

## ARTICLE

## Determinants of Intention to Use Fintechs Services by Accounting Students: A Mixed Methods Approach

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### ABSTRACT

Fintechs are startups that operate in the financial sector and have gradually been receiving space in the market. However, it is still not clear which elements lead individuals, especially those involved in the business field, to adopt and use these services. Thus, this study aims to analyze which elements encourage the behavioral intention to use Fintech services from the perspective of students in the business field. The theoretical basis and hypothesis development were based on the Unified Theory of Acceptance and Use of Technology (UTAUT), which contemplates the facilitating conditions, performance expectancy, effort expectancy, social influence, and the behavioral intention to use said services. The study also included the variable “security” as an antecedent. Age and gender were controlled for this study. A survey resulted in a sample of 107 students, and the data was analyzed with a mixed-method approach: partial least squares - structural equation modeling (PLS-SEM) and fuzzy-set qualitative comparative analysis (fsQCA). With PLS-SEM, the findings demonstrate the positive effect of performance expectancy, effort expectancy and security on the behavioral intention to use fintech services. The fsQCA showed that different causal configurations can lead students to a high adoption of services provided by these startups. This study brings up new evidence that contributes to the UTAUT theory by intertwining this discussion with the security variable perceived during technology usage. Furthermore, it expands the entire discussion to the context of accepting a contemporary technology. Regarding the students, practical evidence is gathered regarding the determinants of their intention to use financial services.

### KEYWORDS

UTAUT, Behavioral intention to use, Fintechs, Students, Accounting Sciences

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Throughout the years, the use of financial services has become practically a basic activity. Equally, the repercussion of said services has grown expressively for an increasingly high number of users. This expressiveness is confirmed by the demands to access and use applications that aim to reduce daily obligations, bringing more comfort and dynamicity to operations, such as payments, loans, financing, investments, and other transactions that are offered online by the most varied innovative business models in the 21<sup>st</sup> century (Liu et al., 2020; Schueffel, 2016).

Thus, the convergence between technological advances and the search for more convenience for users has made financial services increasingly influential. In this context, it is possible to cite fintechs as an example. This term has gained notoriety in the business field, as fintechs provide their customers with greater ease to use financial services. Thus, the definition of Fintech can be understood as a financial startup with a high degree of technological innovation that has gained more consistent visibility after the 2010 financial crisis (Liu et al., 2020). Despite the competitiveness within the financial sector and the environmental unpredictability in Brazil, national fintechs constantly search for ways to be more resilient, leading to many of them prospering in the market (Frare et al., 2022).

Furthermore, fintechs face both facilitating aspects and barriers of access to the market. Examples of facilitators would be the convenience of the solutions that are offered, technological innovations, and partnerships with other fintechs. Examples of barriers, on the other hand, would be the sector's regulations, the lack of investment, conflicts of interest, etc. (Braido et al., 2021).

Focusing on the users, there are also reasons that lead to an individual deciding to use the services provided by fintechs or not, such as the perceived benefits (economic, transactional fluidity, and convenience) and risks (financial, legal, security, and operational). These are some of the reasons that bring about the intention to continue or discontinue the use of these services (Mascarenhas et al., 2021; Singh et al., 2020).

When focusing on the increase in discoveries and analyses in the behavioral field and on users' expectancy when accepting and using financial services, the Unified Theory of Acceptance and Use of Technology (UTAUT) serves as a theoretical base. This theory considers the technological expansion occurring after the 2000s to discuss the development and use of technological services, such as those of a financial and mobile nature (Boonsiritomachai & Pitchayadejanant, 2017; Mulyana et al., 2020).

Furthermore, upon using a media, it is possible to observe that, depending on the coverage of the developed technology, there may be difficulties in identifying and using the tools that are available. Thus, it is important to consider that the manner in which each user perceives the benefits of online services such as a mobile bank will depend on some behavioral and/or attitudinal aspects, as well as on the correlation between usage and generations (age groups) (Osman et al., 2020; Zhou et al., 2010).

Inherently to the age group bias, some researchers opted to conduct their work with a slant towards academics in the business field. This choice is justified by the fact that these subjects are the link between the appearances of new business models and the technological demand for said models to enter and remain in an effervescently competitive market (Jamil & Seman, 2019; Keong et al., 2020; Osman et al., 2020).

Thus, studies that associate business students with the intention to adopt services provided by fintechs (Osman et al., 2020) or that correlate post-graduate business management students and their behavior after adopting mobile services (Singh, 2020) or, even, studies conducted about finance and accounting students in the context of fintechs based on literature reviews (Jamil & Seman, 2019) are some of the indicators of the relevance of understanding the fintech subject matter.

Based on the specified context, this study focuses on students in the business area, with an emphasis on accounting students. This limit was imposed as the aforementioned field of knowledge is composed of future professionals who will need “to combine strong financial and digital abilities” (Jamil & Seman, 2019, p. 74). Pratolo (2020) adds that making academics, especially those in the financial sector, understand that some of their duties will be linked to providing assistance about finances, the construction of creative and innovative behaviors, the visibility of networked businesses, etc. is one of the reasons for studies to be conducted in this context and with these subjects.

Considering this, the goal is to analyze which elements encourage the use of fintech services from the perspective of Accounting Sciences students. Osman et al. (2020) comment that “the intention to adopt fintech services refers to the readiness or will of an individual to use financial technology services” (p. 105). In this sense, the elements considered as possible encouragements for said use are: facilitating conditions, performance expectancy, effort expectancy, social influence, and security (Venkatesh et al., 2003; Boonsiritomachai & Pitchayadejanant, 2017).

Additionally, it is relevant to discuss the inputs that are associated with said study, which possess at least three contributions. Theoretical contributions due to encouraging discussions that link the intention to accept and use fintech services by accounting students (Jamil & Seman, 2019). Empirical contributions for evaluating the perception of said students regarding the usage of fintech services to serve as a result for the adoption and use of financial services (Rahi et al., 2018). Furthermore, there are social contributions due to pointing out possible pathways that certain groups of people seek out to obtain information on fintechs. Besides this, it considers elements such as time and the ease of accessing a device. In this sense, its use is based on the supposition that it impacts all users from different generations equally (Rahi et al., 2018).

## 2. THEORETICAL BASES

### 2.1. USE OF FINTECH SERVICES

A Fintech is a financial service developed through technological advances. It stands out as a financial technology that received support from various investors due to it providing an alignment between the choices and needs of current consumers. It is important to note that said technology has been explored for approximately 40 years, but only gained its most expressive notoriety in the 21<sup>st</sup> century (Campos-Teixeira & Tello-Gamarra, 2022; Jamil & Seman, 2019; Schueffel, 2016).

In a more isolated manner, the growth of fintechs is connected to the appearance of credit cards in the 1950s, as well as to the development of automated teller machines in the 1960s and arrives in the 1990s being linked to computer technology. One of its main contributions was to support the expansion of new business models, leading to a “rupture of traditional models,

creating services with or without the intervention of financial intermediaries” (Jamil & Seman, 2019, p. 77; Schueffel, 2016).

Thus, one of the definitions assigned to fintechs has to do with an input for financial services that configures itself as a disruptive financial innovation. The disruption is due to the fact that it connects the act of creating and universalizing new financial instruments with new technological mechanisms. In this sense, the intent helps institutions, for instance, in how they advertise their products, and mainly improves the process of improving innovation. With this, the term intentionality becomes relevant in the adoption of a fintech service, as it signals a user’s desire to choose certain services (Keong et al., 2020; Osman et al., 2020).

Regarding the influence of companies structured as fintechs, there are at least three aspects influencing this connection. Firstly, there is more efficiency and time optimization, such as in the use of digitalization in financial services. Secondly, the flexibility afforded to business negotiations, for instance. And thirdly, the low bureaucracy fintechs have in comparison to traditional banks, from the action of opening an account to that of asking for a loan (Keong et al., 2020; Makina, 2019).

It is important to emphasize that a business model that is technological in nature includes functions that can be conducted online, for instance, through devices with internet access. Among the provided services, it is possible to conduct transfers between bank accounts and even open an account (Lim et al., 2018). Furthermore, there is the example of banks that only exist online, without physical locations, meaning that all of their services are provided virtually (Silva et al., 2018).

The financial market is experiencing increased growth, making technology use essential (Ruhland & Wiese, 2022). Thus, it is possible to identify a significant change in the financial medium, which is capable of, for instance, expanding lines for customer service, fulfilling the needs of people who are geographically distant and who need speed and convenience in the resolution of their financial demands. Considering this, it appears that consumers have begun to require more from financial services and, thus, physical banks have begun to provide their services digitally as well (Schueffel, 2016).

Additionally, this disruption to financial institutions brought on by the fintechs does not threaten traditional institutions (Makina, 2019), but appears as a way for financial transactions to happen in a more streamlined and less bureaucratic manner. However, the only requirement for accessing the digital financial services is to have access to the internet, which connects the devices to the digital financial platform.

Consequently, with the change (physical environment/virtual environment) in the use of financial services, mainly in the 21<sup>st</sup> century, the presence of young people as the newest users of this type of financial technology is now common (Schueffel, 2016). Jamil and Seman (2019) add that there is a “scarcity among the graduates, especially in the social sciences fields, such as finances, business, and information technology” in integrating said knowledges with new possibilities, such as the ambience related to the use, development, and expansion of fintechs (p. 75).

## 2.2. UNIFIED THEORY OF ACCEPTANCE AND USE OF TECHNOLOGY (UTAUT)

The Unified Theory of Acceptance and Use of Technology (UTAUT), also defined as UTAUT 1 is the juncture of eight models linked to Information Systems; that is, UTAUT combines characteristics from these models based on the following constructs: Perceived Ease of Use

(TAM), which is a characteristic linked to the construct of Effort Expectancy (UTAUT), and Compatibility (TDI), which is an aspect intrinsic to the construct of Facilitating Conditions (UTAUT) (Odoom & Kosiba, 2020; Oliveira et al., 2014).

UTAUT appears with the incumbency to provide explanations regarding the variation of behavioral intentions (Martins et al., 2020; Singh, 2020), as well as “to examine the intention of adopting technological changes in daily transactions” (Osman et al., 2020, p. 105). However, one point that must be considered refers to using mobile payment systems, as there are still few studies employing UTAUT regarding post-usage behavior (Singh, 2020).

Additionally, UTAUT is a model that was built based on other developed theories, which are: the Theory of Reasoned Action (TRA), Technology Acceptance Model (TAM 1), Theory of Planned Behavior (TPB), Model of Computer Use (MCU), Innovation Diffusion Theory (IDT), Social Cognitive Theory (SCT), Integrated Model of Acceptance (IMA), and Technology Acceptance as a Planned Behavior (Zhou et al., 2010).

Considering the presence of TAM, which is the most used theory amid the characteristics of each construct, UTAUT was developed to provide a potentiality that could accommodate the presence of the Systems of Information in the various areas of knowledge and thus stimulate the intention to use media that aimed to create informational content (Sabah, 2016).

The UTAUT was developed with a strong connection to Information Technology, as well as to perspectives stemming from other theories, such as: TRA (1975), TAM 1 (1986), TAM 2 (2000) and TAM 3 (2008). Both are developed through the Theory of Rational Action, which Davis (1989) soon adapted to develop the Technology Acceptance Model (TAM), soon developing it further with the TAM 2 and TAM 3 versions (Ronan-Cataluña et al., 2015).

According to the UTAUT, behavioural intentions and quickly adopting technology, as is the case with using financial applications that end up becoming intermediaries, enables the observation and obtention of results in a practical manner. The constructs that comprise the theory are: Performance Expectancy (PE), Effort Expectancy (EE), Social Influence (SI), and Facilitating Conditions (FC) (Odoom & Kosiba, 2020; Venkatesh et al., 2003).

Performance Expectancy (PE) is defined by the manner in which individuals believe there will be positive results from their activities, such as using an application that can conduct investments immediately and show the profits in a positive manner (Venkatesh et al., 2003). To Odoom and Kosiba (2020), PE “describes the degree to which a user believes that, by using a system or innovation, improvements will be made to work performance” (p. 1332).

Thus, Effort Expectancy (EE) stands out in how the system is used; that is, learning to use it may be easier or more difficult depending on each individual’s knowledge and, consequently, on the complexity attributed to the system by said individual (Venkatesh et al., 2003). Furthermore, said expectation is linked to whether users perceive an optimization of their time when interacting with a system; that is, that it will not “involve excessive mechanical operations and it will not be difficult to understand in terms of adoption and use” (Odoom & Kosiba, 2020, p. 1332; Venkatesh et al., 2003).

As for Social Influence (SI), or the influence of social relations in general, it is recognized through the importance given by the media to individuals who use financial tools. SI can be defined as “the degree to which individuals recognize the need to use a system, since they notice that other relevant people are already using it” (Odoom & Kosiba, 2020, p. 1332).

Accordingly, Facilitating Conditions (CF) have to do with “the degree to which an individual notices that a system can be easily controlled if supported by the organization and its technical infrastructure”. In other words, it has to do with the perspectives of users when operating technologies they can control, that is, that they have the necessary knowledge and ability to use (Odoom & Kosiba, 2020, p. 1333; Venkatesh et al., 2003).

### 2.3. PREVIOUS STUDIES

In the study conducted by Venkatesh et al. (2003) one of the main goals was to analyze the subject individually, as well as his or her understanding of new technologies; that is, one's acceptance. Eight models and their constructs were analyzed to develop lines that “unite” to create a Unified Theory, with the first study conducted on the matter aiming to analyze the resemblances. After analyzing the constructs in the partial least squares (PLS) program, four groups were obtained: Performance Expectancy (PE), Effort Expectancy (EE), Social Influence (SI), and Facilitating Conditions (FC). Afterwards, individual acceptance of technology was added to the study, including organizational context and user experience (Venkatesh et al., 2003).

Zhou et al. (2010) attempted to explain how users adopted the perception of technology use by using the Perceived Utility, Perceived Ease of Use, Interactivity, and Relative Advantage elements of analysis. Furthermore, the adjustment of technology as a part of work was also analyzed. During the development stage, the Task Technology Fit (TTF) and the Unified Theory of Acceptance and Use of Technology were linked, highlighting the use of financial technology, that is, a digital bank. From their analysis, it was possible to identify that Performance Expectancy, Task Technology Fit, Suitability, Social Influence, and Facilitating Conditions have significant impacts on user adoption.

Another result discovered in the study by Zhou et al. (2010) was the significant impact of Task Technology Fit, which is connected to Performance Expectancy (Zhou et al., 2010). Alongside the study conducted by Zhou et al. (2010), the research done by Jamil and Seman (2019) sought to discover the connection between technology and the fintech scenario. The authors argued that “educational institutions have taken progressive steps towards improving the students' set of technical abilities”, but there is still room for improvement, especially in the business field (p. 87).

In this sense, the study from Oliveira et al. (2014) pointed out the decision factors that interfere with the adoption and use of MBanking. The main goal was to explore the influence of final consumers, the existing attitude regarding initial trust and the technological characteristics of MBanking solutions by uniting three theories: Task Technology Fit Model (TTF), Unified Theory of Acceptance and Use of Technology (UTAUT) and the Initial Trust Model (ITM).

Still regarding said study, the authors used partial least squares (PLS) to analyze the collected data. The study indicated that the use of MBanking was explained by the most relevant constructs, which were Behavioral Intention, Facility, Task Technology Fit adjustment, characteristics of Statistical Technology, Performance Expectancy, and Initial Trust. The authors concluded that there is a favorable trend when the development of organizational solutions is linked to the use of online financial applications (Oliveira et al., 2014).

Lim et al. (2018) sought to investigate the perception of students from a Palestinian educational institution regarding Mobile Learning, as well as to identify the factors that influence students through the Behavioral Intention to adopt and use Mobile Learning. The authors proposed changes

based on the Technology Acceptance Model (TAM) and the Unified Theory of Acceptance and Use of Technology (UTAUT) with the intent to improve the learning process. The collected data was statistically analyzed through the Maximum Likelihood Estimation method.

The results demonstrated that the Perceived Ease of Use and Usefulness factors were the most relevant to Mobile Learning. However, the authors observed that Knowledge and Perceived Security in mobile fintech services have significant influence on user confirmation, and on perceived usefulness. Another point found in the study was that Perceived Security did not have direct influence over Satisfaction or even over the Continued Intention to use (Lim et al., 2018). These findings agree with the study from Keong et al. (2020), as according to the authors, even though there is a high acceptance for adopting and using fintechs, the risks linked to said use are still barriers to their expansion.

Additionally, Rahi et al. (2018) developed an integrated technology adoption model connected to the UTAUT model with an emphasis on Perceived Technological Security. The intent was to predict and explain user intentions towards adopting the Internet, especially banking services, as well as their intentions to recommend said internet-based services on social networks. Based on a quantitative analysis of data collected from 398 internet banking users, the results indicated that Performance Expectancy, Effort Expectancy and Social Influence have significant impact on user intentions to adopt the use of internet banking (Rahi et al., 2018).

Another factor that boosted the adoption and intention to use fintech services was the COVID-19 pandemic. With a sample of 227 potential fintech application users from Bangladesh, Yan et al. (2021) found that elements such as social influence directly affect the intention to use the previously mentioned services. Furthermore, the study's findings reinforce the discovery that performance expectancy and effort expectancy influenced the value perceived by fintech service users during the COVID-19 pandemic.

Based on previous studies, on the described literature, and on the UTAUT, the following research hypotheses were formed:

- **H1(+):** Facilitating conditions are positively associated with the behavioral intention to use fintech services.
- **H2(+):** Performance expectancy is positively associated with the behavioral intention to use fintech services.
- **H3(+):** Effort expectancy is positively associated with the behavioral intention to use fintech services.
- **H4(+):** Social influence is positively associated with the behavioral intention to use fintech services.
- **H5(+):** Security is positively associated with the behavioral intention to use fintech services.

After this description of the hypotheses, Figure 1 presents the research model. Besides using partial least squares - structural equation modeling (PLS-SEM) for testing the hypotheses, the study employs fuzzy-set qualitative comparative analysis (fsQCA) to understand the combinations of elements that lead to a high intention to use fintech services.

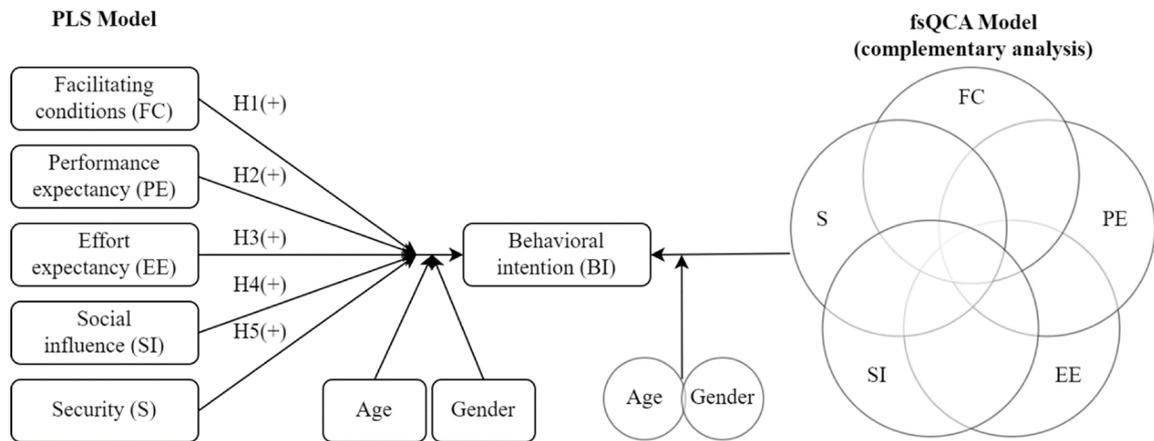


Figure 1. Theoretical model.

The model employs two control variables: age and gender.

### 3. METHODOLOGICAL PROCEDURES

#### 3.1. DATA AND CONTEXT

The research data comes from surveys conducted with Accounting Sciences students from Brazilian public higher education institutions (HEI). In total, 40 universities were contacted between August and November of 2020 and, according to their possibilities, they forwarded the study invitation and its questionnaire to their regularly enrolled students. This procedure generated responses from 166 respondents in 15 different HEI. However, an initial filter defined the concept and examples of Fintech services and asked if the student had already used them in any way. Thus, those who had never used said services were eliminated from the study, leading to a final sample of 107 participants. This sample size is in agreement with other studies about technology acceptance (Duarte & Pinho, 2019; Martins et al., 2020; Martins et al., 2022).

This sample had an average age of 27 years, with a range between 17 and 54 years. Furthermore, 53 of the participants were men, 53 were women, and one individual opted to leave this question without an answer. Regarding their HEIs, the students came from 15 different institutions, as shown in Table 1.

#### 3.2. RESEARCH INSTRUMENT

The constructs and items were adopted from Boonsiritomachai and Pitchayadejanant (2017), which was based on previous UTAUT studies (Venkatesh et al., 2003; Venkatesh et al., 2012). All the items were part of a 5-point Likert scale (1 = Strongly disagree and 5 = Strongly agree). Social influence, performance expectancy, effort expectancy, and facilitating conditions are connected to three items each, while security and behavioral intention to use have four items each, leading to a total of 20 items on the questionnaire. As for the two control variables, gender consisted of male (0) and female (1), while age is a continuous variable measured in years.

**Table 1**  
*Respondents' HEIs*

Acronym	IES	n	%
FURG	Federal University of Rio Grande	11	10.28%
UFAL	Federal University of Alagoas	9	8.41%
UFBA	Federal University of Bahia	21	19.63%
UFES	Federal University of Espírito Santo	7	6.54%
UFF	Federal Fluminense University	2	1.87%
UFJF	Federal University of Juiz de Fora	4	3.74%
UFMA	Federal University of Maranhão	6	5.61%
UFMS	Federal University of Mato Grosso do Sul	5	4.67%
UFPB	Federal University of Paraíba	8	7.48%
UFRA	Federal Rural University of the Amazon	2	1.87%
UFSC	Federal University of Santa Catarina	25	23.36%
UFSM	Federal University of Santa Maria	2	1.87%
UFU	Federal University of Uberlândia	1	0.93%
UFVJM	Federal University of Vales do Jequitinhonha and Mucuri	3	2.80%
UNESP	São Paulo State University	1	0.93%
<b>Total</b>		<b>107</b>	<b>100%</b>

### 3.3. DATA ANALYSIS TECHNIQUES

Data analysis was conducted through partial least squares - structural equation modeling (PLS-SEM) and through fuzzy-set qualitative comparative analysis (fsQCA). PLS-SEM allows for symmetrical data analysis and is useful for complex models, with high acceptance in the social sciences (Hair Jr. et al., 2019). Considering five independent variables and two control variables (seven arrows) on the dependent variable with G\*Power 3 software, the sample's minimum number is 103, considering a power of 80% (Ringle et al., 2014). Thus, the sample (n=107) is adequate for the application of PLS-SEM. Besides the PLS-SEM, fsQCA was also used. This asymmetrical technique helps to identify causal configurations that lead to the dependent variable's success (Woodside, 2013), considering necessary and sufficient conditions for this to happen (Ragin, 2008). The joint use of both techniques is pertinent for the data analysis, moreover in technology acceptance contexts (Duarte & Pinho, 2019; Martins et al., 2022).

## 4. DATA ANALYSIS AND DISCUSSION

### 4.1. PLS-SEM ANALYSIS

The symmetrical analysis begins with the measurement model (Table 2). For the constructs with items organized in a Likert-type scale, the loadings assumptions were verified, as well as the reliability of internal consistency, discriminant and convergent validity (Hair Jr. et al., 2019). Further information can be obtained in Appendix A. For the control variables, only their

correlation with the other variables was evaluated. For the binary gender variable, the first point equals male and the second point, female, while a single case was treated as missing data. The age variable, on the other hand, is continuous, and measured in years.

**Table 2***Measurement model*

Variables	rho_A	CR	AVE	1	2	3	4	5	6	7	8
1.FC	0.773	0.868	0.687	<b>0.829</b>							
2.PE	0.794	0.874	0.697	0.604	<b>0.835</b>						
3.EE	0.834	0.888	0.726	0.612	0.736	<b>0.852</b>					
4.SI	0.773	0.783	0.550	0.235	0.172	0.254	<b>0.742</b>				
5.S	0.778	0.827	0.549	0.488	0.490	0.513	0.082	<b>0.741</b>			
6.BI	0.868	0.897	0.687	0.610	0.762	0.706	0.200	0.550	<b>0.829</b>		
7.Age	–	–	–	-0.244	-0.296	-0.348	-0.077	-0.227	-0.216	–	
8.Gender	–	–	–	0.056	0.012	0.012	0.186	-0.027	-0.040	-0.140	–

Note: The bold diagonal values represent the square root of the average variance extracted (AVE).

Considering the confirmatory factorial analysis, the loadings should ideally be higher than 0.707 (Hair Jr. et al., 2019). However, two items (SI\_12 and S\_16) presented slightly lower loads. Since their exclusion would not significantly improve the measurement model, besides the importance of maintaining all the original items to guarantee the constructs' reliability (Hair Jr. et al., 2017), the choice was made to consider their continuity.

The reliability of internal consistency is shown by the adequacy (values between 0.70-0.90) of rho\_A and by composite reliability (CR) (Hair Jr. et al., 2019). The convergent validity is appropriate (AVE  $\geq$  0.50) (Hair Jr. et al., 2019), and the discriminant validity can be attested by the square root of AVE being greater than the correlations among the constructs (Hair Jr. et al., 2017). Additionally, the model does not show common method bias (CMB) issues, since a single factor (39.29%) is unable to explain half of the total variance (Podsakoff et al., 2003). After checking the quality of the measurement model, the structural model is next in line (Table 3).

**Table 3***Structural Model*

H	Relationships	Beta ( $\beta$ )	t-statistics	p-values	CI [5%; 95%] †	VIF	R <sup>2</sup>	Q <sup>2</sup>
H1	FC $\rightarrow$ BI	0.131	1.464	0.143	[-0.008; 0.285]	1.861	0,643	0,396
H2	PE $\rightarrow$ BI	0.452	3.847	0.000**	[0.232; 0.622]	2.425		
H3	EE $\rightarrow$ BI	0.225	1.673	0.094*	[0.001; 0.444]	2.657		
H4	SI $\rightarrow$ BI	0.035	0.502	0.616	[-0.069; 0.160]	1.130		
H5	S $\rightarrow$ BI	0.159	1.906	0.057*	[0.014; 0.291]	1.494		
–	Age $\rightarrow$ BI	0.060	0.844	0.399	[-0.070; 0.164]	1.172		
–	Gender $\rightarrow$ BI	-0.049	0.751	0.453	[-0.145; 0.069]	1.065		

Note 1: \*p<0.10; \*\*p<0.01.

Note 2: † = 90% confidence interval (CI) computed using bias-corrected and accelerated bootstrap (BCa), two-tailed test and 5,000 subsamples.

Three hypotheses can be supported statistically: H2 ( $\beta=0.452$ ,  $p<0.01$ ); H3 ( $\beta=0.225$ ,  $p<0.10$ ) and H5 ( $\beta=0.159$ ,  $p<0.10$ ). None of the control variables appeared to be statistically significant. The model shows no signs of multicollinearity ( $VIF < 3$ ), denotes moderate (0.50) to substantial (0.75) explained variance ( $R^2$ ), as well as an average (0.25) to high (0.50) predictive accuracy ( $Q^2$ ) (Hair Jr. et al., 2019).

#### 4.2. fsQCA ANALYSIS

The asymmetrical analysis begins with data calibration (Ragin, 2008). For the constructs measured with multiple items on a Likert-type scale, the average scores were calculated for each construct. This data was then calibrated based on percentiles (Ragin, 2006). The percentiles that were adopted were: 75% (full membership), 50% (crossover point) and 25% (full non-membership) (Duarte & Pinho, 2019). The age variable was also calibrated based on these percentiles, while the gender variable was calibrated as a crisp-set due to its dichotomic nature (Ragin, 2008). After the calibration was concluded, the necessary conditions were analyzed.

A condition is necessary when its consistency is greater than or equal to 0.90 (Ragin, 2008), and since the highest consistency that was found was 0.699 (both for performance expectancy and effort expectancy), it appears that no condition is necessary by itself to promote a high behavioral intention of using fintech services. Afterwards, the sufficient conditions were analyzed. To do so, a truth table was created and refined with a minimum cut-off point of 0.80 for consistency (Ragin, 2008). Sufficient solutions for reaching a high behavioral intention to use fintech services are based on intermediate solutions (Duarte & Pinho, 2019). In this first outcome, only the UTAUT and security variables were considered (Table 3), while the demographic variables were included afterwards (Table 4).

**Table 4**  
*Configurations that lead to high usage intention*

Conditions	Solutions						
	1	2	3	4	5	6	7
Facilitating conditions (FC)	●	○		○	●	●	●
Performance expectancy (PE)	●	●	●			●	○
Effort expectancy (EE)	●	●		●		○	●
Social influence (SI)	○	●	●	○	●	●	●
Security (S)			●	●	●		
Consistency	0,879	0,830	0,816	0,847	0,843	0,873	0,911
Raw coverage	0,213	0,133	0,279	0,133	0,320	0,104	0,131
Unique coverage	0,097	0,034	0,027	0,512	0,041	0,018	0,013
Overall consistency				0,852			
Overall coverage				0,615			

Note: Black circles (●) indicate the presence of the condition, white circles (○) indicate the absence of the condition, and no circles indicate the indifference of the condition.

There are seven causal configurations (solutions) in which the cases (Accounting Sciences students) have a high behavioral intention to use fintech services. Other studies in the context of intention to use or adopt technologies found similar numbers of solutions, such as Duarte and Pinho (2019), who found six; Carvajal-Trujillo et al. (2021), who found nine; and Liang et al.

(2020), who found 12. This demonstrates that various causal combinations exhibit equifinality among users for reaching a high intention to use or adopt technologies.

It is important to highlight that the overall coverage represents the total of cases based on a solution, even when using other solutions simultaneously, while unique coverage has to do with cases that are based exclusively on said solution (Ragin, 2008). As an example, 21.3% of the students used the first solution, with 9.7% using it exclusively, that is, this portion of the sample reaches a high behavioral intention to use fintech services due to the presence of facilitating conditions, performance expectancy, effort expectancy, and the absence of social influence. In this solution, security is neutral.

At a second moment, the analysis of sufficient conditions was conducted considering the inclusion of the demographic variables (Table 5). This strategy was derived from Duarte and Pinho (2019), who also presented fsQCA models with and without demographic variables, with the intent to guarantee compatibility with PLS-SEM.

**Table 5**

*Analysis of sufficient conditions, including demographic variables*

Solutions	Raw coverage	Unique coverage	Consistency
$\sim$ SI*PE*EE*S* $\sim$ Gender	0.152	0.030	0.866
$\sim$ SI*PE*EE*FC*S	0.177	0.026	0.858
PE*EE*FC*S*Age	0.182	0.028	0.845
PE*EE*FC* $\sim$ S* $\sim$ Age* $\sim$ Gender	0.126	0.038	0.930
SI*PE* $\sim$ FC*S* $\sim$ Age* $\sim$ Gender	0.075	0.020	0.884
SI* $\sim$ PE* $\sim$ EE*FC*S* $\sim$ Age	0.073	0.026	0.889
$\sim$ PE*EE* $\sim$ FC*S*Age* $\sim$ Gender	0.065	0.014	0.880
SI*PE*EE*FC*Age* $\sim$ Gender	0.109	0.026	0.946
SI* $\sim$ PE*EE*FC*S*Gender	0.103	0.048	0.939
SI*PE* $\sim$ EE*FC*Age*Gender	0.074	0.021	0.838
$\sim$ SI*PE* $\sim$ EE* $\sim$ FC* $\sim$ S* $\sim$ Age* $\sim$ Gender	0.072	0.021	0.877
$\sim$ SI*PE* $\sim$ EE* $\sim$ FC*S*Age*Gender	0.057	0.016	0.873
SI*PE*EE* $\sim$ FC* $\sim$ S*Age*Gender	0.079	0.031	0.821
Overall coverage = 0.564			
Overall consistency = 0.874			

Note: The tilde ( $\sim$ ) before the condition represents its absence. For the binary variable (gender), we have group 1, male ( $\sim$ Gender) and group 2, female (Gender).

Upon considering UTAUT's antecedent variables (facilitating conditions, performance expectancy, effort expectancy, and social influence), security and demographic variables (age and gender), it is possible to note that 13 solutions can lead to a high intention to use fintech services in the Accounting Sciences students.

### 4.3. DISCUSSION OF THE RESULTS

The first hypothesis (H1) states that facilitating conditions are positively associated with the intention to use fintech services. This hypothesis cannot be supported statistically. However, of the seven solutions for a high intention to use said services (disregarding the demographic variables), it is present in four of them (S1, S5, S6 and S7), indifferent in one (S3), and absent

in two (S2 and S4). This demonstrates that, despite not being symmetrically associated with the intention to use, it is present in most configurations in asymmetrical relationships (combined with other variables).

The aforementioned findings are in agreement with the study conducted by Boonsiritomachai and Pitchayadejanant (2017), in which the authors revealed that facilitating conditions in mobile banking applications do not have a direct influence on behavioral intentions. It is possible to infer that the facilitating conditions have to do, for instance, with the degree to which subjects believe and perceive the existence of a technical infrastructure within the organization that is capable of supporting the use of specific banking systems (Venkatesh et al., 2003). Thus, this variable was not considered significant in this study due to most of the responding students being part of a younger age group, which means the aforementioned infrastructure did not have a significant impact, just as in the study conducted by Boonsiritomachai and Pitchayadejanant (2017), which also had young people from the Y generation as an age reference.

Consequently, the same variable, that is, the facilitating conditions in the study conducted by Odoom and Kosiba (2020), also converged with the present study. The authors found that said conditions had no positive impact on the users' behavioral intentions. The authors brought evidence that this convergence can be attributed to the fact that companies are increasingly connecting their organizational environments to technological aspects, but not to the point where users express concerns regarding the technical devices used by the companies.

Furthermore, the results coincided with the findings of Talukder et al. (2019), in which the facilitating conditions did not demonstrate significant influence, statistically speaking. Additionally, the study conducted by Morales and Trinidad (2019) diverged from this study's findings. Their research found that facilitating conditions had a positive impact when viewed from the perspective of behavioral intentions. Furthermore, among the constructs used in their study (performance expectancy, effort expectancy, and social influence), the authors found that facilitating conditions had the highest significant value (0.405) compared to said constructs.

Similarly, the study conducted by Mulyana et al. (2020) also diverged from this study's findings. In the study by Mulyana et al. (2020), the authors found that facilitating conditions were one of the most significant variables according to the respondents. However, this divergence may have to do with the fact that the study was conducted regarding the perception of business management from the perspective of service providers, with no emphasis on the final consumers. This means that, for the provider, the facilitating conditions are important, as the more organized the company's technical structure is, the bigger a chance it will have of increasing its number of users.

The second hypothesis (H2) states that performance expectancy is positively associated with the intention to use fintech services. This hypothesis was accepted. Furthermore, it is a condition present in four (S1, S2, S3, S6), indifferent in two (S4 and S5) and absent in one (S7) of the solutions for high usage intentions.

To Morales and Trinidad (2019), besides performance expectancy being associated with behavioral intentions, it is also directly related to the purchase frequency of a certain product by many users, as well as their affinity with using mobile devices. According to Venkatesh et al. (2003), this expectation is intimately connected to the idea of the initial adoption of services, that is, performance expectancy has significant power when associated with behavioral intentions.

Furthermore, it is possible to define performance expectancy as the intensity at which subjects believe that using a digital service will help increase their profits (Morales & Trinidad, 2019). Also, according to Odoom and Kosiba (2020), the higher the performance of a service presented to users along with the perceptions regarding response time, the efficacy of the provided services, as well as payments conducted through mobile devices, the more significant the credibility transmitted to the final consumer will be.

These arguments also agree with those mentioned by Mulyana et al. (2020), who stated that performance expectancy positively affects, albeit not expressively, the respondents' behavioral intentions. Thus, to Morales and Trinidad (2019) and Ramos and Martinez (2016), this expectancy, as previously stated by Venkatesh et al. (2003) is strongly linked to the behavioral intention to use electronic services and/or financial technologies.

The third hypothesis (H3), which proposes that effort expectancy is positively associated with the intention to use fintech services, is statistically supported. Asymmetrically, this condition is present (S1, S2, S4 e S7), indifferent (S3 and S5), and absent (S6) in the solutions for high usage intention. To Venkatesh et al. (2003), this expectation has to do with the intensity of the association between the variables of ease and use. Furthermore, the simpler a service's interface (system) is, the more useful it will be (Singh, 2020). Singh (2020) also maintains that "payment systems that are easy to use not only promote initial acceptance, but they also play an important role in the intentions of continuity." (p. 7).

In the study conducted by Mulyana et al. (2020), the effort expectancy construct had the highest explanatory factor compared to the facilitating conditions and performance expectancy constructs. On the other hand, in the study by Ramos and Martinez (2016), the effort expectancy variable was presented as non-significant. This was also present in the research of Morales and Trinidad (2019) and Odoom and Kosiba (2020). Also, Odoom and Kosiba (2020) add that the perceptions of users regarding the ease or difficulty of using financial services online is connected to a possible cost rationality perceived by the users.

The fourth hypothesis (H4) stipulates that social influence is positively associated with the intention to use services provided by fintechs. This hypothesis could not be accepted symmetrically. However, it is present (S2, S3, S5, S6 and S7) and absent (S1 and S4) in the conditions for reaching high usage intention. These findings agree with the study conducted by Gu et al. (2009), who noted that social influence did not have a significant effect on behavioral intentions connected to using financial services online. This is similar to the results found by Boonsiritomachai and Pitchayadejanant (2017), whose young students (Generation Y) were not significantly impacted by social influence regarding the adoption of mobile banking services.

To Venkatesh et al. (2003), social influence has to do with the intensity with which subjects recognize the need to use a digital service because they notice that many people opt to use this type of service. Additionally, the results from this study agree with the findings of Odoom and Kosiba (2020), who discovered that the social influence construct operates direct influence when linked to behavioral intentions to continue using banking services online.

The last hypothesis (H5) proposes that security is positively associated with the intention to use fintech services and is statistically supported by this study. Furthermore, it is present (S3, S4 and S5) and indifferent (S1, S2, S6 and S7) among the conditions for promoting high usage intentions. Differently from the study by Keong et al. (2020) in which said construct had no

statistical impact on the intention to use fintech services, the research done by Boonsiritomachai and Pitchayadejanant (2017) and Taherdoost (2018) agrees that the security construct was found to be one of the most important factors in motivating potential customers to adopt mobile financial services. By linking behavioral intentions to security, it is possible to infer that breaks in information transmission and storage are one of the main points prioritized by the users (Osman et al., 2020).

In this sense, Boonsiritomachai and Pitchayadejanant (2017) suggest that commercial banks can seek out investments in security systems that motivate more users to use online financial services. As an example, the authors mentioned Thai banks that send messages to their customers, requesting that they confirm their data through a temporary and “disposable” password for each access.

## 5. CONCLUSIONS

This study aimed to analyze which elements encourage the behavioral intention to use fintech services from the perspective of undergraduate-level Accounting Sciences students from Brazilian public HEIs. To fulfill this goal, a sample of 107 students was analyzed through a mixed-method approach (PLS-SEM and fsQCA). In general, the study concluded that, regardless of age and gender, performance expectancy, effort expectancy, and security perceived regarding fintech services are the factors that determine the intention to use them. Furthermore, there is no single way for students to have a high intention to use these services, but instead there are various combinations of elements. These combinations reform the perspective of equifinality; that is, many ways of obtaining the same result.

This study brings about theoretical implications by adding new findings to the UTAUT environment (Venkatesh et al., 2003), especially since it adds the symmetrical and asymmetrical interfaces with security as a perceived variable in technology use. The study also contributes to the understanding of which elements make fintech services easier to use from the users' point of view (Braido et al., 2021), especially users with connections to accounting (Jamil & Seman, 2019). Additionally, new findings pertinent to the fintech context are revealed considering the context present in Brazil (Mascarenhas et al., 2021), which is a country with a developing economy and a strong potential for the consolidation of fintechs. The study also contributes empirically by exploring a new context for the intention to use fintech services (Boonsiritomachai & Pitchayadejanant, 2017) by aggregating data from Accounting Sciences students (Jamil & Seman, 2019) from Brazilian public HEIs.

The study also corroborates this by providing elements that are associated with the behavioral intention to use fintech services, especially that of Accounting Sciences students, who, in theory, have at least some knowledge about systems, services, means, and the financial market. The findings can be useful for other students to understand the main reasons for choosing to use these services. Additionally, there are contributions for those involved with publicity for the fintechs' financial services, who can understand which elements are a priority for this public (students) to start using their services.

The study has limitations due to the research means and processes. Initially, the data only contemplates under-graduate students from Accounting Sciences courses. Thus, new studies could consider other educational levels, such as technical degrees or graduate school, besides including students from other fields, such as Administration or Tourism. Increasing the sample is a natural

pathway for new investigations. Furthermore, the study discusses the use of fintech services, but makes no distinction between their use on mobile devices or on computers. This could be examined in new studies to see if there is a difference. This possible difference regarding devices (mobile vs computers) could be analyzed through multi-group analyses in a PLS-SEM analysis.

Regarding the CMB, despite the study controlling it through Harman's single factor test, new studies may use other strategies, such as including a marker variable. Besides the UTAUT model that was used, new studies may include other variables that can be determining factors in the usage intentions, such as the study that includes the variable of perceived security. Furthermore, the study includes the students' ages and genders as control variables, but other variables can be controlled, such as the time of experience using said financial services, as well as individual and/or family income. Finally, qualitative research strategies could be explored to provide new perspectives on the elements that facilitate the use of these services from the viewpoint of the final users.

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#### AUTHOR'S CONTRIBUTION

**CA:** Idealization and conception of the subject and theme of the research, Development of the Theoretical Platform, Design of the methodological approach of the research, Analyzes and interpretations of the collected data, Conclusions of the research, Critical revision of the manuscript, Final writing of the manuscript, according to the norms established by Magazine ; **AF:** Ideation and conception of the subject and theme of the research, Definition of the research problem, Development of the Theoretical Platform, Outline of the research methodological approach, Data collection, Analysis and interpretation of the collected data, Research conclusions, Critical revision of the manuscript, Final writing of the manuscript, according to the rules established by the Journal; **MS:** Idealization and conception of the subject and theme of the research, Development of the Theoretical Platform, Data collection, Analysis and interpretation of the collected data, Research conclusions, Critical revision of the manuscript, Final writing of the manuscript, according to the norms established by the Journal; **AQ:** Idealization and conception of the subject and theme of the research, Outline of the methodological approach of the research, Analyzes and interpretations of the collected data, Research conclusions, Critical revision of the manuscript, Final writing of the manuscript, according to the norms established by the Journal, Orientation.

#### CONFLICTS OF INTEREST

We, Anderson Betti Frare; Mariele Castro dos Santos; Carla Milena Gonçalves Fernandes; and Alexandre Costa Quintana, authors of the manuscript entitled “Determinants of the intention to use FinTech services by Accounting students: a mixed methods approach” declare the absence of financial, commercial, political, academic and personal conflicts of interest.

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## Research instrument

Constructs	Items	Loadings	rho_A	CR	AVE
Facilitating conditions	FC_1	0.782	0.773	0.868	0.687
	FC_2	0.891			
	FC_3	0.809			
Performance expectancy	PE_4	0.826	0.794	0.874	0.697
	PE_5	0.816			
	PE_6	0.863			
Effort expectancy	EE_7	0.896	0.834	0.888	0.726
	EE_8	0.832			
	EE_9	0.826			
Social influence	SI_10	0.857	0.773	0.783	0.550
	SI_11	0.744			
	SI_12	0.604			
Security	S_13	0.811	0.778	0.827	0.549
	S_14	0.805			
	S_15	0.740			
	S_16	0.585			
Behavioral intention	BI_17	0.870	0.868	0.897	0.687
	BI_18	0.791			
	BI_19	0.888			
	BI_20	0.760			