

How to Cite:

Slimani, S., Ouchen, R., Mebarki, S., & Abdallah, S. (2025). The impact of electronic tax filing via the 'Jibaya'tic' Portal on taxpayers' behavior according to the UTAUT Model in Algeria: A structural equation modeling approach – evidence from a field study in the Provinces of Constantine and Setif. *International Journal of Economic Perspectives*, 19(5), 1799–1817. Retrieved from <https://ijeponline.org/index.php/journal/article/view/1002>

The impact of electronic tax filing via the 'Jibaya'tic' Portal on taxpayers' behavior according to the UTAUT Model in Algeria: A structural equation modeling approach – evidence from a field study in the Provinces of Constantine and Setif

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Abstract---The study aims to determine the impact of electronic tax filing through the "jibaya'tic" portal on taxpayer behavior using the UTAUT model in the Constantine and Setif provinces. To meet the study's objectives, 422 valid questionnaires were analyzed, with a response rate of 97.46%. The data was analyzed using advanced statistical software Amos v23 and SPSS v26. The study found that both performance and effort expectancy for using the "jibaya'tic" portal had

a significant direct impact on taxpayer behavior in the Constantine and Setif provinces (north-central Algeria). Furthermore, both social influence and performance expectancy had a significant indirect impact on taxpayer behavior via behavioral intention, which served as a mediating variable. The four dimensions of electronic tax filing: performance expectancy, social influence, effort expectancy, and facilitating conditions accounted for 44% of the variation in "*jibaya'tic*" portal usage among taxpayers in the study provinces. Based on these findings, a set of recommendations were made.

Keywords---Electronic tax filing, Unified Theory of Acceptance and Use of Technology UTAUT, Taxpayers' behavior, Behavioral intention.

Introduction

For centuries, taxes have played an important role in supporting various sectors (economic, political, social, and ethical), acting as a strategic asset to finance and develop infrastructure, provide public goods and services, and promote economic growth and stability. To achieve these goals, tax administrations must work to improve tax collection for a variety of taxes, particularly in light of rapid advances in information and communication technology. The Algerian tax administration, for example, has used technological advancements to reduce tax collection costs while providing quality services to taxpayers.

Given the widespread interest among researchers in taxpayer behavior, particularly in the context of tax administrations adopting modern strategies and models to help taxpayers fulfill their tax obligations through digital transformation, the following research question arises: How does electronic tax filing through the "*jibaya'tic*" portal impact taxpayer behavior in the Algerian provinces of Constantine and Setif, according to the UTAUT model?

Hypotheses

To answer the research question, the following hypotheses are proposed:

- H1. Facilitating conditions for using the "*jibaya'tic*" portal has a significant direct effect on taxpayer behavior in the Constantine and Setif provinces.
- H2. Perceived effort, performance expectancy, and social influence all have a significant indirect effect on taxpayer behavior when using the "*jibaya'tic*" portal in Constantine and Setif, which is mediated by behavioral intention.

Objectives

This study aims to accomplish a set of objectives, outlined as follows

- To determine the extent to which taxpayers in the Constantine and Setif provinces use the *jibaya'tic* portal for electronic tax filing.
- To identify the dimensions of electronic tax filing, according to the Unified Theory of Acceptance and Use of Technology (UTAUT), that influence taxpayers' behavior and behavioral intention to use the *jibaya'tic* portal in the Constantine and Setif provinces.

- To produce findings that will help the Algerian tax administration effectively implement digitalization and, as a result, gain taxpayer satisfaction while fulfilling their tax obligations through the jibaya'tic portal.

Literature review

The study of (Schaupp & al, 2010) Conducted a study entitled "E-file adoption: A study of US taxpayers' intentions" with the goal of determining the level of e-filing adoption among American taxpayers. The study used the Unified Theory of Acceptance and Use of Technology (UTAUT), which combined trust in the Internet, perceived risks, and optimism into a comprehensive model. The researchers used structural equation modeling to analyze a sample of 260 taxpayers and investigate the relationships between these variables and taxpayers' intentions to use electronic tax filing. The findings showed that performance expectancy, social influence, and facilitating conditions all had a significant impact on taxpayer intentions.

The study by (Carter & al, 2011), entitled "The role of security and trust in the adoption of online tax filing", examined the impact of six determinants on taxpayers' intentions to use online tax filing. The study combined the Unified Theory of Acceptance and Use of Technology (UTAUT) with the personal constructs of trust, efficacy, and security to create a unified model. The researchers surveyed 304 US taxpayers to assess their perceptions of electronic tax filing. Multiple linear regression analysis was used to test the hypotheses. The study found that three UTAUT constructs (performance expectancy, effort expectancy, and social influence) were strong predictors of taxpayer intentions. Furthermore, the findings revealed that personal factors such as web self-efficacy and perceived security control, when combined with UTAUT constructs, had a significant impact on taxpayers' intentions to use electronic tax filing.

(Lu & Nguyen, 2016) study, "Online Tax Filing—E-Government Service Adoption Case of Vietnam," proposed a novel model that integrates the Technology Acceptance Model (TAM) and the Unified Theory of Acceptance and Use of Technology (UTAUT) with the Information Systems (IS) success model to develop a comprehensive explanatory model of electronic tax filing adoption among taxpayers. 156 Vietnamese taxpayers were surveyed to investigate the structural relationships between performance expectancy, effort expectancy, social influence, information quality, system quality, service quality, and intention to use, using SPSS software. The findings revealed that all six factors had a significant influence on taxpayers' intention to use electronic tax filing in Vietnam.

The UTAUT model, developed by (Venkatesh & al, 2003, p. 447), is especially relevant to this study. It addresses the shortcomings of previous technology acceptance models, such as TAM, which emphasized technical aspects (perceived risk and perceived usefulness). UTAUT provides a more comprehensive view of technology adoption, bridging the gap between human and technical factors. From an applied standpoint, the study used structural equation modeling, which combined confirmatory factor analysis and path analysis. The findings revealed differences in the effects of variables when compared to the original UTAUT model (Venkatesh & al, 2003). Notably, the study discovered a direct relationship between

effort expectancy and taxpayer behavior, as opposed to the UTAUT model, which assumes an indirect effect mediated by behavioral intention.

1. The theoretical framework for digital tax administration and taxpayer behavior

The United States pioneered the adoption of tax administration digitalization, implementing this system in 1986. It was followed by Turkey and Italy in 1998, Australia in 1999, South Korea in 2002, Japan in 2004, Malaysia in 2006, and Jordan in 2005 (Hammouri & Abu-Shanab, 2017, p. 172). Algeria, on the other hand, adopted tax administration digitalization in 2013.

1.1 The concept and goals of digital tax administration

1.1.1 Concept of Digital Tax Administration

The concept of tax administration digitalization has been defined in several ways. Some scholars see it as a process that allows taxpayers to electronically submit tax returns, make tax payments, and receive payment receipts, thereby increasing taxpayer compliance (Abdulrahman Bala & Musa, 2019, p. 66). Others see it as a government service and a modern strategy that allows taxpayers to fulfill their tax obligations through the Internet. Digital tax systems simplify the process of tax payments, ensuring efficient tax collection (Hammouri & Abu-Shanab, 2017, p. 172).

1.1.2 Strategic goals of digital tax administration

(Laariba & Sahnoun, 2021, pp. 519, 520) outlined the objectives of tax administration digitalization, which include:

- Empowering the general directorate to complete its various tasks and achieve its stated objectives through the use of information and communication technology.
- Using information and communication technology to ensure the security of various datasets.
- Providing electronic platforms to help taxpayers meet their tax obligations in an efficient and effective manner.
- Ensure that taxpayers receive accurate information in a timely manner.
- Ensure that taxpayers are properly trained to use communication technology.
- Streamlining procedures to help taxpayers meet their obligations.
- Maintaining a high level of knowledge in information and communication technology by implementing appropriate measures.
- Continuously evaluating existing systems to ensure continuous performance improvement.

1.2 The electronic tax declaration portal "jibaya'tic"

1.2.1 The emergence of the electronic tax declaration portal "jibaya'tic"

The "jibaya'tic" electronic tax declaration system was created as part of a larger trend toward the digitization of public services. The General Directorate of Taxes launched this portal after leveraging information and communication technology to share information with taxpayers and other stakeholders. The directorate then expanded its use of digital technologies to streamline interactions between the tax administration and taxpayers via the "jibaya'tic" portal (Ramadalia & Kouideri,

2020, p. 478). Major corporations, particularly those operating in the hydrocarbon sector or with a turnover greater than 100,000,000 DA, were required to implement the electronic tax declaration system in January 2018. This mandate enabled these entities to electronically file and pay all taxes and duties (Ramadalia & Kouideri, 2020, p. 478).

1.2.2 Definition of the 'jibaya'tic' portal

The portal is defined as a system that automates various tax declaration and payment processes, enabling remote tax return submission and online payment. The Jibaya'tic portal represents a significant challenge for large institutions because it allows for the improvement of technological infrastructure, the promotion of online services, and the efficiency of tax collection (OUAREZKI, 2021, pp. 961, 962). It has also been described as an electronic platform that allows taxpayers (subject to the jurisdiction of the Directorate of Large Enterprises or tax centers) to electronically file and pay their taxes, eliminating the need for in-person visits to tax centers (Boukra, 2023, p. 336).

1.2.3 Procedures for utilizing the "jibaya'tic" electronic tax declaration portal

The tax administration has established the following procedures for remote tax declarations through the "jibaya'tic" portal (Sali & Ghachi, 2021, p. 42):

- Taxpayers begin by filling out an information form on the portal.
- The taxpayer chooses the various types of taxes and duties to which they are subject based on the nature and type of their activity and then chooses the applicable rates for each type of tax, thereby determining the tax base and dues payable.
- The tax return is submitted, and the annual tax due is calculated automatically.
- Taxpayers can make changes to their tax returns before submitting them to the tax administration.
- A payment order for the amounts corresponding to the tax dues is automatically generated and sent to the public treasury, including all taxpayer information.

1.3 Taxpayer compliance behavior

1.3.1 Definition of the taxpayer compliance behavior

Taxpayer compliance behavior is defined as a critical component in determining taxpayers' tax compliance intention, indicating a voluntary commitment to fulfill their tax obligations rather than being motivated by fear of penalties or fines. Taxpayers' willingness to comply is closely related to behavioral norms, such as personal beliefs about taxation and societal norms" (Walsh, 2012, p. 454). "It is also defined as a proxy variable that is relied upon in the context of widespread tax evasion, enabling the examination of taxpayers' interests, behavior, and preferences related to the utilization of outputs from digital tax administration" (Adegbola, Tony , Damilola , & Henry , 2021, p. 177).

1.3.2 Determinants of taxpayers' behavioral intention to adopt the "jibaya'tic" portal: a UTAUT perspective

Since the introduction of information and communication technology, researchers in this field have made significant efforts to develop theories about technology adoption. This has resulted in a large number of theories about technology

adoption. The Unified Theory of Acceptance and Use of Technology (UTAUT), developed by (Venkatesh & al, 2003), serves as the foundation for our current research. This theory is based on a composite of eight theoretical models (Lu & Nguyen, 2016, p. 1500), namely the Theory of Reasoned Action (TRA), the Theory of Planned Behavior (TPB), the Technology Acceptance Model (TAM), the Model of PC Utilization (MPCU), the Motivational Model (MM), the Social Cognitive Theory (SCT), the extension of TAM2, and the Diffusion of Innovation (DOI) model (Schaupp & al, 2010, p. 637).

UTAUT aims to explain and promote the use of information systems (IS). This composite model was created to provide a more complete picture of the acceptance process than previous individual models. UTAUT successfully combines the key components of eight previous IS models that attempted to predict and explain user behavior using a variety of independent variables. According to the theory, four key determinants (performance expectancy, effort expectancy, social influence, and facilitating conditions) have a direct impact on behavioral intention (BI) and behavior (Alshehri & al, 2012, p. 3). These determinants are influenced by moderating variables such as gender, age, experience, and voluntariness of use (Alabboodi & Shaban, 2019, p. 131).

- Performance Expectancy (PE) refers to an individual's belief that using a system will help them improve their job performance. (Edward & Ambrose, 2017, p. 45199) It also represents how a user perceives a technology to be useful when performing a specific activity. PE is generally integrated into UTAUT to predict the behavioral intention to use technology (Almaiah & Nasereddin, 2020, p. 244), providing significant benefits to users in performing their jobs by improving their ability to obtain what they need quickly, thus motivating them to adopt system usage (Ibrahim & al, 2016, p. 43).

- Effort Expectancy (EE) is the perceived ease of use of a system. UTAUT defines three of the eight models that make up the concept of effort expectancy: perceived ease of use, complexity, and ease of use. (Lemuria & al, 2012, p. 85) It is the degree to which people believe a system is simple or difficult to use (Daniel, 2015, p. 3).

- Social influence (SI) is the degree to which a user believes that people in their environment use and support new technology, thereby increasing the user's trust in it. (Carter & al, 2011, p. 6) In other words, it is the degree to which an individual perceives that others believe they should implement the system. (Alalwan & al, 2016, p. 159). Individuals in the same environment influence one another's decisions (Chen & Aklikokou, 2020, p. 4).

- Facilitating Conditions (FC): The degree to which a user believes that the organizational and technical infrastructure promotes the use of e-government services and removes barriers to adoption. (Venkatesh & al, 2003, p. 543) This implies that facilitating conditions are a direct predictor of behavioral intention to use technology (Abubakar & Ahmad, 2013, p. 17). In other words, the facilitating conditions variable refers to the presence of an infrastructure and organization that supports the use of the system, which has a direct impact on its use (Kasyoka & al, 2022, p. 315).

2. The conceptual framework

2.1 The research model

This study uses Venkatesh's UTAUT model (Figure 1) to investigate the impact of remote tax filing using the "jibaya'tic" portal on taxpayers' behavior. The UTAUT model, which focuses on performance expectancy, effort expectancy, social influence and facilitating conditions, provides a comprehensive framework for understanding the factors that influence technology adoption.

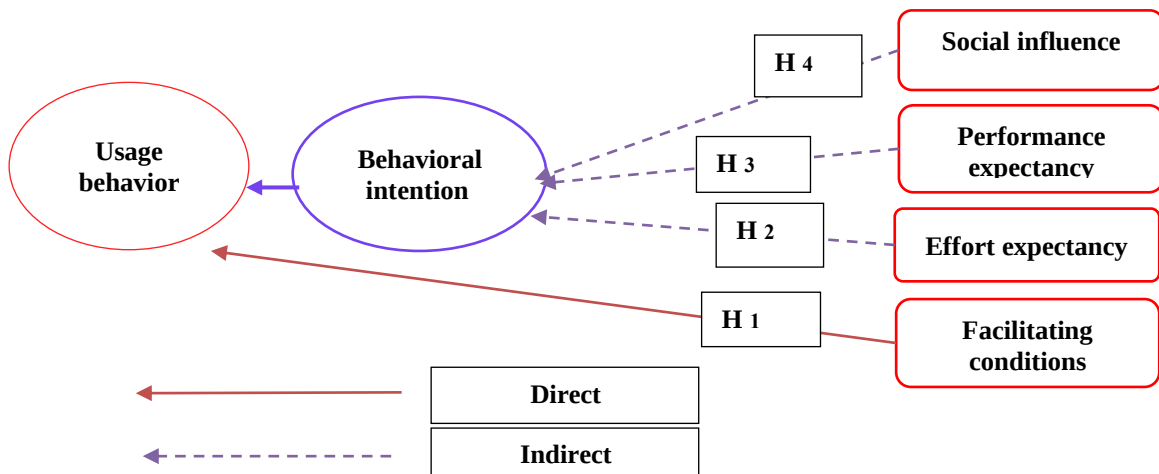


Figure 1: The research model
Source: Authors based on previous studies

2.2 Research methodology

Given the nature of the research question, an inductive approach was used. The statistical programs SPSS 26 and Amos 23 were used to test the study hypotheses, analyze the relationships between the dimensions of the studied phenomenon, and draw conclusions, as well as to determine the causal relationship between the dimensions of electronic tax declaration and taxpayers' behavior in the provinces of Constantine and Setif, with the behavioral intention to use the "Jibaya'tic" portal as an intervening variable. This was accomplished using Structural Equation Modeling (SEM), a statistical methodology that offers a set of procedures similar to other statistical methods. It is used to test a model by applying a series of regression equations and provides an excellent opportunity to examine explanatory models of social, economic, and other phenomena with multiple and complex variables (Badawi, 2016, p. 34).

2.3 Research population and sample

Determining sample size is one of the most important steps a researcher takes after defining the research problem (Hulley & al, 1988, p. 44). state that for structural equation modeling, a minimum sample size of 200 is required (Hair & al, 2014, p. 116). In this study, Hair's recommendation was followed, and a sample size of 422

was obtained. A total of 433 questionnaires were distributed to a random sample of taxpayers from Constantine and Setif. Of these, 425 were collected, and after excluding unusable responses (Hu & Bentler, 1999, p. 09), 422 questionnaires were suitable for statistical analysis, representing a 97.46% response rate.

2.4 Data collection tool

The questionnaire used in this study was designed to achieve the study's objectives. It consisted of two sections. The first section gathered demographic data from each respondent. The second section sought to determine respondents' perceptions of each variable in the model. This questionnaire was based on the variables identified in the UTAUT model, including performance expectancy, effort expectancy, social influence, facilitating conditions, behavioral intention, and usage behavior (Venkatesh & al, 2003, p. 447). The questionnaire was created based on a review of previous studies and validated by a panel of experts to eliminate any errors that could have a negative impact on the study's results. The questionnaire contained:

- **Section 1:** Demographic data on the study sample.

- **Section 2:** 24 items measuring respondents' perceptions of the impact of electronic tax declarations on taxpayer behavior in the Constantine and Setif provinces using the UTAUT model. The items were distributed as follows: (1-4) Expected performance when using the "Jibaya'tic" portal, (5-8) social influence, (9-12) expected effort, and (13-16) facilitating conditions. The mediating variable, taxpayers' "behavioral intention" toward the "Jibaya'tic" portal, was represented by four items. The dependent variable, "usage behavior," was defined with four items. The questionnaire used a Likert scale, with response options ranging from "strongly disagree" to "strongly agree", and corresponding scores of 1 to 5. Scores were interpreted using five categories: [1-1.80] indicates strong disagreement; [1.80-2.60] indicates disagreement; [2.60-3.40] indicates some agreement; [3.40-4.20] indicates agreement; and [4.20-5] indicates strong agreement.

2.5 Construct validity and reliability

2.5.1 Construct validity

Construct validity was assessed using confirmatory factor analysis (CFA) with Amos software. All measurement scales were tested for reliability and construct validity using CFA (Levy, 2003, p. 08) . The coding of the variables is summarized in Table 1.

Table 1: Variable and dimension codes

Variable	Dimension	Code
Electronic tax declaration using the jibaya'tic portal	Performance expectations for using the jibaya'tic portal	PE
	Social influence on using the jibaya'tic portal	SI
	Effort expectations for using the jibaya'tic portal	EE
	Facilitating conditions for using the jibaya'tic portal	FC

Variable	Dimension	Code
Behavioral intention towards using the jibaya'tic portal	/	BI
Usage behavior of the jibaya'tic portal	/	UB

Source: Authors

2.5.1.1 Findings of the confirmatory factor analysis for the electronic tax filing through jibaya'tic

The general rule for accepting factor analysis loadings is that they are greater than or equal to 0.50 (Hair Jr & al, 2010, p. 116). Amos' results revealed that all item loadings exceeded the minimum threshold for confirmatory factor analysis, ranging from 0.487 to 0.789, indicating that they are appropriate for subsequent statistical analyses. Furthermore, all parameter estimates for the electronic tax declaration model using the Jibaya'tic portal were significant at $p < 0.001$, with corresponding CR values exceeding 1.96.

2.5.1.2 Findings of the confirmatory factor analysis for taxpayers' behavioral intention toward using jibaya'tic

The confirmatory factor analysis performed with Amos revealed that all item loadings exceeded the recommended threshold of 0.50 (ranging from 0.50 to 0.758), indicating the validity of subsequent statistical analyses. In addition, all parameter estimates in the model of taxpayers' behavioral intention towards the Jibaya'tic portal were statistically significant ($p < 0.001$), with CR values exceeding 1.96.

2.5.1.3 Findings of the confirmatory factor analysis for taxpayers' usage behavior of jibaya'tic

The confirmatory factor analysis performed with Amos revealed that all item loadings exceeded the recommended threshold of 0.50 (ranging from 0.552 to 0.735), indicating the validity of subsequent statistical analyses. In addition, all parameter estimates in the model of taxpayers' usage behavior towards the Jibaya'tic portal were statistically significant ($p < 0.001$), with CR values exceeding 1.96.

2.5.2 Reliability (consistency) of the measurement tool

Cronbach's alpha was calculated to determine the internal consistency of the 24-item scale and found to be 0.920 after confirmatory factor analysis, indicating a high level of reliability that exceeds the commonly accepted threshold of 0.60.

2.6 Descriptive analysis of the study sample's responses

The descriptive analysis seeks to quantify the extent to which sample members agree with each statement related to the study's dimensions, particularly their attitudes toward electronic tax filing and their use of the Jibaya'tic portal.

Table 2: Taxpayers' attitudes and behaviors towards electronic tax filing via jibaya'tic portal

Variables	Mean	Standard deviation
Perceived performance of using the Jibaya'tic portal	3.81	0.782
Perceived effort of using the Jibaya'tic portal	3.96	0.591
Social influence of using the Jibaya'tic portal	3.60	0.747
Facilitating conditions for using the Jibaya'tic portal	3.65	0.682
Electronic tax filing using the Jibaya'tic portal	3.75	0.570
Behavioral intention to use the Jibaya'tic portal	3.83	0.678
Usage behavior of the Jibaya'tic portal	4.10	0.592

Source: Authors based on SPSS v.26 output

The findings in Table 2 show that the highest mean score was obtained for the perceived ease of use dimension of the Jibaya'tic portal, with a mean of 3.96 and a standard deviation of 0.591, which is within the agreement range. This indicates that taxpayers anticipate receiving training on how to use the portal and believe that learning to use it will be simple if the proper techniques are used. They also have a good understanding of how to access and use the portal efficiently. Conversely, the perceived performance dimension received a mean score of 3.81 and a standard deviation of 0.782, indicating that taxpayers believe the portal is effective in providing information and services that meet their needs, assisting them in meeting their tax obligations on time, and simplifying the tax filing and payment processes.

Furthermore, they believe the portal provides them with the information they require quickly and efficiently. Regarding the facilitating conditions dimension, which had a mean of 3.65 and a standard deviation of 0.682, it appears that the conditions for using the Jibaya'tic portal are facilitated for taxpayers, but only to a moderate extent, taking into account factors such as the resources required to use it, the user's Internet experience, and government support for the portal's success. In terms of the social influence dimension, the lowest mean score was 3.60 with a standard deviation of 0.747, indicating that while factors such as the opinions of acquaintances who use the portal, encouragement from close individuals, and the taxpayer's trust in the government, as well as the facilities provided to encourage its use, do exist and have a moderate and insufficient influence on taxpayers.

The mean score for the behavioral intention dimension was 3.83 with a standard deviation of 0.678, indicating that taxpayers intend to use the portal to fulfill their obligations, believing that it will save them time and effort and that they value the idea of interacting with tax authorities through it. Finally, the mean score for the usage behavior dimension was 4.10, with a standard deviation of 0.592, indicating that taxpayers accept the Jibaya'tic portal and are likely to use it to complete their tax returns. Furthermore, they can ask questions and share their thoughts on how to use the portal and fulfill their responsibilities.

2.7 Normality test

The skewness and kurtosis coefficients were used to assess normality. Skewness should be between -3 and +3, and kurtosis between -10 and +10. There is less agreement on kurtosis, with some sources claiming that absolute values between 8 and 20 indicate 'severe' kurtosis. A general rule appears to be that values greater than 10 indicate a problem, while values greater than 20 indicate a more serious problem (Kline Rex, 2016, pp. 76, 77). For the current study, we followed Hair's guideline, which states that both skewness and kurtosis values should be between the lower and upper limits of the normal distribution [-1.96, +1.96] (Hair Jr & al, 2010, p. 116). Amos' output for the electronic tax filing dimension shows that, according to Hair's criteria, all skewness and kurtosis values are within the lower and upper limits of the normal distribution [-1.96, +1.96]. This indicates that the study data for the electronic tax filing dimension using the Jibaya'tic portal has a normal distribution and is thus appropriate for further statistical analysis.

Amos' output for the behavioral intention dimension shows that all skewness and kurtosis values fall within the lower and upper limits of the normal distribution [-1.96, +1.96], according to Hair's criteria. This indicates that the study data on the behavioral intention to use the Jibaya'tic portal follows a normal distribution and is thus appropriate for further statistical analysis. Amos' output for the taxpayer usage behavior dimension of the Jibaya'tic portal shows that all skewness and kurtosis values fall within the lower and upper limits of the normal distribution [-1.96, +1.96], according to Hair's criteria. This indicates that the study data on the taxpayer usage behavior dimension of the Jibaya'tic portal has a normal distribution and is thus suitable for further statistical analysis.

2.8 Hypothesis testing

The hypotheses were tested using regression weight analysis to determine whether they should be accepted or rejected. The results of this analysis include regression estimates that show how much the independent variable explains the dependent variable, as well as the critical ratio (CR), which represents the level of difference between the regression weights and corresponds to the t-value. To accept a hypothesis, CR values must exceed 1.96 and have a significance level of $p < 0.001$. This method employs structural equation modeling, which provides the researcher with goodness-of-fit indices for evaluating the model's fit to the data using Amos v.23. When these indices indicate a good fit, the test is considered highly accurate; otherwise, it is considered weak, and the model may be rejected (Hakim & al, 2009, p. 25).

Table 3: Goodness-of-Fit Indices

Indicator	Optimal range for the indicator
Chi-square minimum (CMIN)	To be non-significant A high value indicates a poor fit.
CN=CMIN/DF	Less than 5 indicates acceptance and a good fit.
GFI	GFI $\geq$ 0.90 a better fit.
TLI	TLI $\geq$ 0.95 a better fit.
CFI	CFI $\geq$ 0.95 a better fit.

Indicator	Optimal range for the indicator
SRMR	SRMR≤0.05 a better fit.
RMSEA	RMSEA between 0.05 and 0.08 indicates a good fit. يدل على مطابقة لا بأس بها 0.08≤RMSEA≤0.10 وإذا كان

Source: (Tigza, 2012, pp. 244, 247)

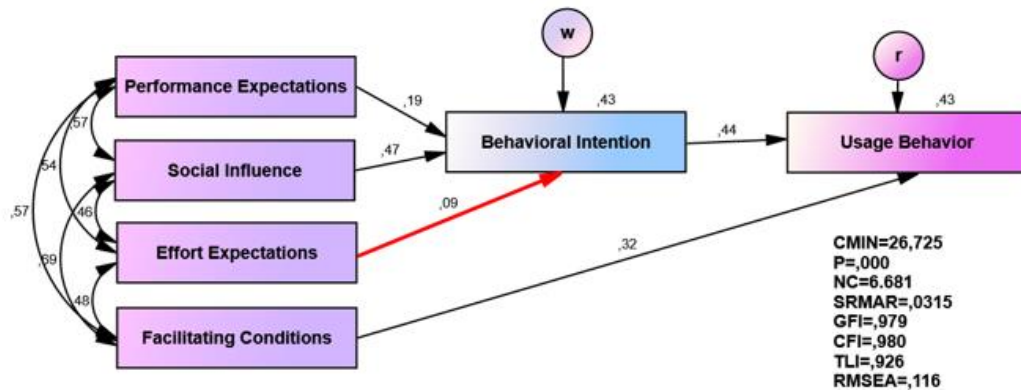


Figure 2: Proposed path analysis model

Source: Authors based on Amos output

Table 4: Regression estimates for the proposed path analysis model

			Estimate	CR.	SE.	P
PE	--->	BI	.187	3.880	.048	***
SI	--->	BI	.429	10.268	.042	***
EE	--->	BI	.104	2.021	.051	.043
FC	--->	UB	.241	7.333	.033	***
BI	--->	UB	.380	10.059	.038	***

Source: Authors based on Amos output

2.8.1 Test of the first hypothesis

Two null and alternative hypotheses were formulated to test the first hypothesis regarding the existence or absence of a statistically significant indirect effect of taxpayers' perceived effort to use the Jibaya'tic portal on their behavior in the provinces of Constantine and Setif, mediated by their behavioral intention. The preceding figure indicates that some goodness-of-fit indices were not met. Furthermore, the findings in Table 4 show that all paths were significant except for the path between the perceived effort (EE) and the behavioral intention to use the Jibaya'tic portal (BI), with a p-value of 0.043, which is greater than the adopted significance level of 0.001. Consequently, the null hypothesis of no indirect effect of perceived effort on taxpayer behavior through behavioral intention was accepted. Therefore, this path should be removed, and the model should be revised based on the suggested modification indices. Suppose feasible modifications can improve the fit of the proposed model. In that case, this approach provides modification indices by identifying paths that should be deleted or added to the proposed model, thus aiding in achieving an optimal representation of the relationships among the measured variables (Tigza, 2012, p. 290). Accordingly, based on the modification

indices, it was suggested that a path between the perceived effort variable and the dependent variable, usage behavior, be added. Consequently, the model becomes as follows:

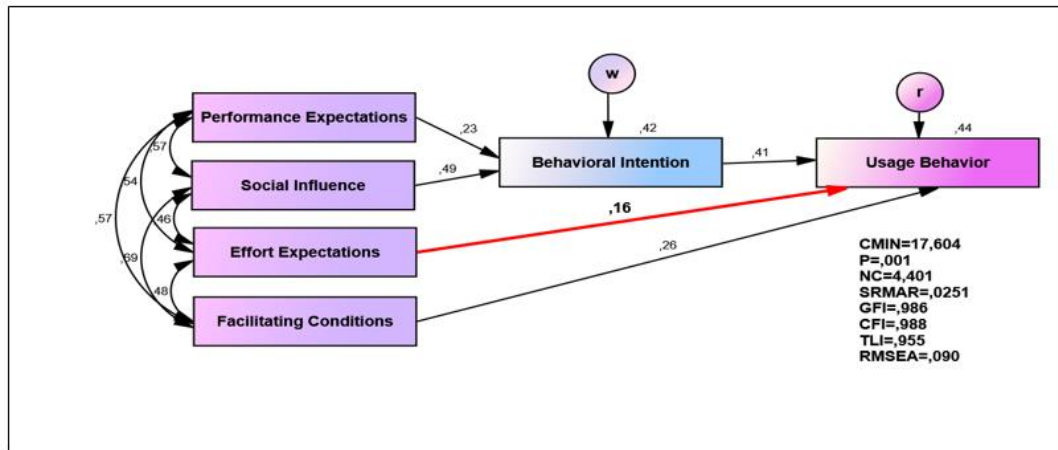


Figure 3: Revised Path model according to modification indices
Source: Authors based on Amos output

Table 5: Regression estimates for the modified path analysis model

			Estimate	SE	P
PE	--->	BI	.045	5.000	***
SI	--->	BI	.041	10.920	***
FC	--->	UB	.034	5.737	***
BI	--->	UB	.038	9.281	***
EE	--->	UB	.042	3.660	***

Source: Authors based on Amos output

The findings in Table 5 show that all paths were significant at the $p < 0.001$ level, with CR values greater than 1.96. Furthermore, Figure 3 shows that, according to the modified path analysis model's goodness-of-fit indices, the chi-square value, while relatively low at 17.604, was significant at the 0.001 level, which is lower than the accepted significance level of 0.05. The size of the sample influences this significance. However, the remaining goodness-of-fit indices (CN=4.401, SRMR=0.0251, TLI=0.955, CFI=0.988, GFI=0.986, and RMSEA=0.09) were satisfactory, indicating that the model fit well. As a result, the model can be used to test the following hypotheses: the reformulated first hypothesis, according to the modified model, posits a direct effect of perceived effort on taxpayer behavior when using the Jibaya'tic portal in Constantine and Setif. The preceding table and figure show that the direct effect of perceived effort on taxpayers' behavior when using the Jibaya'tic portal in Constantine and Setif yielded a regression coefficient of 0.155, a CR value of 3.660 (greater than 1.96), and a p-value of 0.000 (less than the accepted significance level of 0.001). This supports the modified first hypothesis, which indicates that perceived effort has a significant direct effect on taxpayer behavior when using the Jibaya'tic portal in Constantine and Setif.

2.8.2 Test of the second hypothesis

Two null and alternative hypotheses were developed to test the second hypothesis and determine whether or not facilitating the use of the Jibaya'tic portal had a direct and statistically significant effect on taxpayer usage behavior in Constantine and Setif. The preceding table and figure show that facilitating the use of the Jibaya'tic portal on taxpayers' usage behavior in Constantine and Setif resulted in a regression coefficient of 0.197, a CR value of 5.737 (greater than 1.96), and a p-value of 0.000 (less than the accepted significance level of 0.001). This indicates that the path is significant, resulting in the rejection of the null hypothesis and acceptance of the alternative hypothesis under the modified model. The alternative hypothesis holds that making the Jibaya'tic portal more accessible has a significant direct impact on taxpayer behavior in Constantine and Setif.

2.8.3 Test of the third hypothesis

Two null and alternative hypotheses were developed to test the third hypothesis, which is the existence or absence of an indirect and statistically significant effect of perceived performance on taxpayers' usage behavior of the Jibaya'tic portal in Constantine and Setif, as mediated by their behavioral intention. Before testing the third hypothesis, it is critical to understand the direct, indirect, and total effects, as shown in Table 6.

Table 6: Direct, indirect, and Total effects

	Direct effect		Indirect effect		Total effect	
	BI	UB	BI	UB	BI	UB
PE	0.226	0.000	0.000	0.092	0.226	0.092
EE	0.000	0.155	0.000	0.000	0.000	0.155
SI	0.493	0.000	0.000	0.201	0.493	0.201
FC	0.000	0.263	0.000	0.000	0.000	0.263
BI	0.000	0.408	0.000	0.000	0.000	0.408

Source: Authors based on Amos output

The results in Table 6 and Figure 3 indicate that perceived performance has a direct effect on taxpayers' behavioral intention to use the Jibaya'tic portal in Constantine and Setif, with a regression coefficient of 0.224, a CR value of 5.000 (greater than 1.96), and a p-value of 0.000 (less than the accepted significance level of 0.001). This shows that the path is significant. Furthermore, the direct effect of taxpayers' behavioral intention to use the Jibaya'tic portal on their actual usage behavior in Constantine and Setif resulted in a regression coefficient of 0.353, a CR value of 9.281 (greater than 1.96), and a p-value of 0.000 (less than the accepted significance level of 0.001), indicating that this path is also significant.

Furthermore, Table 6 shows that perceived performance has an indirect effect on taxpayers' usage behavior, which is mediated by behavioral intention, with a value of 0.092. While this indirect effect exists, it is relatively weak. These findings lead to the rejection of the null hypothesis and the acceptance of the alternative hypothesis, as per the modified model, which posits that there is a significant

indirect effect of perceived performance on taxpayers' usage behavior of the Jibaya'tic portal in Constantine and Setif, mediated by their behavioral intention.

2.8.4 Test of the fourth hypothesis

Two null and alternative hypotheses were developed to test the fourth hypothesis, which is the existence or absence of an indirect and statistically significant effect of social influence on taxpayers' use of the Jibaya'tic portal in Constantine and Setif, as mediated by their behavioral intention. Table 5 and Figure 3 show that social influence has a direct effect on taxpayers' behavioral intention to use the Jibaya'tic portal in Constantine and Setif, with a regression coefficient of 0.448, a CR value of 10.920 (greater than 1.96), and a p-value of 0.000 (less than the accepted significance level of 0.001). This shows that the path is significant. Furthermore, the direct effect of taxpayers' behavioral intention to use the Jibaya'tic portal on their actual usage behavior in Constantine and Setif resulted in a regression coefficient of 0.353, a CR value of 9.281 (greater than 1.96), and a p-value of 0.000 (less than the accepted significance level of 0.001), indicating that this path is also significant.

Furthermore, Table 6 shows that the indirect effect of social influence on taxpayers' usage behavior, as mediated by behavioral intention, is 0.201, indicating a significant effect. This results in the rejection of the null hypothesis and acceptance of the alternative hypothesis, as per the modified model, which posits a significant indirect effect of social influence on taxpayers' usage behavior of the Jibaya'tic portal in Constantine and Setif, mediated by their behavioral intention. It is also worth noting that the variables (perceived performance and social influence) jointly account for 42% of the variance in the behavioral intention variable. The remaining variance can be attributed to other unmeasured variables. Furthermore, the coefficient of determination is 0.44, indicating that 44% of the variation in taxpayers' use of the Jibaya'tic portal in Constantine and Setif can be explained by differences in perceived performance, social influence, perceived effort, and ease of use. The remaining 56% of the variance is due to unmeasured factors.

Conclusion

Taxpayers' behavior in adopting modern tax strategies is a critical pillar for tax administrations to assess the effectiveness of their strategies aimed at increasing tax collection (tax revenue), which accounts for the majority of government revenue. The more positive taxpayer behavior toward modern tax systems, the more likely it is that taxpayers will fulfill their obligations by relying on these systems and, as a result, paying their taxes on time and in full. This study, which used the Unified Theory of Acceptance and Use of Technology (UTAUT) model, discovered that the digitalization of tax administration in general, and the creation of the Jibaya'tic electronic tax declaration portal in particular, had a positive impact on taxpayer behavior across four dimensions (performance expectancy, effort expectancy, social influence, and facilitating conditions). This has improved taxpayers' convenience in fulfilling their tax obligations through this portal by saving time and effort, lowering associated costs, and eliminating geographical and temporal constraints. Taxpayers can now complete their obligations from anywhere with a single click and within the specified deadlines, reducing their exposure to penalties previously

imposed due to these limitations. In addition, this has improved tax collection, as the portal is more accurate in calculating and deducting the amount of tax owed by taxpayers.

The findings suggest that most respondents believe the Jibaya'tic portal encompasses all technical and organizational indicators that facilitate the adoption of electronic filing and eliminate obstacles to its implementation. The majority of respondents reported that the Jibaya'tic portal is user-friendly and enables all taxpayers to utilize it with minimal effort. It is exceedingly advantageous for them as it facilitates the timely and precise submission of their returns. The Jibaya'tic portal is favorably regarded by its users owing to the superior quality of services it offers, prompting them to endorse and recommend it to others.

Furthermore, Venkatesh identified a notable, moderate direct influence of facilitating conditions on taxpayers' utilization behavior of the Jibaya'tic portal in Constantine and Setif in his UTAUT model. In contrast to the UTAUT model, there was no notable indirect effect of effort expectancy on taxpayers' usage behavior of the Jibaya'tic portal in Constantine and Setif via behavioral intention. Conversely, a notable, moderate direct effect of effort expectancy on taxpayers' usage behavior was observed, indicating that the influence of effort expectancy is expressed directly in usage behavior rather than through behavioral intention. This may be ascribed to the training, learning, and confidence in the ability to access the Jibaya'tic portal, along with an understanding of the guidelines associated with it, which yield results primarily through the actual utilization of the portal rather than the mere intention to use it.

Moreover, a weak yet significant indirect effect of performance expectancy on taxpayers' usage behavior of the Jibaya'tic portal in Constantine and Setif exists through behavioral intention, as identified by Venkatesh in his UTAUT model. A considerable indirect effect of social influence on taxpayers' usage behavior in Constantine and Setif exists through behavioral intention, as identified by Venkatesh in his UTAUT model. The variables 'performance expectancy' and 'social influence' collectively account for 42% of the variance in the 'behavioral intention' variable. Furthermore, the four dimensions of electronic tax filing—performance expectancy, social influence, effort expectancy, and facilitating conditions—account for 44% of the variance in taxpayers' usage behavior of the Jibaya'tic portal in Constantine and Setif.

Proposed recommendations

Based on these findings, the following recommendations are proposed:

- Streamlining electronic filing procedures: Tax authorities ought to prioritize the simplification of electronic tax filing processes to guarantee they are user-friendly and uncomplicated. Priority must be given to educating and informing taxpayers regarding the diverse digital systems to ensure their proper and efficient utilization.
- Enhancing transparency: Tax authorities ought to improve transparency concerning tax legislation, regulations, and procedures. This will enhance taxpayers' access to the necessary information. The introduction of electronic incentives should motivate taxpayers to fulfill their tax responsibilities by the

- designated deadlines, including providing discounts for electronic submission of specific taxes and fees or prolonging payment periods for punctual filers.
- Cybersecurity Assurance: Tax authorities need to implement rigorous cybersecurity protocols to protect taxpayers' electronic data and reinforce trust in these institutions.
 - Strengthening Oversight: Tax authorities should strengthen control mechanisms to adapt to the evolution of electronic tax returns. This will augment their function in validating the precision of taxpayer submissions and ensuring adherence to tax statutes and regulations.
 - Improving Taxpayer Relations: Tax authorities ought to improve relationships with taxpayers by improving electronic communication via multiple available portals. Taxpayers should be informed about tax modifications and reminded of critical deadlines, including tax payment due dates. Moreover, alongside electronic services, tax authorities ought to offer support programs to assist taxpayers in accurately identifying the various taxes and fees levied upon them.

This can be accomplished via automated calculators that are revised in accordance with alterations in tax legislation, thus minimizing the probability of inaccuracies.

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