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PERSPECTIVES AND ADOPTION OF MOBILE BANKING IN SERBIA: THE CASE OF YOUNG ADULTS

Prihvatanje mobilnog bankarstva i njegove perspektive u Srbiji – analiza tržišta mladih

Abstract

This paper investigates the determinants of mobile banking adoption by the young adults in Serbia. Mobile banking is a major driver of change in retail banking globally. The pace of its adoption differs across regions and countries, with some emerging countries taking the lead. Building on a technology acceptance model and earlier studies, we define and test a model comprising five factors that we hypothesize to have an effect on the acceptance of mobile banking. The sample includes 202 respondents from the student population. In the first stage, we extract factors based on factorial analysis so as to provide a justification for the constructs and inputs used for further analysis. In the second stage, we use these factors as independent variables in a regression analysis, where the dependent variables represent behavioral intentions regarding the use of mobile banking. The results show that all five factors are positively associated with the dependent variables. Two factors, "perceived usefulness" and "perceived security", are singled out as the most prominent causes of intentions to use mobile banking, because they are statistically significant in each regression model. Our analysis suggests that "information on mobile banking" is the weakest factor, which is a surprising result having in mind its importance in other studies. We find the influence of the two remaining factors, "technological proficiency and conditions" and "perceived ease of use", to be varying.

Keywords: *mobile banking, innovation adoption, technology acceptance model, factor analysis, young adults.*

Sažetak

Predmet istraživanja rada su determinante prihvatanja mobilnog bankarstva od strane mladih u Srbiji. Mobilno bankarstvo predstavlja okosnicu budućeg razvoja i promena u poslovanju banaka sa stanovništvom. Iako tempo njegovog prihvatanja i širenja varira po regionima i zemljama, opaža se da vodeću ulogu postepeno preuzimaju zemlje u razvoju. Oslanjajući se na teorijsko-metodološki model prihvatanja tehnologije i ranije studije, u radu je definisan i testiran model od pet faktora za koje je pretpostavljeno da predodređuju namere i spremnost klijenata da koriste usluge mobilnog bankarstva. Analizirani uzorak je obuhvatio 202 ispitanika iz studentske populacije. U prvoj fazi analize, izdvojeni su relevantni faktori korišćenjem faktorske analize, na osnovu faktorskih opterećenja, koji su potom korišćeni kao inputi u daljoj analizi. U drugoj fazi, ovi faktori su tretirani kao nezavisne varijable u regresionoj analizi, dok su se u ulozi zavisnih varijabli našle namere klijenata u vezi sa korišćenjem mobilnog bankarstva. Rezultati su pokazali da je svih pet faktora pozitivno korelisano sa zavisnim varijablama. Dva faktora, „percipirana korisnost“ i „percipirana bezbednost“, izdvojena su kao najuticajnija, s obzirom da su bili statistički značajni u svakoj analiziranoj regresiji. Pored toga, rezultati sugerišu da je najmanje uticajan faktor „informisanost o mobilnom bankarstvu“, što je kontroverzan zaključak imajući u vidu istaknut značaj koji je imao u drugim sličnim istraživanjima. U pogledu uticaja preostala dva faktora, „tehnološke upućenosti i uslova“ i „percipirane jednostavnosti korišćenja“, rezultati su mešoviti.

Ključne reči: *mobilno bankarstvo, usvajanje inovacija, model prihvatanja tehnologije, faktorska analiza, mladi.*

Introduction

Over the last decade, the business of banking has been undergoing a continuous transformation in an effort to keep pace with requirements of the constantly changing economic environment. The direction of these changes has mainly been driven by the emergence of novel technologies. The distinct features of these changes are that they target fundamental relationships and communications between banks and their clients. They foster stronger relationships than the ones that existed earlier between the financial institutions and their clients [26, p. 329]. The use of computers and mobile phones, the development of new software applications and the popularity of social networks have fundamentally changed people's interactions with the financial system. Banking, as a service business, needs to adjust to its customers' expectations and approach them in the most suitable and appropriate way.

The advent of the internet has allowed consumers unlimited access to bank services over time, meaning that there is a 24/7 availability for some banking facilities. Still, the internet has been for a considerable period of time spatially constrained by fixed landline infrastructures. Currently, with advancements in mobile operators' infrastructures it went mobile. In Europe, penetration rates of active mobile-broadband subscriptions increased from 30.5% in 2010 to over 85% in 2017 [11], with a potential for a further increase in the near future. In essence, this has enabled banks to shift customers from in person-arranged transactions (face-to-face with bank officers) to device-arranged transactions (computer, mobile phone, and tablet). Vis-à-vis device-arranged transactions, it was predicted that online banking would step back in favor of mobile banking (m-banking) [33, p. 5].

Mobile banking, in comparison to traditional branch banking and computer-based online banking, delivers flexibility of workings, in terms of time and place, and more efficiency in banking transactions. M-banking is defined as a channel where the customer interacts with a bank via a mobile device, such as a mobile phone, tablet or personal digital assistant [3], [15]. It has emerged as a wireless service delivery channel providing increased value for customers' banking transactions [18, p. 789]. It arose and developed from a rudimentary form in which

consumers were able to retrieve information from their banks about their account balances by sending an SMS (Short Message Service) to a predetermined service number. Although the SMS access mode of m-banking still exists, augmented by WAP (Wireless Application Protocol, a browser-based system) that developed somewhat later, downloadable client applications ("apps") are now the most popular mode of accessing banking services via mobile. Perlman [24] provides a good overview of technologies that enable access to mobile financial services.

The topic of m-banking has attracted increasing attention in academic studies in the course of the last ten years and some banking journals have accordingly dedicated special issues to it [1], [23]. Mallat et al. [22] envisaged that the adoption of the next generation of mobile handsets would create opportunities for innovative mobile services, among which mobile financial services were deemed the most promising. Estimates made in the late 2000s envisaged that the number of m-banking consumers would reach more than 800 million people worldwide by 2011, a tenfold increase from a consumer base in 2007 [8]. As of today, the estimated number of users stands at 1.2 billion, and it has been forecasted that by 2019 32% of global adult population will be using this technology [12]. M-banking penetration in Europe alone has recently been estimated to be around 38% [16, p. 11].

Online banking can be conceived as a predecessor of m-banking. It prepared customers to embrace self-service delivery channels. The use of m-banking is highly compatible with online banking, because it is an innovative service consistent with users' values, beliefs, previous experiences and habits developed through the use of online banking.

Banks worldwide have been favoring the use of online banking as it enables cost reductions. Sathye [30] and Robinson [27] find that online banking is the cheapest operating delivery channel for banking products, setting aside initial investments. In the first place, it allows banks to reduce their branch network, which enables a reduction in personnel employed. While the motivation of banks to support diffusion of online banking at the expense of traditional branch banking is straightforward, it is not yet the same with m-banking, which may not deliver any

significant cost saving benefits for banks in comparison to benefits already gained through online banking [18, p. 795]. The crucial benefits of electronic channels seem already provided through online banking. However, some studies argue that the transaction costs of m-banking are half as expensive as online banking; and account for 1/13 of the costs of ATM and phone banking, and 1/43 of the costs of branch banking [16, p. 22]. In addition, one might consider the possibility of cannibalization of digital banking activity by taking business away from online towards m-banking. The prevailing rationale for development of m-banking from a bank perspective may be found in clients' preference for this delivery channel, which may translate later into a competitive edge for banks that offer it, especially in times of diminishing client loyalty.

Recent surveys highlight that penetration rates of m-banking are generally higher in developing as opposed to developed countries. For example, in China, India and South Africa, penetration rates are estimated at above 50 percent, while in Canada, France and Japan they fall below 20 percent [16, p. 11]. Globally, there is a wide variability in the adoption rates of m-banking.

Tam and Oliveira [32] point out that the evolution of delivering banking services to customers, from a focus on local-centric (branches and ATM) to place-centric (internet banking) and then to equipment-centric (accessible anywhere via device) modes, yields benefits in the form of time savings and shorter customer queues. While physical distance appears to be important for the successful placement of some products, it does not seem to have the same effect in banking. Paradoxically, an equipment-centric model brings the customer instantly to the virtual doorstep of the bank, since a sole requirement for carrying out a specific activity in this case is possession of a mobile device. If we considered using devices for pursuing banking affairs as an act of impersonalization in customer relations, then we might be prone to state that impersonalization ironically means (virtual) proximity.

Today, a wide range of services can be carried out through m-banking. Its value lies in convenience, flexibility, real-time information and enhanced feelings of control that lead to greater customer satisfaction. Bank clients can truly experience full functionality over and beyond their bank

accounts. They can check their account balance, initiate payments to third parties, transfer funds internally among their accounts, make currency exchange transactions, make buy and sell orders on stock or bond exchanges, access and receive a variety of information (like ATM and branch location), review their expenditures and financial plans, and even apply for a credit card. Laukkanen and Kiviniemi [19] claim m-banking services provide true mobility, ubiquity, and temporal and spatial flexibility to the consumption of the service and that this has not been sufficiently appreciated by customers.

Competitive banks do not consider whether or not to adopt m-banking, it is a current imperative of strategic importance. As such, it requires a clear m-banking strategy. While the best strategy for any individual bank varies with the constellation of different factors, like local market conditions, it would not come as a surprise if banks frequently corrected their strategy in line with a fast evolving market. At the extreme, these could encompass exiting the old and embracing a new strategy. Deloitte [6] identifies mobile apps as an increasingly important differentiator in attracting and retaining clients in the years to come. A crucial open issue remains the positioning of credit products in mobile banking offerings. The banks are in a quest for a balance between providing improved service for a customer and lucrative solution for themselves [21, p. 177].

Conceptual approach

In order for m-banking to gain in importance and to become a leading distribution channel, it needs to address the fundamental issue of consumer adoption, currently perceived as a major barrier to the development of m-banking. Rogers [28] states that consumer adoption is a process conceived as comprising a sequence of steps in which consumer starts with initial knowledge about an innovation, through forming an attitude towards it, to reaching an adoption decision. The information systems acceptance model is a conceptual cornerstone for the analysis that follows.

This paper investigates prospects for m-banking in Serbia relying on the young adult population attitudes

towards using the latest delivery channel in banking. This cohort is important since it comprises a highly likely future adopters and users of m-banking. This group is technologically aware and especially familiar with the use of mobile technology. They practice a technology-driven lifestyle which stems from using mobile devices in their day-to-day activities. The mobile business is considered trendy among this population. The general setting of research develops around the technology acceptance model (TAM). The notion of TAM is that the acceptance of new technology is conditioned upon consumers' perceived usefulness and perceived ease of use. Perceived usefulness refers to the consumer's assessment whether the use of new technology will enhance his/her performance, i.e., help him/her to increase his/her ability to achieve the desired goals. Perceived ease of use refers to the degree to which the use of new technology is free from effort [5, p. 320]. In TAM, the line of reasoning starts with beliefs, in this case two underlying beliefs, that affect attitude towards the use of the system, which translates into an intention to use it and, at the end, has an impact on actual behavior.

Since the consumer is not endowed with unlimited effort capacity, he or she needs to cleverly allocate resources at the disposal concentrating on those activities that yield the highest performance. One should keep in mind that knowledge-intensive innovations frequently imply considerable learning effort on the part of a consumer. It literally imposes an observable change in individual routine of a consumer, which some of them are not prone to, and resistance to this change is a normal response. Also, an innovation may be incompatible with existing habits and workflows that set additional burdens for consumer adoption. Therefore, we expect to observe pronounced generational differences with regard to m-banking acceptance.

TAM appears to be the most widely used model among researchers of information systems [20, p. 875], and has been exploited by researchers of adoption of online banking [25], [30]. TAM draws its theoretical foundation from Fishbein and Ajzen's [7] theory of reasoned action (TRA) which deals with the determinants of consciously intended behaviors. According to TRA, consumers systematically collect and evaluate all available information, take into account the effects of their possible actions and stand ready

to act when they expect positive benefits associated with actions. Alternative research models, inter alia, encompass the innovation diffusion theory, the theory of planned behavior and the theory of perceived risk.

The original TAM model is usually extended by additional constructs in order to address the particular context in which it is applied, such as m-banking. Every construct is viewed as an important factor that drives adoption. The major additional issue and construct in m-banking adoption, according to the frequency of its citations and application in other studies, refers to the security of its usage. This concept is intertwined with the notions of trust, risk and privacy. New offerings, being products or services, can be seen as involving a high level of riskiness. Uncertainty is present concerning whether m-banking use might result in financial losses or by compromising personal data, both of which are consequences of hacking and unauthorized access to mobile apps. Trust is closely related to risk, because it comes into play only when one is faced with risky situations. It can be defined as a consumer's belief that a particular transaction will occur in a manner consistent with their confident expectations [4, p. 360]. Trust is involved with both confidence in the general environment and conditions, and in the individual institution. In terms of m-banking, a general component is related to the trust in technology employed and the related infrastructure. As regards the institutional component, consumers ordinarily rely on their bank to protect their privacy. It means they preferably perceive their bank to be a trustworthy and competent partner. From the Serbian perspective, a major challenge is the differentiation between confidence in a particular institution and confidence in the banking system as a whole, bearing in mind the painful experience from the transition period. In sum, consumers seek reliability and confidentiality in the system and in the service provider.

A prerequisite for consumers' readiness to adopt innovatory products or services is an adequate amount of information related to them. In the context of our analysis, if the consumers do not see the advantages of using m-banking, the banks would be reluctant to dedicate resources into its development, since it is unlikely to bring full benefits to the organization. The information gap

between fully knowledgeable service providers and their respective customers may take on several forms. In the nascent phase of m-banking development, a low level of general awareness might be considered the most prominent ingredient of this gap, while in a more mature phase a lack of understanding about its advantages, disadvantages and operations may hamper all-encompassing adoption. Kuisma et al. [17] argue that some non-adopters have suffered from a lack of information and training. Saaksjarvi [29] goes a step further and underlines knowledge as a viable consumer segmentation criterion that is made up of two elements – familiarity and expertise. The first one refers to the quantity of product-related experiences by the consumer, and the second to his or her ability to perform product-related tasks. These general informational considerations were taken into account in the following study in two ways. First, only those respondents who might have been potentially exposed to an m-banking experience were included in the study, i.e., those who had opened a bank account. Second, we included information on m-banking as a separate construct.

Another important construct employed in this paper is linked to consumers' technological proficiency and conditions. Familiarity with mobile technology and regular usage of mobile phones influences consumers' attitude towards m-banking in a positive way. In addition, utilization of m-banking is dependent upon access to the internet, either through a Wi-Fi or a mobile broadband connection.

Other studies point out to other relevant constructs. Pikkarainen et al. [25] incorporate perceived enjoyment, Koenig-Lewis, Palmer and Moll [14] and Luarn and Lin [20] insist on perceived costs and perceived financial costs, respectively; Govender and Sihlali [9] highlight social influence, Baptista and Oliveira [2] introduce cultural moderators. Based on previous research discussed and on our preliminary analysis, we have developed a model of m-banking acceptance consisting of the five factors described.

Methodology

Factorial analysis is a tool for data reduction. The basic idea of the analysis is to extract a few common factors, i.e.,

linear combination of the original set of variables, so that the information power contained in the few common factors can approximate the information power in the original variables. It can be used as a confirmatory or descriptive analysis. When the aim of the research is to confirm a latent structure based on some theory or on previous papers, then factor analysis is used as a confirmatory analysis. In other cases, when the latent structure is unknown to the researcher, then factor analysis can be utilized as a descriptive tool where the tool itself can reveal the hidden structure behind the original data.

Factorial analysis can be used as a complementary tool in many analyses. For example, a multicorrelation problem in regression analysis can inflate the standard error of the model and in extreme cases make the calculation of a model impossible. Usually, the multicorrelation problem occurs when the sample size is small compared to the variable set used in the analysis. Factorial analysis can squeeze the dimensionality of the original set into a few factors which can be utilized as predictor variables in regression analysis.

Empirical results

Sample

The data for this study were collected by means of an online survey using convenience sampling of young adults in Serbia. A group of students carried out the data collection as part of their assignment by posting a link to an online survey on their Facebook accounts. The sample size was 202 respondents (132 females), mainly students from the University of Belgrade. For the purpose of our analysis, we filtered only those respondents who had an active bank account, so our effective sample size was 134. This was justified on the ground that results for the whole sample were not conducive for the extraction of factors. Obviously, there is a perception gap between users and non-users of banking services. It appears that students non-users do not consider seriously, or maybe at all, utilizing banking services, due to which they are even further from considering mobile banking. Favorably, it turned out that 66% of respondents were users, a proportion that favors solving the financial literacy issue

that is frequently encountered in banking affairs. We used a questionnaire that consisted of questions related to possible factors affecting the acceptance of m-banking and the use of m-banking services. Questions were based on Likert’s five-point scales ranging from “strongly agree” to “strongly disagree”. This scale was previously used in TAM research in Pikkarainen et al. [25].

Factor analysis

A confirmatory factor analysis was conducted on the items comprising perceived usefulness, perceived ease of use, acquaintance with m-banking, perceived security and mobile devices familiarity. We used principal component analysis as a method of factor analysis computation with varimax rotation. The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy showed a sufficient level of common variance (KMO = 0.829), indicating that the factor analysis was appropriate. Based on communality coefficients and a rotated matrix, we excluded four items because they did not fit well in our theoretical framework. Two of the removed items belonged to the “perceived usefulness” construct, and one to both “technological proficiency and conditions” and “perceived ease of use”.

The final results reveal a robust solution of five factors based on eigenvalues greater than 1 (first column in Table 1). Eigenvalues can be described as the amount of information from the original set of variables contained in each factor. Factors which have eigenvalues greater than 1 contain more information than a typical variable in the original set, and therefore the proposed solution with five factors is reliable. In the third column of Table 1 we observe that more than 70% of variance in the original set of variables is explained by the five common factors. The second column in Table 1 reveals that the variance from the original set of variables is unequally distributed. The variance ratio between the first and the fifth factor is greater than 6. Using a varimax rotation we obtain a more equally distributed variance (see Table 2), as can be seen from the second column in Table 2.

Table 3 shows the rotated matrix solution with suppressed low loading coefficients (<0.4). Loading coefficients show the correlation between the original

Table 1: The unrotated factor analysis

Eigenvalues	% of Variance	Cumulative %
5.866	32.588	32.588
2.180	12.109	44.698
2.069	11.497	56.194
1.497	8.315	64.509
1.023	5.681	70.190

Source: Authors’ calculations.

Table 2: The rotated factor analysis

Eigenvalues	% of Variance	Cumulative %
2.766	15.366	15.366
2.598	14.433	29.799
2.481	13.783	43.582
2.466	13.703	57.285
2.323	12.905	70.190

Source: Authors’ calculations.

variables and the corresponding factor. Using factor loadings we can compare how the obtained factor structure relates to the factor structure obtained in TAM research in Pikkarainen et al. [25]. Factor 1 relates to “perceived usefulness”, factor 2 to “information on m-banking”, factor 3 to “technological proficiency and conditions”, factor 4 to “perceived security” and factor 5 to “perceived ease of use”.

Regression analysis

After extraction of the latent factors, we now have the necessary input for a regression analysis where we can test our predictions about the relationship between the intention variables and factors from the technology acceptance model (TAM), i.e., reveal how different constructs affect user’s intentions. We denote the dependent variables about intentions as “INT”, and the predictor variables “perceived usefulness” as “PU”, “information on m-banking” as “PI”, “technological proficiency and conditions” as “TP”, “perceived security” as “PS”, and “perceived ease of use” as “PEU”. We specify our model with the following regression equation:

$$INT_i = \beta_0 + \beta_1 PU_i + \beta_2 PI_i + \beta_3 TP_i + \beta_4 PS_i + \beta_5 PEU_i + \varepsilon_i \quad (1)$$

where *i* stands for individual respondent and ε is the model error. Since we have three intention variables, we conduct the same number of regression analyses.

The variable “intention to be a regular user of m-banking in the future” was regressed on five TAM

Table 3: The factor analysis rotated matrix

Original Variables / Rotated Factors	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
I believe I am well informed about banking services in general		.850			
I believe I am well informed about mobile banking		.924			
I believe I am well informed about the advantages of mobile banking		.858			
I frequently access the internet using my mobile phone			.832		
I have adequate access to the internet during the whole day			.580		
I like using downloadable applications on my mobile phone			.860		
I learn quickly how to use applications on my mobile phone			.686		
Conducting banking transactions using a mobile phone application contributes to cutting my banking costs	.644				
Conducting banking transactions using a mobile phone application gives me free time for doing other activities	.795				
Conducting banking transactions using a mobile phone application requires less effort compared to visiting a branch or using online banking	.871				
Conducting banking transactions using a mobile phone application is more convenient compared to visiting a branch or using online banking	.766				
Learning how to use a mobile banking application is not difficult					.787
Interaction with the bank using a mobile banking application is simple					.772
Interaction with the bank over mobile banking application is clear and understandable					.731
I consider mobile banking to be safe				.795	
I consider my personal data to be protected when using mobile banking				.839	
I consider mobile banking to be more secure than online banking				.656	
In general, I have trust in the Serbian banking system				.556	

Source: Authors' calculations.

factors. The derived model is statistically significant with a p-value close to zero and a coefficient of determination above 40% (Table 4).

Table 4: Goodness of fit coefficients: intention to be a regular user (Model 1)

Model No.	R	R ²	Adj. R ²	P-value
1	.656	.431	.409	.000

Source: Authors' calculations.

All factors, except “information on m-banking”, are statistically significant (Table 5). The variable “information on m-banking” is only marginally significant (p < 0.1). Based on the absolute value of the t-statistic, we conclude that the variable “perceived security” has the strongest influence on the intention to be a regular user of m-banking.

Table 5: Regression coefficients for Model 1

	b _i	Std. error	T-statistic	P-value
Constant	3.926	.062	62.883	.000
PU	.343	.063	5.475	.000
PI	.105	.063	1.682	.095
TP	.201	.063	3.214	.002
PS	.425	.063	6.789	.000
PEU	.182	.063	2.901	.004

Source: Authors' calculations.

The model with the dependent variable “intention to urge others to use m-banking” is statistically significant but has a coefficient of determination below 30% (Table 6).

Table 6: Goodness of fit coefficients: intention to urge others to use m-banking (Model 2)

Model No.	R	R ²	Adj. R ²	P-value
2	.537	.288	.261	.000

Source: Authors' calculations.

In this model, we conclude that the variables “technological proficiency and conditions” and “perceived ease of use” are not good predictors of the intention to urge others to use m-banking, as these have low p-values (Table 7). The variable “perceived security” is again the strongest predictor of the intention variable in question.

Table 7: Regression coefficients for Model 2

	b _i	Std. error	T-statistic	P-value
Constant	3.407	.081	42.064	.000
PU	.226	.081	2.782	.006
PI	.185	.081	2.278	.024
TP	.132	.081	1.621	.107
PS	.487	.081	5.987	.000
PEU	.077	.081	.942	.348

Source: Authors' calculations.

The third model with the dependent variable “intention to do most of banking business without going to the branch” is statistically significant but has a coefficient of determination above 30% (Table 8).

Table 8: Goodness of fit coefficients: intention to exclusively use online or m-banking in the future (Model 3)

Model No.	R	R2	Adj. R2	P-value
3	.604	.364	.340	.000

Source: Authors' calculations.

In this third model, we conclude that the variables “technological proficiency and conditions” and “information on m-banking” are not good predictors of intention to follow a digital/virtual mode of business in dealing with banks due to the low p-values (Table 9). The variable “perceived usefulness” stands out as the most influential predictor of the dependent variable.

Table 9: Regression coefficients for Model 3

	b _i	Std. error	T-statistic	P-value
Constant	4.081	.066	61.644	.000
PU	.431	.066	6.483	.000
PI	.052	.066	.778	.438
TP	.106	.066	1.601	.112
PS	.284	.066	4.281	.000
PEU	.214	.066	3.226	.002

Source: Authors' calculations.

All the conducted regression analyses provide relevant insights into the determinants of the market intentions of Serbian young adults concerning different aspects of m-banking. The first model explicitly checked which factors are relevant for future usage of m-banking. It also proved to give the most robust results of all three models. Interestingly, the construct “information on m-banking” turned out to be irrelevant not just in this model, but also for model exploring intentions about doing business with banks completely in a digital manner, i.e., opting for “mobile/virtual only banks”. It appears that this young adult market segment is quite well informed about m-banking, so the provision of information is not as vital for its acceptance as it was in the early stages of m-banking.

Similarly, the construct “technological proficiency and conditions” was irrelevant in two of the regressions. For the dependent variable “intention to do most of banking business without going to the branch”, this seems somewhat

counterintuitive. In general, a preference to go completely virtual in banking should be a characteristic of users who are knowledgeable about and favor mobile technology. However, users who were at first exposed to old-style retail banking seem to appreciate and understand better the improvements that have taken place in technology, while our sample consisted of young adults who lack that accumulated experience. Studies confirm that the key demographic for m-banking are people in their mid to late thirties [16, p. 6]. This population is technologically comfortable and exhibits a high level of economic activity which is a perfect match for m-banking. On the other hand, our sample falls below this age threshold and has a lower economic activity, which could explain the irrelevance of related constructs in these regressions.

The notion to connect constructs relevant for m-banking acceptance with propensity to advocate for its usage (as estimated by Model 2, please see Tables 6 and 7) is a contribution to the literature in this domain. We based this idea on the logic that a customer with a positive attitude who is inclined to become an active customer is a potential candidate to promote mobile financial services by word of mouth and urge others to use them. If we were to capture the relevant constructs for the adoption of m-banking, it would enable an additional exploration of this relationship. While the relevant estimated regression had the weakest overall performance, it nevertheless highlighted that perceived security, perceived usefulness and information on m-banking exert statistically significant influences on the variable “intention to urge others to use m-banking”. It turned out that someone’s intention to recommend m-banking is predominantly dependent upon its secure usage, tangible benefits it delivers, and awareness and knowledge about it.

In sum, “perceived security” is the most prominent construct in all three regressions. Riquelme and Rios [26] argued that security was the most important factor that motivates consumers to adopt any new technology. It is hard to pinpoint any relevant study on the matter of innovative banking technology adoption that circumvents this element [31], [13], although the magnitude of its influence is not uniform. Our study complies with this pattern and boldly emphasizes the significance of security.

Concluding remarks

The role and impact of m-banking on a global scale can hardly be overstated. Consumers increasingly expect they can easily attain fast, convenient and compatible service on demand through a mobile phone. Yet, the assumption that it would be unconditionally accepted by all members of the society is unrealistic. This article aims to explore the determinants of the adoption of m-banking by young adults in Serbia. While young adults are presumably more receptive to new technologies than other members of society, adoption of m-banking cannot be taken for granted. A surge in m-banking development in Serbia began in 2014 with the commencement of the operations of Telenor bank. The rest of the banking sector followed rather quickly, with the main players demonstrating “catch-up” behavior, and a wide range of advanced mobile applications has since been launched by other banks.

In the light of the traditional technology acceptance model, we have distinguished and assessed five constructs relevant for adoption by means of factor analysis. To our knowledge, acceptance studies are an unexplored area of research in Serbia and the wider region. We have transposed a well-established methodology used in research about online banking into the m-banking context. We have provided an innovative contribution to the literature by formulating our own preliminary item list attached to each construct and excluded those items that did not fit well in the factor analysis. In the second step, we carried out a regression analysis through which we linked constructs and behavioral intentions, on the assumption that beliefs cause intentions. In order to determine to what extent each of the constructs contribute to explaining variation in the dependent variables, intention to use or urge others to use m-banking and intention to do most of banking business without going to the branch (branchless banking), we performed multiple regression analysis. The independent variables (constructs) were positively associated with the dependent variables without exception. Two of the constructs, “perceived usefulness” and “perceived security”, were statistically significant in each regression run. Consequently, they were marked as the most powerful antecedents of behavioral intentions. On the other hand, information on m-banking turned out

to be the weakest construct. This finding is peculiar as this construct was found to be a strong construct in earlier research work. From the managerial point of view, it seems that, to increase adoption of m-banking, a bank must accentuate its benefits and security. As regards security, the fact that Serbian media have not reported any misuse cases concerning m-banking may be a positive feature.

Impact assessment of m-banking should be treated cautiously, as m-banking may have some disadvantages and may not be fit for all banking products. It could be the case that consumers prefer specific banking channels for distinct product categories [10, p. 146]. For example, in dealing with complex banking products, like mortgages and auto loans, consumers often favor visiting branches and communicating face-to-face with bank officers. On the other hand, simple and routine tasks like bill payments or checking account balances are far more conveniently executed through the m-banking channel. Besides that, from the managerial perspective, two contradicting findings are of interest. On the one hand, m-banking users are more likely to recommend their bank to a friend thanks to a positive m-banking experience. However, m-banking users are also more likely to change their bank, in pursuit of a better deal, and so are in effect less loyal, exhibiting higher price-sensitivity [16, p. 21].

This work may serve as a local benchmark for future research on m-banking acceptance. Its limitation is that findings could not be generalized to a population as a whole, since it deals only with the youth market. This segment’s attitudes to mobile banking may differ markedly from the rest of the population, supposedly inclining more in favor of it. In order to explore the issue more rigorously, additional research is needed to enhance knowledge and understanding of the mobile banking adoption in our local and regional context. Each geography has its features and dynamics of adoption, and further investigation will provide valuable insights.

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