
Attitudes toward adequate emergency fund savings → Intention to use fintech to save → Saving website use → Aadequate emergency fund savings	**-0.005* (0.003)**	**-0.009**	**-0.001**
Subjective norm → Intention to use fintech to save → Saving website use → Aadequate emergency fund savings	**0.006* (0.003)**	**0.001**	**0.011**
Perceived behavioral control → Intention to use fintech to save → Saving website use → Aadequate emergency fund savings	**0.008** (0.003)**	**0.003**	**0.014**

SE: standard error; CI: confidence interval; LL: lower limit; UL: upper limit

Covariate variables included in the analysis.

**p < 0.05, **p < 0.01, ***p < 0.001*

Discussion

Drawing on the TPB (Ajzen, 1991), TAM (Davis, 1989), and UTAUT (Venkatesh et al., 2003), this study utilized primary data to investigate the effects of three key antecedents (i.e., attitudes, subjective norms, perceived behavioral control) on adequate emergency fund savings through the intention to use fintech to save and actual fintech use (i.e., saving app and saving website). First, we explored the associations between antecedents and intention to use fintech to save. The findings revealed that all three antecedents – attitudes toward adequate emergency savings, subjective norms, and perceived behavioral control significantly influenced the intention to use fintech to save. Moreover, perceived behavioral control directly affected adequate emergency fund savings. Second, we also found that the intention to use fintech to save and actual fintech use (i.e., saving website use) are critical mediators of the relationships between antecedents and adequate emergency fund savings.

Interestingly, we found a negative relationship between attitudes toward adequate emergency fund savings and intention to use fintech to save, which does not support H1. This unexpected result can be supported by previous research (Ajzen, 2006;

Bagozzi, 1992; Davis, 1989; Vermeir & Verbeke, 2006), stating that other factors (i.e., desires, personal values, needs, information, knowledge) influence the attitude-intention relationship. Therefore, financial goals may moderate the relationship between attitudes toward adequate emergency fund savings and intention to use fintech to save. Also, people with a favorable attitude toward adequate emergency fund savings might lack financial knowledge about fintech and trust, preventing them from intending to use fintech (Khan et al., 2023). Further investigation should be undertaken into other factors.

Consistent with the H2, the result shows that the subjective norms are positively associated with the intention to use fintech to save. In other words, families' and friends' perceptions of the importance of emergency fund savings impact a household's intention to use apps or websites for savings. Perceived behavioral control is associated significantly with an intention to use fintech to save and adequate emergency fund savings, respectively. The result supports H3, stating a positive relationship exists between perceived behavioral control and intention. Households who feel they have control over their savings for emergencies are more likely to use fintech to save. As Ajzen's (1991) TPB indicated, perceived behavioral control is a critical factor affecting the intention to act. Consistent with H4 and findings from Xiao et al. (2011), results show that perceived behavioral control is a strong indicator of maintaining adequate emergency fund savings, suggesting that people who are capable of managing funds are more likely to maintain adequate emergency fund savings.

The results also show that the intention to use fintech to save is positively associated with two forms of actual fintech use: saving apps and websites. These results support H5 and H6 and echo the previous research on technology use: intention to use technology predicts its actual adoption (Davis, 1989; Davis et al., 1989; Venkatesh et al., 2003). It implies that if consumers strongly intend to use fintech to save, they will actually use it for emergency funds regardless of its form. However, the relationship between actual fintech use and adequate emergency fund savings depends on the forms of fintech used. Saving *website* use is positively associated with adequate emergency fund savings, which supports H8. However, saving *app* use is nonsignificant in predicting adequate emergency fund savings. Therefore, H7 is not supported. This discrepancy might be explained by the habits of using a specific type of fintech for savings (Conner & Armitage, 1998; Venkatesh et al., 2023). Consumers have been using websites for a long time and thus may prefer to use websites to perform financial activities, including emergency fund savings. Another explanation is the difference in screen size between mobile devices and computers. For example, using websites on a laptop or computer with a larger screen enables multitasking and improves the efficiency of the money management experience. Thus, using saving websites to perform financial activities may better support savings management than mobile saving apps. Although saving apps are innovative and convenient, it may take a while for consumers to adopt and develop the habit of using them. Therefore, the benefits of using saving apps to adequate emergency fund savings have yet to be seen.

Surprisingly, the study reveals that the path from attitudes to adequate emergency fund savings through intention to use fintech to save and saving website use was significant but negative. Although intention motivates consumers to use fintech to save and affects adequate emergency fund savings, attitudes toward adequate emergency fund savings are a domain in the path. Alternative emergency fund savings mechanisms might affect attitudes toward adequate emergency fund savings outcomes. For example, credit cards are another resource to consider as an alternative form of dealing with financial emergencies (Bi & Montalto, 2004). Without emergency fund savings, households use credit cards as an alternative method (Lusardi et al., 2017; Stavins, 2021). Credit cards are convenient to use, easy to access, and incur lower costs than other credit mechanisms, such as payday loans (Agarwal et al., 2009; Chase et al., 2011; Leclerc, 2012). Suppose alternative emergency mechanisms (i.e., the availability of credit cards) provide convenience; consumers might be more likely to have a favorable attitude towards credit cards as emergency fund savings. Thus, consumers might have great intentions to use credit cards for emergency fund savings instead of using fintech to facilitate emergency fund savings. Khandelwal et al. (2021) found that favorable money attitudes were less likely to get involved in a financial crisis resulting from credit card mismanagement. Therefore, future studies might account for consumers' perceptions of the emergency fund

savings mechanisms and measure their attitudes toward alternative mechanisms.

Moreover, paths from the subjective norms and perceived behavioral control to adequate emergency fund savings through intention to use fintech and saving website use are positive and significant. The results suggest that *intention to use fintech to save* and *saving website use* serve as mediators. The results add to empirical evidence that intention to a specific behavior and actual behavior are highly correlated (Ajzen, 1991). If consumers strongly intend to use fintech to save, they might use fintech to set up automatic savings for emergency funds. Moreover, actual fintech use (i.e., saving website use) has been found to serve as a mechanism to connect the intention to use fintech for savings with adequate emergency fund savings. This result adds empirical evidence to TAM (Davis, 1989) and UTAUT (Venkatesh et al., 2003) that usefulness, accessibility, and trust are key features of fintech development. Thus, financial institutions are advised to collaborate with fintech companies to develop efficient and effective savings websites to motivate households to engage in saving behavior for emergency funds.

Limitations and Future Research

The limitations of the current study should be noted. The cross-sectional dataset limits its parameters' variability over time and causal inference (Bowen & Wiersema, 1999). Further research might collect panel data for more accurate predictions and causal inferences. Second, three-item measures for subjective norm and perceived behavioral control are recommended to be considered for future study. Third, most respondents are white married males with bachelor's degrees. Therefore, the sample selection of the current study might be biased. Future studies should recruit other potential participants to represent U.S. households.

As noted in the discussion, other factors might exist in the model that affect individuals' intentions and adequate emergency fund savings. Ajzen (2006) presented an extended TPB model that emphasizes the significance of perceived behavioral control within the model. Perceived behavioral control might moderate the relationships between attitudes and intention, subjective norm and intention, and intention and behavior. Therefore, further studies might incorporate the moderation of perceived behavioral control into the TPB and test the model's moderation and mediation effects.

Conclusion and Implications

In conclusion, this study explains that intention-behavior relationships through actual fintech use positively influence households' adequate emergency fund savings. It represents a combination of psychological factors and fintech use affecting savings behavior. The results provide empirical evidence for the TPB (Ajzen, 1991) and the technology adoption models (i.e., TAM, UTAUT) (Davis, 1989; Venkatesh et al., 2003). The indirect paths from three antecedents to adequate emergency fund savings through intention to use fintech to save and actual fintech use indicate that intention to use fintech to save and actual fintech use (i.e., using saving websites) link attitudes, subjective norms, perceived behavioral control, and adequate emergency fund savings. This study provides three critical implications.

First, the intention to use fintech to save is critical to connect antecedents and consequences (i.e., adequate emergency fund savings, actual fintech use). Intentions are categorized into present-oriented and future-oriented (Bagozzi, 1992). If future-oriented intentions are more dominant than present-oriented ones, people might not immediately act on savings for emergencies. Therefore, the results imply the importance of financial planning to align present-oriented needs (emergency fund savings) with future-oriented intentions (long-term savings). Clients need to set up a financial goal or plan to activate their present-oriented intention to save for emergencies and leverage the efficiency of fintech to implement their plan. KickStart, a non-profit organization in Kenya, conducted experimental research regarding using fintech to help farmers save money for equipment purchases. The results showed that using fintech to save helped them save faster than expected (Omwansa et al., 2013). Financial professionals might motivate households to establish financial goals and use fintech for financial management, budgeting, regular savings, and account monitoring.

Second, actual fintech use links the intention to use fintech to save and the savings behavior. However, the forms of fintech use matter (Nourallah & Öhman, 2021). Saving websites help clients transfer their intention to use fintech to achieve adequate emergency fund savings. Websites users' perceived

usefulness, perceived ease of use, social influence, and trust could contribute to the intention to use websites for savings. In contrast, our finding regarding saving app use calls attention to the practices. Fintech companies need to make more efforts to develop saving apps to improve their efficiency and effectiveness. Financial institutions might help consumers enhance their digital financial knowledge to improve the acceptance and trust in using saving apps for savings (Setiawan et al., 2022). Saving apps that allow fintech users to customize and set savings goals (Gargano & Rossi, 2024) and to use strategies to accommodate their savings capability might motivate their savings behavior (Löwgren, 2023). Mobile banking apps with specific features (i.e., ease of use, security) might help establish bank account holders' trust in actually using fintech, thus improving their engagement in savings (Samartha et al., 2022; Sandrine et al., 2019).

Last but not least, governments might help households establish adequate emergency fund savings. According to U.S. Congress (2021), the Refund to Rainy Day Savings Act was proposed to defer 20 percent of tax refunds to taxpayers' emergency fund savings accounts to help them respond successfully to unexpected financial difficulties. This opt-in program would help taxpayers convert future-oriented intentions to present-oriented intentions to save for emergency funds when tax refunds are available through fintech.

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Appendix

Measurements of Key Variables

Variables	Items		References
Attitudes	AT1	Having adequate (at least 3 months of your living expenses) in emergency fund savings would be extremely bad (1) – extremely good (7).	Ajzen (2006; 2020)
	AT2	Having adequate (at least 3 months of your living expenses) in emergency fund savings would be extremely unpleasant (1) – extremely pleasant (7).	
	AT3	Having adequate (at least 3 months of your living expenses) in emergency fund savings would be extremely harmful (1) – extremely beneficial (7).	
Subjective norms	SN1	My family thinks that I should maintain emergency fund savings that cover at least three months of expenses.	
	SN2	My friends who are important to me think that I should maintain emergency savings that cover at least three-months of expenses.	
Perceived behavioral control	PC1	I am confident that I can easily maintain adequate (at least 3 months of living expenses) emergency fund savings.	
	PC2	I have complete control over maintaining emergency savings (which are at least three months equivalent of living expenses).	
Intention to use fintech to save	IN1	What is the likelihood that you will use financial apps to save regularly for emergency fund savings to cover at least three-month living expenses?	
Fintech use	Saving app (SA)	How often do you use financial applications (bank apps, Mint, Quicken, QuickBooks, etc.) to save money regularly for emergency funds?	FINRA (2021)
	Saving website (SW)	How often do you use a laptop/computer to save money regularly for emergency funds?	
Emergency fund savings		How much have you set aside for emergency fund savings?	Johnson and Widdows (1985)
Expenses		What are your household's approximate monthly expenses, on average?	
Objective financial knowledge	OB1	Imagine that the interest rate on your savings account was 1% per year and inflation was 2% per year. After 1 year, how much would you be able to buy with the money in this account?	Houts and Knoll (2020)

	OB2	If interest rates rise, what should happen to bond prices?	
	OB3	Considering a long time period (e.g.,10 or 20 years), which asset described below normally gives the highest return?	
	OB4	Normally, which asset described below displays the highest fluctuations over time?	
	OB5	When an investor spreads his or her money among different assets, does the risk of losing a lot of money increase, decrease, or stay the same?	
	OB6	Do you think the following statement is true or false? "If you were to invest $1000 in a stock mutual fund, it would be possible to have less than $1000 when you withdraw your money."	
	OB7	Whole life insurance has a savings feature while term insurance does not.	
	OB8	A 15-year mortgage typically requires higher monthly payments than a 30-year mortgage, but the total interest paid over the life of the loan will be less.	
	OB9	Housing prices in the United States can never go down.	
	OB10	Suppose you owe $3,000 on your credit card. You pay a minimum payment of $30 each month. At an Annual Percentage Rate of 12% (or 1% per month), how many years would it take to eliminate your credit card debt if you made no additional new charges?	
Subjective financial knowledge	SB	How would you assess your overall financial knowledge?	FINRA (2021)