

Understanding Factors Influencing Citizens' Intentions to Use Electronic Government (e-Gov) Services: A Case of Jordan

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ABSTRACT

This research assesses the key constructs impacting transactional e-government services in the Jordanian context. The proposed research model considers UTAUT2 as the underpinning theory alongside the other key contextual variables including perceived risk, price value, and perceived awareness. Data were gathered from 294 Jordanian citizens and covariance based structure equation modelling was utilised to analyse the model. The results indicated the significant influence of constructs such as performance expectancy, social influence, price value, perceived risk, and perceived awareness on attitude whereas attitude further influences behavioral intentions. The paper has also provided some relevant recommendations for theory and practice.

KEYWORDS

Awareness, E-Government, Jordan, Privacy, Trust, UTAUT2

INTRODUCTION

The governments across the globe attempting to develop and deploy medium based on emerging information & communication technology (ICT) to offer citizens' access to government services online available always and anywhere. This is also considered as a more effective way to encourage users' engagement with government accomplishments (Abu-Faraz et al., 2023; Algharabat and Rana, 2021). Governments effort to utilize ICT for offering users, businesses, employees, and other stakeholders with access to their information and offerings are referred to as electronic government (hereafter, e-gov) (Ayyash et al., 2022; Rana et al., 2017; Wang and Liao, 2008; Zahid et al., 2022). The European Information Society describes e-gov as the integration of ICT within public administrations, coupled with organizational adaptations and skill advancements, aimed at enhancing public services, autonomous procedures, and bolstering support for public policies (EUR-Lex, 2004). Within 10 years from its inception of e-gov, 173 countries are already utilising ICT, particularly the Internet, to offer public services (Epstein, 2022; Sang et al., 2009).

The objective of deploying e-gov is not only to offer easy access to information, offerings, and alternative business methods but also to enhance the quality of interactions and partnership with users

DOI: 10.4018/IJEGR.344421

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and trades (Lean et al., 2009; Siau and Long, 2005). There are several advantages of e-gov initiatives including: (1) reductions in costs for governments hence more efficient public administration; (2) e-gov enables more open, transparent, and accountable government to potential stakeholders largely citizens, cultivating community participation in policymaking and consolidating democracy at each level; and (3) it allows public management more citizen oriented and comprehensive, offering all time individual services to everyone irrespective of their specific needs (EUR-Lex, 2004). Yet, these advantages can be accomplished only if the plans are estimated to be successful from all corners.

Extant literature on technology adoption and implementation suggests that projects (such as e-gov) meet failure if target population (i.e. citizens) don't use it (Choi and Chandler, 2020; Malodia et al., 2021). Therefore, it is vital to consider views and desire of target audience on technology development and use (Goldfinch, 2007). Similarly, although e-gov development is not possible without an effective utilisation of cutting edge technology, the actual success of e-gov (particularly Government-2-Citizen (G-2-C) type e-gov) likely to be driven by citizens' attitude and behaviour towards it (Akman et al., 2005). Several research studies have highlighted the slow uptake and underutilization of e-gov services. For instance, Jain (2015) noted that despite the acknowledgment and praise for e-gov, there is a sluggish adoption and significant failure of such services in developing nations. This suggests that the utilization of e-gov is unexpectedly minimal.

The existing studies in the current area of research have largely dedicated to the provider-oriented viewpoint of government-related matters concerning digital methods, encompassing the supply-side provision of digital government growth and service provision (Gauld et al., 2010; Reddick, 2005; Yang and Rho, 2007), strategies and policy (Chen et al., 2009; Elsheikh et al., 2008; Gauld et al., 2010; Layne and Lee, 2001; Pankowska, 2008; Tolbert et al., 2008; Yang and Rho, 2007); challenges (Barc and Cordella, 2004; Weerakkody et al., 2004), and valuation of the use of e-gov services (Choudrie et al., 2004, Mosse and Whitley, 2004). Yet, a relatively little emphasis has been placed on examining the demand-side aspect of transactional e-gov services. Recent research addressing citizen adoption of such services indicates that trust and security are significant factors (Abdulkareem and Mohd Ramli, 2022; Otto, 2003; Shayganmehr et al., 2023), transparency (Marche and McNiven, 2003), awareness and socioeconomic characteristics (Ranaweera, 2015) are a few of the key concerns for e-gov adoption by citizens. These studies offer an initial comprehension of the problem domain, but there has still much work to be done to address the issue of slow adoption of e-gov services to unlock their full potential. Bridging the gap between what is provided and what is utilized is crucial for this endeavor. This underscores the relevance of assessing the constructs that impact individuals' intentions and behaviors regarding the adoption of e-gov services.

The review of current studies on e-gov suggests that the existing research has mainly examined supply-side perspective, and a less attention has been given to examine issues related to the demand (from the citizens' perspective) side (Alryalat et al., 2017; Skargren, 2020). Particularly for the e-gov services, very limited research is undertaken to focus upon transactional e-gov services (Rana et al., 2016). However, existing work on transactional e-gov services is still in its exploratory stage and provides little understanding of constructs impacting users' intention of such e-gov services. This results in asking the following key research question through this paper:

RQ. What are the major constructs that impact the individuals' adoption of transactional e-gov services in Jordan?

Given the aforementioned discussions, this paper seeks to assess the variables that impact citizens' intentions to use transactional e-gov services in Jordan. To fulfil this aim, the current research has proposed a conceptual model, drawing on pertinent theories. For instance, it has incorporated theory like UTAUT2 (Tamilmani et al., 2019; Venkatesh et al., 2012), which has been specifically formulated to elucidate intentions to use e-gov services in the Government-to-Citizen (G2C) context. The paper has also included a few contextual variables (i.e., perceived awareness, perceived risk and attitude)

alongside the UTAUT2, which makes more sense of transactional e-gov services particularly in the context of Jordan.

Through this research, I am making multiple contributions to the current knowledge on e-gov services. First, this would be the first research that has considered the one of the recent most frequently used theories such as UTAUT2 to assess the constructs affecting e-gov services adoption. Second, this is one of the very few studies that has investigated the niche area of transactional e-gov studies in the developing economy like Jordan even though this research has reached to its maturity level by considering a mix of some real core and contextual constructs. Third, by integrating perceived risk and perceived awareness into the UTAUT2-based model, this study enriches comprehension of the adoption of transactional e-gov services within the distinct context of Jordan.

The other sections are arranged as follows: The next section i.e. the next section presents the theoretical development, proposed model and hypotheses. The following section discusses the methodology including sample and data gathering process, constructs and their measures, respondents' demographic profile, etc. The next section presents the results of data analysis. The section following this highlights the discussion of the results obtained in the previous section along with the implications for theory and practice and limitations and directions of future research. Finally, the paper provides the key findings of this research under conclusion section.

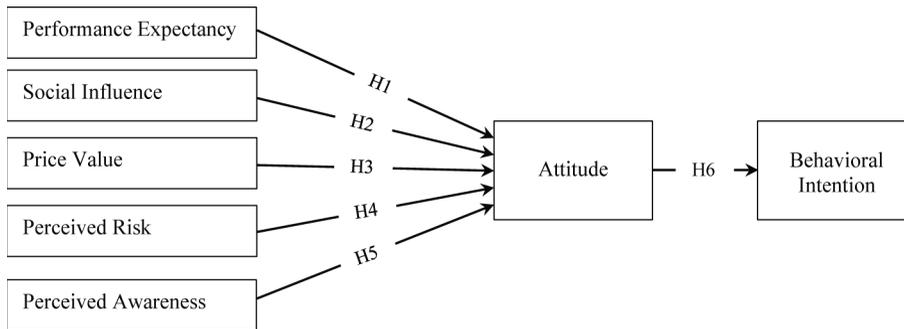
THEORETICAL DEVELOPMENT, RECOMMENDED RESEARCH MODEL AND HYPOTHESES

Theoretical Development

Information systems and information technology (IS/IT) adoption research has long been studied on why and how users adopt the technology (Dwivedi et al., 2017). Some of these theories such as theory of reasoned action (Fishbein and Ajzen, 1975), technology acceptance model (TAM) (Davis et al., 1989), theory of planned behavior (Ajzen, 1991), social cognitive theory (Bandura, 1986), diffusion of innovation (Rogers, 1983), extended TAM (Venkatesh and Davis, 2000), unified theory of acceptance and use of technology (UTAUT) (Venkatesh et al., 2003), and extended UTAUT (UTAUT2) (Venkatesh et al., 2012) have been used over the years and provided meaningful contributions to the IS/IT in general and e-gov adoption in particular. However, the unified models based on the theories like UTAUT and UTUAT2 have been very frequently used over the years. The theory like UTAUT has been used on several occasions in the previous studies as it is composed of eight constituent theories that the researchers have been using without much justification even though some of the constructs for these constituent theories had similar meanings (Rana et al., 2011, 2012). For example, the construct such as perceived usefulness from TAM, relative advantage from diffusion of innovation, and outcome expectation from social cognitive theory have similar meanings but all these constructs have been used across studies in the past. Similarly, even though perceived ease of use from the TAM, complexity from the model of PC utilisation, and ease of use from the innovation diffusion theory have similar meanings, the researchers used some or all these variables in proposing their research models (Venkatesh et al., 2003).

However, the unified theory like UTAUT has been criticized for several reasons including the moderators used in the originating model may not be appropriate for different contexts, the lack of influence of FC on BI was not considered in the original model whereas it has been validated and approved across various contexts in several other studies, and an important individual construct such as attitude was not included in the original model (Dwivedi et al., 2017). Moreover, the UTAUT based models were also criticized as this theory has been implemented to the studies across several technologies both at organisational as well as non-organizational settings, however, most of the studies were found to apply the UTAUT only as a subset of constructs and hence suggested the use of more advanced theory such as the UTAUT2 to be more applicable to a consumer technology use context (Venkatesh et al., 2012). But, I would not consider the UTAUT2 model in its entirety as it

Figure 1. Proposed conceptual framework (Adapted from Venkatesh et al., 2012)



is a complex model with some more constructs added to the UTAUT with the intricacy relating to moderators remains the same.

Proposed Research Model

Considering the above discussion, I am proposing to develop a research model that incorporates core constructs from the UTAUT2 including performance expectancy, social influence, and price value. The other core constructs such as effort expectancy, facilitating conditions, hedonic motivation and habit are not considered for the proposed model. The rationale for the exclusion of these core constructs are as follows: First, as most of the working individuals who have to transact through the e-services platform are aware of how to operate and use such systems, hence, effort expectancy is of no relevance to use in that context. Second, having smart phones and other Internet enabled technology gazettes available to everyone at the working class who may use such services for payment, facilitating conditions is not an issue and hence was discarded from the proposed research model.

Likewise, the respondents would not do it for the enjoyment purposes as such services are largely used when the users have lack of time to physically visit the government offices and such services save a lot of their time. In addition, the proposed model has also used some contextual variables including perceived awareness and perceived risk as these constructs can help researchers to understand if they are also the key contributors to influence citizens' intentions to use such e-gov services. Further, attitude is included as a mediating variable in the UTAUT2 based model. Inclusion of attitude as a mediating variable has been acknowledged by several papers in the earlier research (Dwivedi et al., 2017; Rana et al., 2016). Therefore, Figure 1 portrays the proposed model as below.

HYPOTHESES FORMULATION

Performance Expectancy → Attitude

Performance expectancy (PE), referring to the belief that using a particular technology will help users achieve desired outcomes, significantly impacts attitudes for e-gov services (Venkatesh et al., 2003). Firstly, in a rapidly digitizing world, the efficiency and convenience of e-gov services align with citizens' modern lifestyles, fostering positive attitudes (Dwivedi et al., 2019). Additionally, Jordan's burgeoning tech-savvy population perceives e-gov platforms as tools for faster access to essential services, enhancing their perceived utility and thus their attitude towards them. Moreover, as e-gov services streamline bureaucratic processes, citizens experience reduced time and effort required for transactions, reinforcing their positive perceptions and attitudes (Verkijika and De Wet, 2018). Furthermore, the government's efforts to enhance service quality and accessibility through digital

means contribute to citizens' confidence in the effectiveness of these platforms, further bolstering their positive attitudes toward e-gov services (Rana et al., 2017). Therefore, I propose:

H1. PE positively influences attitude toward utilizing e-gov services.

Social Influence → Attitude

Social influence encompasses the collective influence exerted by society, including friends, family, community leaders, and government officials, in shaping citizens' perceptions and decisions regarding the use of digital government platforms (Venkatesh et al., 2003). Social influence is argued to be a key determinant in shaping attitudes towards e-gov services in Jordan. Given the strong emphasis on communal values and collective decision-making within Jordanian society, individuals frequently turn to their social networks for validation and guidance. Thus, positive feedback and recommendations from friends, family, and peers regarding e-gov services hold considerable sway over an individual's perception of them (Verkijika and De Wet, 2018). Additionally, in a culture where interpersonal relationships carry significant weight, the endorsement of e-gov platforms by esteemed figures like community leaders or government officials can enhance their credibility and foster trust among citizens, positively influencing attitudes (Dwivedi et al., 2017). Furthermore, the increasing adoption of e-gov within social circles can create a sense of conformity, reinforcing positive attitudes towards these services (Rana et al., 2017). In essence, social influence acts as a potent force in shaping attitudes towards e-gov services in Jordan, reflecting the intertwined dynamics of society and technological advancement. Hence, the following hypothesis is proposed:

H2. SI positively influences attitude toward utilizing e-gov services.

Price Value → Attitude

In the context of transactional e-gov services, price value refers to the perceived benefits users receive in relation to the costs incurred when engaging with such services (Venkatesh et al., 2012). In a country where economic factors often heavily influence decision-making, the price value proposition of e-gov services holds considerable sway over public opinion (Munyoka, 2019). Given that many Jordanians prioritize efficiency in spending and aim to maximize the benefits of their financial investments, transactional e-gov services offering competitive pricing or cost-effective advantages are likely to garner positive reception. Moreover, in a socio-economic context where the availability of affordable services is paramount, the affordability of e-gov transactions can significantly boost their price value, resulting in more favorable attitudes (Weerakkody et al., 2015). Additionally, as Jordan pursues digital modernization and inclusive governance, maintaining accessibility to e-gov services across all socio-economic strata becomes essential. Affordable pricing, therefore, can act as a catalyst for wider adoption and acceptance of transactional e-gov services, ultimately strengthening public perception of their effectiveness and utility. Therefore, I propose the hypothesis as:

H3. Price value positively influences attitude toward utilizing e-gov services.

Perceived Risk → Attitude

Jordanian citizens might view transactional e-gov services as risky due to concerns regarding data security and privacy breaches. With personal information being a crucial component for such services, individuals might doubt the government's ability to effectively safeguard their data, thereby fostering apprehension and reluctance towards engaging with these platforms (Rana et al., 2017). Furthermore, technological barriers and uncertainties could amplify the perceived risk, particularly among segments of the population with limited digital literacy or

access to technology. This skepticism may extend to doubts about the reliability and usability of e-gov platforms, further impeding the development of positive attitudes towards their adoption (Rana et al., 2015). Moreover, cultural factors and societal norms within Jordan could heighten perceptions of risk linked to online transactions, as trust levels in government institutions and digital infrastructures might differ among various demographic groups. Consequently, these collective factors could significantly influence attitudes towards transactional e-gov services in Jordan, fostering a negative impact on their adoption. Therefore, I hypothesise:

H4. Perceived risk negatively and significantly influences attitude toward utilizing e-gov services.

Perceived Awareness → Attitude

As awareness grows among citizens regarding the advantages and functionalities inherent in e-gov platforms, their attitudes towards these services become more favorable. This increasing awareness is often stimulated by proactive government campaigns aimed at informing the public about the benefits of conducting transactions online, emphasizing the convenience, efficiency, and accessibility provided by such platforms. Consequently, individuals become more mindful of the security measures and privacy safeguards implemented by the government, easing apprehensions and fostering trust in the reliability of e-gov services (Ranaweera, 2015). Additionally, the evolving landscape of digital literacy and acceptance of technology within Jordanian society further propels this positive trajectory, as people embrace digital innovations and acknowledge the transformative potential of e-gov services (Lallmahomed et al., 2017). Ultimately, as awareness continues to permeate society, attitudes towards transactional e-gov services in Jordan are characterized by growing optimism, confidence, and a readiness to utilize these platforms for their numerous advantages.

H5. Perceived awareness positively and significantly influences attitude for utilizing e-gov services.

Attitude → Behavioral Intention

In the realm of transactional e-gov services in Jordan, the hypothesis positing a positive link between attitude and behavioral intention receives substantial backing from various accounts (Abdalla et al., 2023; Rana et al., 2017). As individuals cultivate favorable attitudes towards e-gov services, they tend to demonstrate a greater inclination towards using these platforms for their government-related dealings. Such positive sentiments often arise from past encounters with e-gov services, where users have experienced the convenience, efficiency, and reliability of these platforms (Dwivedi et al., 2017). Moreover, as confidence in the government's capability to safeguard personal information and ensure the security of online transactions grows, individuals become more at ease and self-assured in utilizing these services. Furthermore, endorsements from peers and acquaintances who have had satisfactory experiences with e-gov services serve to reinforce individuals' positive attitudes and intentions towards using these platforms (Rana et al., 2016). Additionally, with the ongoing rise in digital literacy rates and the deepening acceptance of technology within Jordanian society, there exists a natural progression towards embracing e-gov services as indispensable tools for accessing government services and conducting transactions online. Ultimately, the correlation between positive attitudes and behavioral intentions concerning the use of transactional e-gov services in Jordan highlights the importance of nurturing favorable perceptions and experiences to spur the adoption and utilization of these platforms. Therefore, I propose the hypothesis as:

H6. Attitude has a positive influence on behavioral intention.

RESEARCH METHODS

As the data was collected from citizens, the questionnaire survey was used incorporating the demographic variables and the measures for the constructs being used in the proposed conceptual model to collect data from the Jordanian citizens. The convenience based sampling approach was preferred given the time, cost and the appropriateness of respondents to collect the data for the specific e-gov services that are being used but their adoption rate is very slow (Gilbert, 2001).

As this study endeavours to identify constructs influencing citizens' intentions to adopt the e-gov services hence survey based quantitative research is found deemed appropriate for this kind of academic research. The selection of this approach is largely motivated also because it is related to the validation of a well-known theory based research model. The proposed model was developed using UTAUT2 by Venkatesh et al. (2012) as the key underlying model, however this model was extended further to make it fit into the current context of Jordanian e-gov services. For example, the use of constructs such as perceived risk, perceived awareness, etc. have made the proposed model not only a unique model to be used to identify the constructs influencing citizens' intention to use e-gov services but it will also enrich the current theoretical perspective and bring in some highly appropriate additional constructs in the current context to be validated along the core constructs of the UTAUT2. These additional constructs can be operationalised through their measures picked up from the original sources. The survey based research was found deemed appropriate approach to be considered among the alternative approaches as it is the most appropriate quantitative approach used to test the proposed model, which is based on the well-known theoretical grounding (Straub et al., 2005) and the model that requires testing the proposed hypotheses for various relationships and validating it with the data gathered for its various constructs in a social setting – i.e. collecting data from the citizens in the Jordanian context.

The survey questionnaire mainly consisted of two larger sections – the first section collected data relating to the various demographic traits whereas the second section gathered data for all the measures relating to the selected constructs for the proposed model. The survey questionnaire was self-administered in nature as it tackles the problems of information reliability by controlling and removing disparities in a way in which the queries are posed to the respondents (Cornford and Smithson, 1996). Such method of collecting data is possible with relatively lower amount of cost with ease and minimal resources where respondents are allowed to answer the questions without sharing their point of views with the experts' collecting data and without sharing their point of views with them (Fowler, 2002).

The survey questionnaire was distributed to the citizens in Jordan through author's personal connections and connections through his colleagues and friends. The respondents were well aware of navigating through the various apps and some of them also had experience of using e-gov services for informational purposes. However, they were not much aware of the transactional e-gov services as they would do all their payment related work by going to government offices. I provided them links for some of the e-gov services that they could use and even pay for the services they avail electronically. Some of such services include electricity and water bill payments, vehicle registration renewal, tax payment, municipality fee and services, traffic violation payment, custom duties and fees, etc. The measures for all the constructs were taken from the well-known and relevant studies (see Appendix).

A total of 500 respondents were contacted through emails and other online channels and 335 of them filled in the questionnaire. After further scrutiny, I rejected 41 responses as the respondents selected the same option in the 7-point Likert scale. As a result, the remaining 294 responses made the basis for the data analysis. The data collection process ran for about two months during the month of November and December in the year 2023.

Table 1. Means and SDs

Construct	# of Items	Mean	SD
Performance Expectancy (PE)	4	5.02	1.091
Social Influence (SI)	4	4.85	1.044
Price Value (PV)	4	5.00	0.962
Perceived Risk (PR)	4	3.80	1.482
Perceived Awareness (PA)	3	4.83	1.120
Attitude (AT)	4	5.37	1.050
Behavioral Intention (BI)	3	4.74	1.579

RESULTS

Means and SDs

Table 1 provides mean and standard deviations (SDs) of all seven constructs for the proposed research model. The results indicate that attitude (5.37), performance expectancy (5.02), and price value have (5.00) their highest mean values followed by social influence (4.85), perceived awareness (4.83) and behavioral intention (4.74) on a Likert scale of [1-7]. However, the mean value for perceived risk is the lowest given the negative nature of this construct. As far as their SD values are concerned, all the constructs show more or less consistent variation from the mean values, which indicate that they are not too much skewed from their central values. This suggests that individual responses are not deviating significantly from the mean, indicating a balanced distribution of responses.

Measurement Model

Table 2 presents the Cronbach's alpha (α) values for selected variables to ensure the internal reliability of their survey measures. The computation for the values of alpha for the constructs indicates that all the values fall under the high range of value greater than 0.70 and less than 0.90 (Bozan et al., 2012).

Further, I have also presented the factor loadings (FLs) for the items of various constructs and composite reliabilities (CRs) and average variance extracted (AVE) of all seven constructs (see Table 3). It was made sure that only those items with factor loading of 0.50 and above were selected to represent the constructs. Moreover, the composite reliabilities of constructs were observed to surpass the minimum threshold value of 0.70 with the AEs to exceed its minimal expected value of 0.50. Table 3 presents all three indicators (i.e. FL (factor loading), CR (composite reliability) and AVE (average

Table 2. Reliability in Cronbach's alpha (α)

Construct	# of Items	Cronbach's Alpha (α)
Performance Expectancy (PE)	4	0.815
Social Influence (SI)	4	0.705
Price Value (PV)	4	0.749
Perceived Risk (PR)	4	0.884
Perceived Awareness (PA)	3	0.746
Attitude (AT)	4	0.819
Behavioral Intention (BI)	3	0.808

Table 3. FLs, CRs and AVEs

Construct/Items	Items	FL	CR	AVE
Performance Expectancy (PE)	PE1	0.70	0.816	0.700
	PE2	0.71		
	PE3	0.74		
	PE4	0.75		
Social Influence (SI)	SI1	0.71	0.796	0.658
	SI2	0.72		
	SI3	0.68		
	SI4	0.70		
Price Value (PV)	PV1	0.81	0.877	0.821
	PV2	0.82		
	PV3	0.84		
	PV4	0.73		
Perceived Risk (PR)	PR1	0.77	0.884	0.834
	PR2	0.84		
	PR3	0.82		
	PR4	0.81		
Perceived Awareness (PA)	PA1	0.73	0.852	0.871
	PA2	0.78		
	PA3	0.74		
Attitude (AT)	AT1	0.77	0.827	0.722
	AT2	0.72		
	AT3	0.75		
	AT4	0.71		
Behavioral Intention (BI)	BI1	0.84	0.842	0.774
	BI2	0.77		
	BI3	0.79		

variance extracted)) and they were all found to maintain their minimal expected values indicating the compliance with the convergent validity measures of all the constructs (Anderson and Gerbing, 1988).

After conforming to the convergent validity of the constructs, I have computed the squared correlation and presented the discriminant validity of all seven constructs with diagonal values represented by the square root (SQRT) of AVE. To maintain the discriminant validity of these constructs, it needs to be shown that the required correlation (with $p < 0.01$) between any two constructs should be less than the SQRT of their corresponding AVEs presented along the diagonal. Table 3 presents the discriminant validity and the values presented as the squared correlation conformed to the condition of their values less than the diagonal values for the pair of constructs (Anderson and Gerbing, 1988).

The scales underwent further validation through confirmatory factor analysis of the recommended model. Before presenting the structural model, the measurement model was validated to mitigate any probable influence on the interface between the two models curtailing from the measurement errors.

Table 4. Discriminant validity

Variable	PE	SI	PV	PR	PA	AT	BI
PE	0.837						
SI	0.548**	0.811					
PV	0.505**	0.444**	0.906				
PR	-0.188**	-0.115**	-0.119**	0.913			
PA	0.533**	0.534**	-0.440**	-0.186**	0.933		
AT	0.573**	0.481**	0.543**	-0.286**	0.484**	0.850	
BI	0.489**	0.479**	0.493**	-0.336**	0.420**	0.647**	0.880

Fit indices of the measurement model examines how well the hypothesised model fits the observed data. The various indicators such as Chi-square by degree of freedom (1.745), goodness of fit index (GFI) (0.925) (Hoyle, 1995), Adjusted GFI (AGFI) (0.868) (Chin and Todd, 1995), comparative fit index (CFI) (0.940) (Hoyle, 1995), and root mean square error of approximation (RMSEA) (0.050) (Browne and Cudeck, 1993) provide different predictives of model fit and researchers often consider multiple such indices together to gain a inclusive understanding of how well the model fits the data. All these indicators fell comfortably within the expected recommended range of values (see Table 5).

Structural Model

After validating to the capability of the CFA based model, I will proceed to evaluate the capability of the structural model. The model fit test for the proposed framework indicates a Chi-square by degree of freedom value of 1.856, GFI of 0.921, AGFI of 0.864, CFI of 0.931, and RMSEA of 0.054. These values remain within the expected range and suggest a reasonably good fit for the structural model as well. Provided the acceptable level of model fit obtained for the structural model as well, I will now move further on to assess the standardised path coefficients between antecedents and outcome variables for the hypothesised model. The findings indicate that all the hypotheses were supported. For instance, the path coefficients for performance expectancy ($\beta=0.383$, $***p<0.001$) (i.e., H1), social influence ($\beta=0.222$, $*p < 0.05$) (i.e., H2), price value ($\beta=0.418$, $p<0.001$) (i.e., H3), perceived risk ($\beta=-0.185$, $*p<0.05$) (i.e., H4), and perceived awareness ($\beta=0.375$, $***p<0.001$) (i.e., H5) were discovered to have a significant impact on attitude, while attitude ($\beta=0.889$, $***p<0.001$) (i.e., H6) was demonstrated to exert a highly positive influence on behavioral intention. Moreover, the variance

Table 5. CFA model estimates

Construct	CFA	Recommended Value
Chi-Square	469.346	-
Degree of Freedom	269	-
p	0.000	>0.05
Chi-Square/Degree of Freedom	1.745	<3.00
GFI	0.925	>0.900
AGFI	0.868	>0.800
CFI	0.940	>0.900
RMSEA	0.050	<0.08

Table 6. Model's path coefficients

H#	Relationship	β	CR	p-Value	Supported?
H1	PE → AT	0.383***	3.192	<0.001	Yes
H2	SI → AT	0.222**	1.597	<0.01	Yes
H3	PV → AT	0.418***	3.513	<0.001	Yes
H4	PR → AT	-0.185*	-5.286	<0.05	Yes
H5	PA → AT	0.375***	1.856	<0.001	Yes
H6	AT → BI	0.889***	9.663	<0.001	Yes

$R^2(AT) = 0.65$, $R^2(BI) = 0.79$

explained by the independent constructs such as PE, SI, PV, PR, and PA on AT was found to be 65% whereas AT on BI was found as 79%.

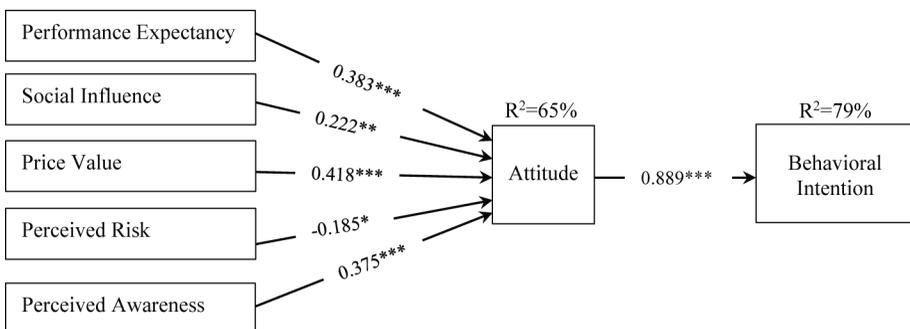
Figure 2 illustrates the results of structural model, depicting the regression coefficients linking various antecedent and outcome variables, along with the variance on attitude and behavioral intentions.

DISCUSSION

This paper seeks to comprehend the determinants affecting users' attitude and behavioral intention to adopt transactional e-gov services in Jordan. The proposed model was grounded in the UTAUT2 theory, supplemented by additional contextual constructs such as PR and PA. All six hypotheses were confirmed, indicating that PE, SI, PV, PR, and PA influence attitude, which in turn affects BI.

The strong and statistically significant impact of PE on attitude (Hypothesis H1) suggests that in the realm of transactional e-gov services within Jordan, a positive and notable impact of PE on attitude implies that when users perceive these digital platforms as effective, dependable, and capable of meeting their requirements efficiently, they tend to develop more favorable attitudes towards them (Kirat Rai et al., 2020; Ma and Huo, 2023; Zahid et al., 2022). This observation suggests that Jordanian users highly appreciate the practicality and usefulness provided by e-gov platforms, regarding them as valuable instruments for accomplishing governmental tasks. These favorable attitudes likely contribute to heightened satisfaction, trust, and intentions for sustained utilization of e-gov services, thus supporting their enduring adoption and viability.

Figure 2. Results of structural model



The positive and notable effect of SI on attitude (Hypothesis H2) suggests that users' viewpoints regarding these digital platforms are molded by the influence of their social circles, encompassing peers, family members, or government authorities. This finding underscores the pivotal role of social norms, suggestions, or approvals in shaping users' perceptions and stances toward e-gov services (Nugroho et al., 2022). In Jordan, where communal ties and social networks hold significant sway, favorable recommendations or support from influential entities can bolster users' confidence and trust in these services, ultimately fostering more positive attitudes and heightened adoption rates (Dwivedi et al., 2017; Mohammadi, 2022; Rana et al., 2016).

The affirmative and substantial impact of price value on attitude (Hypothesis H3) suggests that users' perspectives on these digital platforms are shaped by how they assess the benefits against the monetary investment required (Venkatesh et al., 2012). This suggests that Jordanian users carefully consider the advantages of e-gov services in comparison to the associated costs. If users believe that the benefits outweigh the expenses, they are inclined to hold more favorable attitudes towards these services. This highlights the significance of delivering e-gov services that deliver substantial value relative to the costs involved.

The negative and noteworthy effect of PR on attitude (Hypothesis H4) suggests that users' attitudes towards these digital platforms are adversely affected by their perception of potential risks associated with their use. This finding indicates that Jordanian users may harbor concerns about various risks such as security breaches, privacy issues, or reliability problems when engaging with e-gov services (Abdalla et al., 2023; Dwivedi et al., 2017; Zahid et al., 2021). These perceived risks can undermine users' confidence and trust in the platforms, leading to less favorable attitudes towards them. Policymakers in Jordan need to tackle these issues by implementing strong security measures, guaranteeing data privacy protection, and improving the reliability of e-gov services.

The positive impact of PA on attitude (i.e. Hypothesis H5) indicates that users' views of these digital platforms are positively affected by their level of understanding or familiarity with them (Ranaweera, 2015). This observation suggests that Jordanian users who possess more knowledge and awareness regarding the availability, features, and benefits of e-gov services tend to harbor more favorable attitudes towards them. Increased awareness likely fosters greater trust, confidence, and perceived utility of these services, thereby contributing to positive attitudes and increased adoption rates. To promote more positive attitudes and encourage greater utilization of e-gov platforms among Jordanian citizens, policymakers in Jordan should prioritize awareness campaigns and educational efforts aimed at ensuring that citizens are well-informed about the existence and advantages of transactional e-gov services. By bolstering perceived awareness, policymakers can facilitate a more positive perception and wider usage of e-gov platforms among Jordanian citizens.

The positive impact of attitude on BI concerning transactional e-gov services in Jordan implies that users' stances toward these digital platforms directly influence their inclination to partake in activities related to their usage (Dwivedi et al., 2017; Rana et al., 2016). This observation suggests that Jordanian users who maintain more favorable attitudes towards e-gov services are likelier to express intentions to utilize them for online government transactions. These positive attitudes are likely rooted in perceptions of the services' practicality, dependability, and user-friendliness. Consequently, these favorable attitudes translate into intentions to actively participate in e-gov endeavors.

Theoretical Implications

This research carries multiple theoretical implications for e-gov adoption research in general, and specifically for the adoption of transactional e-gov services. It marks the first application of the UTAUT2 model within the context of transactional e-gov services in Jordan. Utilizing this model not only aids researchers in gauging its relevance in Jordan's e-gov landscape but also sheds light on the significance of additional constructs that could enhance the model's efficacy. Moreover, employing the UTAUT2 model in Jordan's context enables future researchers to compare its performance across other developing countries, particularly within the Arab world. By integrating perceived risk and perceived

awareness into the UTAUT2-based model, this research enriches the understanding of transactional e-gov services adoption within the specific context of Jordan. This contextualization acknowledges the unique socio-cultural, political, and economic factors that may influence users' attitudes and intentions towards e-gov services in Jordan. This is one of the very few studies that has explored the influence of constructs like price value and perceived awareness for transactional e-gov services. Further, removing effort expectancy, facilitating conditions, use behavior, and moderators from the UTAUT2 in the proposed research model allows for a more streamlined and focused analysis of the factors directly influencing attitude and behavioral intention towards transactional e-gov services. This refinement increases the model's parsimony and may improve its explanatory power, providing clearer insights into the adoption process.

Implications for Practice

The research findings will help the practitioners and policymakers to making effective strategies for the wider adoption of such services to justify the exorbitant amount of money spent by the government to ensure that citizens conveniently undertake all the necessary services provided by them to their citizens. The positive influence of social influence on attitude indicates that policymakers should thus consider harnessing social influence mechanisms to cultivate positive attitudes and encourage wider acceptance and utilization of transactional e-gov services among Jordanian populace. The positive influence of price value on attitude indicates that policymakers in Jordan should prioritize refining the value proposition of transactional e-gov services to ensure alignment with users' preferences and cost considerations, thereby fostering positive attitudes and increasing adoption rates among the populace. Perceived risk's negative impact on attitude indicates that by mitigating perceived risks, policymakers can promote more positive attitudes towards transactional e-gov services, thereby fostering greater acceptance and utilization among Jordanian citizens. Jordanian e-gov services need to prioritize the establishment of trust-building strategies to mitigate perceived risks linked with transactions. Offering clear and transparent details regarding security protocols, privacy policies, and service dependability can contribute significantly to fostering user trust. Policymakers need to concentrate on introducing measures designed to cultivate trust and diminish perceived risks linked with transactions in Jordanian e-gov services. This entails giving priority to the creation of trust-building tactics, including the provision of explicit and open information regarding security protocols, privacy policies, and service dependability. Policymakers must also ensure the effective communication of these measures to users, thereby encouraging transparency and accountability within the e-government framework. Furthermore, policymakers should contemplate reinforcing regulatory frameworks to protect user interests and bolster confidence in the security and reliability of e-government transactions. The positive impact of perceived awareness on attitude indicates that policymakers in Jordan should prioritize awareness campaigns and educational initiatives to ensure that citizens are well-informed about the existence and advantages of transactional e-gov services. By enhancing perceived awareness, policymakers can promote more positive attitudes and facilitate greater utilization of e-gov platforms among Jordanian citizens. To foster such positive attitudes among citizens, policymakers in Jordan should concentrate on enhancing the functionality, accessibility, and perceived worth of transactional e-gov services. Through these efforts, policymakers can stimulate increased behavioral intentions to interact with these platforms, thereby advancing their widespread adoption and utilization throughout the population.

LIMITATIONS AND FUTURE RESEARCH

This paper presents several limitations. Firstly, its focus is confined solely to transactional e-gov services within the Jordanian context. Future scholars can explore the applicability of the recommended framework to other types of non-transactional e-gov services and in different country contexts. Additionally, the sample size used to validate the recommended model is relatively small (Chatterjee

et al., 2021; Rana et al., 2019). Subsequent research should gather more extensive data to validate the model and examine it with relevant moderating variables such as trust in government and cultural factors like individualism-collectivism and power distance. Also, the future researchers could test some other relevant contextual variables for the transactional e-gov services such as perceived privacy, perceived security, service quality, user experience, service innovation, service integration, etc. This is a study based on cross-sectional data (Alalwan et al., 2020; Goel et al., 2022). As the users get used to using transactional e-gov services, the longitudinal research will offer some more interesting findings. Finally, the recommended framework is parsimonious (Chatterjee et al., 2022; Rana and Dwivedi, 2016). Hence, the upcoming studies could include some moderating variables to see their influence on various relationships. The proposed model can be validated further using empirical data in other contexts (Hughes et al., 2022).

CONCLUSION

The paper aims to assess the constructs impacting citizens' behavioral intention for transactional e-gov services in Jordan. The paper used UTAUT2 as an underpinning theory to propose the research model. The findings indicate that PE, SI, PV, PR and PA on citizens' attitude and their attitude further influences behavioral intention. The variances explained by the model on attitude and BI were found to be 65% and 79% respectively. The paper proposes a unique and parsimonious model and offered some interesting insights and findings.

CONFLICTS OF INTEREST

We wish to confirm that there are no known conflicts of interest associated with this publication and there has been no significant financial support for this work that could have influenced its outcome.

FUNDING STATEMENT

No funding was received for this work.

PROCESS DATES

This manuscript was initially received for consideration for the journal on 03/11/2024, revisions were received for the manuscript following the double-blind peer review on 04/04/2024, the manuscript was formally accepted on 04/04/2024, and the manuscript was finalized for publication on 04/12/2024.

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APPENDIX

Table 7. Constructs and their measures

Construct	Measures	Source(s)
Performance Expectance	I would find transactional transactional e-government services useful in my life	Venkatesh et al. (2012)
	Using transactional e-government services would help me accomplish things more quickly	
	Using transactional e-government services would save citizen's time	
	Using transactional e-government services would enhance my effectiveness	
Social Influence	People who influence my behaviour think that I should use transactional e-government services	Venkatesh et al. (2012)
	People who are important to me think that I should use transactional e-government services	
	People whose opinions I value prefer that I use transactional e-government services	
	In general, the government supports the use of transactional e-government services	
Price Value	Transactional e-government services are reasonably priced	Venkatesh et al. (2012)
	Transactional e-government services are a good value for the money	
	At the current price, transactional e-government services provide a good value	
Perceived Risk	Use of transactional e-government services may cause my personal information to be stolen	Rana et al. (2017)
	I will feel uneasy psychologically if I use transactional e-government services	
	I believe that there could be negative consequences by using transactional e-government services	
Perceived Awareness	I receive enough information about the transactional e-government services	Alawneh et al. (2013)
	I receive enough information about the benefits of transactional e-government services	
	I receive enough information for using the transactional e-government portal	
Attitude	Using transactional e-government services is a good idea	Rana et al. (2017)
	Using transactional e-government services is a wise idea	
	Using transactional e-government services is pleasant	
	I like the idea of using transactional e-government services	
Behavioral Intention	I intend to continue using transactional e-government services in the future	Venkatesh et al. (2012)
	I will always try to use transactional e-government services in my daily life	
	I plan to continue to use transactional e-government services frequently	
	I predict I will use transactional e-government services in the future	

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