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THE CHALLENGE OF BANKING SERVICES DEVELOPMENT – GIVING ITS RIGHTFUL PLACE TO CUSTOMER SATISFACTION

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Abstract. Lately, the global banking services industry has faced numerous challenges: the digitalization, increased competition, the instability of monetary and foreign exchange markets, and the volatility of exchange rates. However, at present, banks are facing the greatest challenge of all that is, placing the customers at the centre of business and the systematic follow-up of customer satisfaction. The present paper aims at assessing the influence of a series of determinants and socio-demographic factors on customer satisfaction with banking services in Romania, using the *probit* and *logit* models. The research focused on the Romanian banking market due to its distinctiveness within the European context – performance indicators above the European average during the past five years and a concentration level that discloses a significant growth potential. The results of the two models employed revealed similar results, with the most influential variables on customer satisfaction being convenience, e-banking, quality, and revenues.

Keywords: customer satisfaction, banking industry development, banking services, satisfaction determinants, socio-demographic factors, probit and logit models.

JEL Classification: M41, C83, L20.

Introduction

The banking industry is one of the industries with the most dynamic evolution, both at global level and in Romania. During the last three decades, the global banking services industry has faced numerous challenges. Namely, there has been the issue of the digitalization and the disruptive technologies doubled by the competition of the new segment of financial services providers – fintech companies and the shadow banking entities (Romānova & Kudinska, 2016; Siek & Sutanto, 2019; OECD, 2020). At the same time, the consumers have become more mature and sophisticated and have increased their expectations regarding banking services. Moreover, the intrinsic competition in the market has increased, due to the reduced

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possibilities for differentiation in banking services, both in terms of transaction costs and customer advantages. As a natural consequence, banks have turned to the systematic and deep follow-up of customer satisfaction to gain a competitive advantage and preserve market shares and profits (Al-Eisa & Alhemoud, 2009; Hossain & Leo, 2009; Liang & Pei-Ching, 2014; Ali & Raza, 2015; Chocholáková et al., 2015; Belás & Gabčová, 2016). Romania makes no exception from this global trend and for this reason, the domestic banking market has undergone significant changes in approaching customer satisfaction as a key point of the strategic planning of the banks.

Both banks' management and academics have intensified the efforts to detect the determinants of banking services customer satisfaction. The recent literature abounds in studies searching for the optimal model to analyse the influence factors of customer satisfaction. In their quest to meet customer needs, banks adapted either voluntarily or strainedly to the new market conditions: the enhancement of digitalization in service provision and the introduction of e-banking and mobile banking services, which eventually became the mainstream approach to bank-customer relations.

Customer behaviour has also changed. Today, customers evaluate, besides the characteristics of the service, the bank capability to offer service packages rather than single services, customer assistance and counselling, waiting and processing times (OECD, 2020). Therefore, the development of the banking industry and the banking services tightly depends on customer needs and wants, their perception on the delivered quality, and eventually, on customer satisfaction.

We formulated the following research question: do convenience, quality, environment, tariffs, e-banking, and socio-demographic factors influence customer satisfaction with banking services? Therefore, the primary objective of the study is to assess the influence of a series of determinants and socio-demographic factors on customer satisfaction with banking services, using the *probit* and *logit* models.

From the primary objective, there were derived several secondary objectives referring to the estimation of the specific factors which exert significant influence upon customer satisfaction. Furthermore, the research findings will provide a framework for the development of banking services based on customer satisfaction and will add to the existing literature by providing a socio-demographic perspective of the construct of customer satisfaction determinants with banking services.

The article is divided into the following sections: introduction, the context of the Romanian banking industry, a conceptual approach to customer satisfaction and customer satisfaction with banking services, materials and method, results and discussion, and conclusions.

1. The Romanian banking industry evolution – the context for evaluating customer satisfaction

The key figures regarding the Romanian banking system presented in this section are aimed at pointing out the importance of the bank-client relationships, which contribute to bank performance.

The challenges faced by the Romanian banking market highlight the need to find new solutions for growth to ensure both the sustainable development of the industry and the abil-

ity to support the economic activity, with a consistent contribution to GDP. We noted several aspects to endorse this claim, which will be further detailed.

At the end of 2020, the Romanian banking system comprised only 34 credit institutions, compared to 43 in December 2008.

In terms of profitability, between 2008 and 2020 (considering quarterly values) the Romanian banking system recorded an average ROE of 6.9% and an average ROA of 0.71%. Between 2008 and 2019, the EU average ROE was 2.55% and ROA 0.17% (yearly values). This indicates that the Romanian banking system, although not the most profitable one in the region, can achieve a high level of performance on a sustainable base.

Relevant for characterizing the Romanian banking system is the offer of banking services, considering that to achieve sustainability, banks must provide services and products that satisfy the needs of the economy and people (Global Alliance for Banking on Values [GABV], 2012). There is little room for differentiation between banks service offers and most of the Romanian banks' operational income comes from net interest income, followed by net fees and commissions, and net exchange rate spread. The other macroeconomic factors that influence credits and deposits aside, the operational income breakdown reveals the importance of consumer satisfaction to bank profitability.

The households' deposits represented an important source of income for banks in Romania. At the end of 2019, currency and deposits accounted for 45% of the population's total financial assets (National Bank of Romania, 2020), proving that the households' preference for safe investments had not changed. From January 2008 to December 2020, the total value of households' deposits almost tripled in nominal terms, reaching 256 billion lei (50 billion EUR). The annual real growth rate of deposits in the first quarter of 2020 was 9.76%, 2.2 points higher than in the last quarter of 2019, but 23.7 points lower than in the first quarter of 2008 (National Bank of Romania, 2020).

In the context of the dramatic decrease of the saving capacity of households (from an individual financing capacity of 160.1 lei in 2008, to a financing necessity of 2,268 lei in 2018), this poses a real threat to credit institutions, in terms of population investment alternatives. Another threat in the same area comes from the increasing weight of other financial institutions' assets in the Romanian financial system (i.e., in the first quarter of 2020, the private pension funds owned 8.5% compared to just 0.18% of the financial system's total assets in 2008) (National Bank of Romania, n.d.).

After 2008, the lending activity for households resumed an upward trend, with several changes in the structure of the lending process. Firstly, the structure of credits by denomination currency reveals that, in the last years, the propensity for foreign currency lending has decreased. Between January 2008 and January 2021, the credits granted by the banks almost doubled in absolute values from 74 billion lei to 150 billion lei. In structure, the credits in national currency raise from 34 billion lei (about 46% of total loans granted) at the beginning of the analyzed period to 120 billion lei (80% of total loans) by the end of the period (National Bank of Romania, n.d.). Secondly, there was a shift in weight of consumer credits versus housing loans. According to the data provided by the National Bank of Romania, between January 2008 and January 2021 the average value of consumer credits has decreased from 77% to 39%. During the same period, the average value of housing loans has increased

from 20% to 60%. Thirdly, in the field of crediting, banks faced increasing competition from non-bank financial institutions.

The increasing role of electronic currency and electronic payments (almost 19 million cards in circulation in December 2020, a 4 million increase compared to March 2015, and card payments of 37,034 million lei in December 2020 compared to 8,354 million lei in March 2015) changed the interaction between banks and their customers (National Bank of Romania, n.d.). As the electronic transactions increase in volume, the customers are expected to become less willing to visit local bank units to make payments. This will affect the size of banks' territorial presence and the number of employees. As a matter of fact, the number of credit institutions' local units in Romania diminished by 40% in 2019 compared to 2008, and the number of employees decreased by 25% (European Central Bank, n.d.). The Bank Governance Leadership Network (2018) in one of its specialized studies sustained this trend. One solution proposed for these specific issues concerned the changes in the banks' personnel. In this context, the Romanian banking institutions should focus on staff training. The training practices proved to be positively associated with high performance levels within Romanian companies, especially large companies, where banking institutions are included (Antohi, 2016), with direct and indirect impact on the quality of the services provided. In the field of payment instruments, the position of banks as the most important services providers is threatened by fintech companies, which offer the same services as banks, but at lower costs and using more flexible instruments.

The development of modern technology allowed banks to offer on-line services to their customers. Based on the yearly surveys conducted by the Romanian National Institute of Statistics, the % of persons using internet banking services increased from 8.8 in 2011 to 14.8 in 2020 (Romanian National Institute of Statistics, n.d.).

To sum up, the Romanian banking sector is an interesting case to study due to several reasons. It has one of the highest levels of liquidity (a 245% value of LCR in March 2020) and solvency ratios (23.18% in 2020, considerably higher than the 8% recommended) in the EU. It holds 76.1% (in the first quarter of 2020) of the Romanian financial system's assets, also being the most important source for financing the real economic sector and the state. Moreover, it reached satisfactory profitability levels and it has proven its resilience during the crisis.

2. A conceptual framework of customer satisfaction with banking services

Two main approaches to customer satisfaction were extensively debated. Firstly, Cardozo (1965) and later followed by others (Hunt, 1977; Tse & Wilton, 1988) approached the concept of satisfaction as a process that involved an evaluation based on balancing the effort with the confirmation or disconfirmation of customer's expectations regarding a specific product or service after consumption. Secondly, several studies considered customer satisfaction as an outcome (Churchill & Surprenant, 1982). Later, customer satisfaction was rather subjectively viewed as "a person's feeling" (Kotler, 2000).

The customer satisfaction research has assigned a special importance to the antecedents of satisfaction. A plethora of scientific works identified perceived performance and customer expectations regarding the performance of a product/service to be the main antecedents

of satisfaction (Churchill & Surprenant, 1982; Oliver, 1980; Westbrook & Oliver, 1981; Yi, 1990). The way and the extent up to which perceived performance and customer expectations influence the level of customer satisfaction represent the subject of numerous scientific debates with quite different results. In some cases, perceived performance had a direct effect on customer satisfaction as well as customer expectation; in other cases, customer expectations had a direct effect on customer satisfaction, but the perceived performance had no significant direct effect, or it was found that the perceived performance had a direct effect on customer satisfaction, while customer expectations had no direct effect. Several studies identified quality as another antecedent of customer satisfaction (Anderson & Sullivan, 1993; Bolton & Drew, 1991; Churchill & Surprenant, 1982; Cronin & Taylor, 1992, 1994; Fornell, 1992). Other studies considered and proved that customer satisfaction is an actual antecedent of service quality and not the other way around (Bitner, 1990; Carman, 1990; Parasuraman et al., 1985, 1988, 1991, 1994). The relationship between service quality and customer satisfaction is therefore a subject of debate (Bahia & Nantel, 2000).

A special attention has been paid to customer satisfaction with financial services, especially banking services. The studies focused on several important directions: identifying the types of consumers the banking services are addressed to (Beckett et al., 2000), selecting the determinants of customer satisfaction when it comes to services (Anderson & Sullivan, 1993; Bahia & Nantel, 2000; Bitner, 1990; Bolton & Drew, 1991; Carman, 1990; Churchill & Surprenant, 1982; Cronin & Taylor, 1992, 1994; Fornell, 1992; Oliver, 1980; Parasuraman et al., 1985, 1988, 1991, 1994; Westbrook & Oliver, 1981; Yi, 1990), and selecting those determinants that are specific to banking services (Belás & Gabčová, 2014, 2016; Chocholáková et al., 2015; Keisidou et al., 2013; Mylonakis, 2009; Ozatac et al., 2016, Pakurár et al., 2019). Moreover, the specificity of the banking industry has led to the need to customize the methods used in the investigation of customer satisfaction.

Studies concentrated also on the specificity of banking services, which determines the need to identify proper survey methods combined with the level of depth. From this point of view, the research can be conducted on a single bank, on a group of banks or on the entire banking system, but for each of these cases it should be taken into consideration, for the relevance of the results, whether the inputs are local, regional, or national.

The discussion takes different paths when it comes to identifying the correct set of determinants for assessing customer satisfaction. As Belás and Gabčová (2016) concluded, there are at least two stances regarding the importance of customer satisfaction determinants. Several cited studies considered only one factor as being the middlemost influencer of customer satisfaction. Others stated that, depending on the types of customers, the depth and the level of investigation are indispensable for considering the proper combination of determinants. However, most approaches consider a matrix of customer satisfaction determinants and obtain hierarchies of determinants according to the importance assigned to each one. For example, Belás and Gabčová (2014) in a research conducted on Slovakian and Czech banking consumers revealed that the most important factor affecting satisfaction was e-banking. The study proposed seven determinants of customer satisfaction: the e-banking service, the speed of service provision at the branch, quality of products and services, friendliness of staff, availability of branches, the network of ATMs, others (consulting services, the absence

of service charges). Moreover, the study showed that customer satisfaction is a dynamic concept, the determinants' importance changing in time. The dynamism of the concept may be explained, on the one hand, by the fact that customers became more sophisticated in terms of expectations regarding the complexity of the services provided and better informed about the technical aspects of banking services. And on the other hand, the provision of banking services changed significantly during the last three decades because of new technologies, the Internet, and digitalization, and due to competition from new actors in the banking market (shadow banking firms and fintech companies). Keisidou et al. (2013) proposed as customer satisfaction determinants: economics, convenience, tangibles, service quality, image, value, and brand credibility. They found that brand credibility and tangibles had a significant effect on customer satisfaction as opposed to the convenience factor which had no impact on customer satisfaction. Mylonakis (2009) created a matrix of seven determinants and ranked them. The factors with the most significant impact were: location, personnel (manners), punctuality and trust, and technological modernization (e-commerce). Ozatac et al. (2016) investigated customer satisfaction with banking services in North Cyprus and proposed a matrix of ten determinants: reliability, responsiveness, competence, access, courtesy, communication, credibility, security, understanding – knowing the customer, and tangibles. The results showed that customer satisfaction with banking services on a small island where distances and location are not particularly relevant, depends on good and firm relations and on building trust between customers and bank employees. Pakurár et al. (2019) analysed a construct of determinants and obtained a hierarchy of composite dimensions influences on customer satisfaction, as follows: first (assurance, reliability, access, and employee competences), second (responsiveness and empathy), third (financial aspect), and fourth (tangibility).

Other studies deepened the analysis by including socio-demographic variables alongside customer satisfaction determinants. Jamal and Naser (2002) revealed that the socio-demographic characteristics of respondents in Abu Dhabi influenced their level of satisfaction, with education and income levels being important factors. Gan et al. (2011) determined that income, age, and occupation have a significant impact on the level of customer satisfaction in New Zeeland. Chavan and Ahmad (2013) investigated the relationship of several socio-demographic variables (gender, age, education, occupation, and income) with retail banking customer satisfaction in Western Maharashtra. Narteh and Kuada (2014) in a study conducted in Ghana, revealed that income, education, and experience had a moderating effect in the relationship between the relational, core, and tangible dimensions of the service delivery and customer satisfaction. Afzal (2013) examined socio-demographic variables in relation to customer satisfaction and loyalty in Punjab. Several studies investigated the relationship between socio-demographic variables and customer satisfaction with e-banking services (Seyal & Rahim, 2011; Moraru & Duhnea, 2018a).

More recent studies on consumer satisfaction with banking services address other research directions. Some studies analyze the relationship between service quality and customer satisfaction and the influence on customer loyalty or purchase intention (Supriyanto et al., 2021; Khatoon et al., 2020). Others concentrate the determinants of satisfaction under the umbrella of the service quality concept and add other less investigated so far determinants – cloud services, security systems and e-learning (Li et al., 2021). Another research direction

that has recently emerged in the literature is to analyze satisfaction only with respect to a certain category of services (eg self-service banking – Pooya et al., 2020).

3. Materials and methods

3.1. The model

The present study builds upon several research works conducted starting with 2016 (Ilie et al., 2017; Moraru & Duhnea, 2018a, 2018b) and continues the authors' research on influence factors impacting customer satisfaction using various research methods and their endeavour to identify models that enable the banking system to asses, ensure, and maintain consumer satisfaction with banking services. Considering previous approaches in the literature, for the purpose of the present research we settled upon five categories of customer satisfaction determinants with banking services, having several sub-criteria, amounting to 16 items: 1. convenience (a. bank location, b. distance to the bank, c. parking spaces availability, d. ATM availability); 2. environment (a. office furniture, b. equipment, c. cleanness, d. personnel physical appearance, e. bank atmosphere); 3. quality (a. bank confidence, b. personnel promptitude, c. safety of operation, d. personnel solicitude); 4. tariffs; 5. e-banking (a. availability of services, b. services performance).

The importance of demographic factors in satisfaction with banking services is widely emphasized in literature (Jamal & Naser, 2002; Gan et al., 2011; Seyal & Rahim, 2011; Afzal, 2013; Chavan & Ahmad, 2013; Seiler et al., 2013; Narteh & Kuada, 2014; Moraru & Duhnea, 2018a). Consequently, in the present research, the authors tried to reflect their importance through the variables considered in this respect, such as age, gender, education, professional status, residence (urban/rural), and level of revenues.

The primary objective of the research was to analyse the impact of the above-mentioned determinants of customer satisfaction with banking services. To ensure an analytical and explanatory character, from the central objective, secondary objectives were derived and subsequently subjected to validation through specific hypotheses, formulated as follows:

H0: Customer satisfaction with banking services depends on a mix of satisfaction determinants and socio-demographic factors;

H1: A series of convenience factors have a significant influence on the customer satisfaction with banking services;

H2: The environmental dimension influences customer satisfaction with banking services;

H3: The quality factors affect customer satisfaction with banking services;

H4: Tariffs influence customer satisfaction with banking services;

H5: E-banking services availability and performance influence customer satisfaction with banking services;

H6: The socio-demographic factors exert a significant influence on customer satisfaction with banking services.

The present research therefore constructed and tested a model to assess the influence of a series of determinants and demographic factors on customer satisfaction with banking services. Let us consider a customer *i* and assume the following elements that contribute to the satisfaction reported by the customer (CS) in relationship with the bank; demographic

factors: *AGE* – the age of the client (in years); EDU – the educational status of the interviewee; *GEN* – the gender of the interviewee; *PROF* – the social and professional status; *RES* – the area of residence (urban/rural); *REV* – the level of revenues: *CONV* – the reported (perceived) convenience; *ENV* – (environment); *QUAL* – quality; *TARRIFS* – the general perceived level of rates and tariffs used by the bank in relationship with the client; and *EBANK* – e-banking services.

Thereby, the considered form for the implied model is the following:

$$CS = f(AGE, EDU, GEN, PROF, RES, REV, CONV, ENV, QUAL, TARIFFS, EBANK). \quad (1)$$

In the considered model, the endogenous variable (CS) and some exogenous variables, are called limited dependent or discrete choice variables. The literature presents extensively the reasons for the OLS regression model does not represent a suitable selection for econometric modelling in case of this type of variables (Baltagi, 2008; Cameron & Triverdi, 2005; Greene, 2011; Peel et al., 1998; Verbeek, 2008). In these cases, the model estimation is based on the residual variable distribution function. There are various options available in this respect: in case of normal distribution, the *probit* method is employed; if the variable is considered to follow the logistic distribution, then the choice is represented by the *logit* model. Thereby, using of the *probit* model is based on the underlying assumption that the residual variable, of zero mean and variation equal to one, follows the normal cumulative distribution function, $\Phi(z) = \int_{-\infty}^{z} \phi(x)dx$, where $\phi(z) = e^{-z^2/2} / \sqrt{2\pi}$. Analogous, use of the *logit* model assumes that the residual variable of mean equal to zero and variation of $\pi^2/3$, follows the logistic cumulative distribution function, $\Lambda(z) = 1/(1+e^{-z}) = e^z/(1+e^z)$. In the considered framework, another available option is the extreme value coefficient, specific to the *probit* model; in this case, the residual value follows the normal distribution, similar to the description above, but of mean equal to the Euler's constant (≈ –0.5772) and the variation of $\pi^2/6$.

Specific to the multiple ordered choice models, the endogenous variable is subject to modelling across an unobserved (latent) variable, $y_i^* = \beta' x_i + \varepsilon_i$, $i = \overline{1,n}$, $\varepsilon_i \sim N(0,1)$, where β represents the vector of estimators, and does not include an intercept. Insertion within the model of the latent variable is related to the impossibility of its direct observation. In situations of this type, it is considered that the interviewee choses a certain level of satisfaction, if the utility gap exceeds a certain limit level, the vector of explanatory variables, X_p, $p = \overline{1,k}$, provided.

$$y_i = \begin{cases} 0, \text{ if } y_i^* \le \delta_0 \\ 1, \text{ if } \delta_0 < y_i^* \le \delta_1 \\ 2, \text{ if } \delta_1 < y_i^* \le \delta_2 \\ \\ J, \text{ if } \delta_{J-1} \le y_i^* \end{cases}. \quad (2)$$

In the Eq. (2), the δ-s represent the unknown "limit"-parameters, estimated concomitant with the β coefficients, through the maximization of the log-likelihood function. This function requires that ε-s are assumed to follow either the standard normal distribution (case of

ordered *probit* model), either the cumulative density of ε is under the logistic function (and, consequently, the modelling is based on the ordered *logit*).

3.2. The data

For attaining the objectives of the present study, a descriptive quantitative research was conducted, using a questionnaire as a research tool.

The questionnaire comprised a general, socio-demographic section focused on obtaining information about age, level of education, gender, professional status, residence, and level of revenues, and a section aimed at assessing the above-mentioned customer satisfaction determinants with banking services. Five-point semantic differentials (from 1 – very unsatisfactory to 5 – very satisfactory) were employed to assess the satisfaction level with each of the 16 criteria.

The questionnaire was administered in the region of Dobrudja (comprising two counties, Constanta and Tulcea), in the South-East of Romania, during September and November 2019. The Dobrudja region has a significant contribution to the country's GDP, ranging between 5.4% and 4.56% during 2014–2017 (Romanian National Institute of Statistics, n.d.). The Constanta County, which ranks first after the country's capital city in terms of contribution to GDP, mainly sustains the economic activity and the development of the region.

The sample size (N) was determined using the formula (Daniel & Cross, 2013):

$$N = \frac{\frac{z_\alpha^2 \, x \, p(1-p)}{e^2}}{1 + \frac{z_\alpha^2 \, x \, p(1-p)}{e^2 \, P}}, \tag{3}$$

where P is the size of the general population, z_α is the z-score, e is the margin error, and p is the probability to obtain an affirmative answer to the question addressed.

In this study, P = 873,969 (representing the adult population, aged above 18 years in the region under survey, according to the official statistics provided by the County Statistics Directorate (Constanta County Statistics Directorate, n.d.) for the year 2018), z_α =1.96, corresponding to a confidence level of 95%, e = 0.03, p = 0.5. The resulting sample size is 1,066.

1,200 questionnaires were randomly distributed using interview operators in the targeted region, and since the questionnaire targeted sensitive information such as income level, anonymity was ensured. 1,098 questionnaires were returned filled in, thus yielding a 0.08 rate of non-responses.

After eliminating the incomplete ones, the modelling process, using the methodology described in the section above, was finally conducted on 1,094 questionnaires.

4. Results and discussion

4.1. Results

The descriptive statistics of the variables is presented in the Table 1. Summary of collected data and values assigned in the model are presented in Appendix – Summary of General Information.

Table 1. Descriptive statistics

	CS	AGE	CONV	EBANK	EDU	ENV	GEN	PROF	QUAL	TARIFFS	RES	REV
Mean	4.09	3.29	3.75	3.42	1.59	3.64	1.49	2.62	4.13	3.71	1.20	3.69
Median	4	3	4	3.5	1	3.8	1	2	4.25	4	1	3
Max.	5	6	5	5	3	5	2	7	5	5	2	9
Min.	1	1	1	1	1	1	1	1	1	1	1	1
Std. Dev.	0.631	1.511	0.787	1.208	0.677	0.809	0.500	1.787	0.661	0.964	0.399	2.263
Skewness	–0.730	0.086	–0.566	–0.566	0.721	–0.570	0.059	1.776	–0.907	–0.403	1.513	0.664
Kurtosis	5.503	2.058	3.023	2.474	2.390	3.184	1.003	4.723	4.512	2.767	3.289	2.427
Jarque-Bera	382.77	41.81	58.42	71.07	111.67	60.83	182.33	710.40	254.37	32.01	421.15	95.29
Prob.	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sum	4476	3597	4106.5	3746	1738	3978.6	1625	2866	4522.25	4063	1311	4040
Sum Sq. Dev.	434.86	2494.3	676.11	1595.7	500.9	715.2	273.27	3491.81	477.39	1015.45	174.96	5598.8
Obs.	1094	1094	1094	1094	1094	1094	1094	1094	1094	1094	1094	1094

Note: **CS* – customer satisfaction; *AGE* – the age of the respondent (in years); *EDU* – the educational status of the interviewee; *GEN* – the gender of the interviewee; *PROF* – the social and professional status; *RES* – the area of residence (urban/rural); *REV* – the level of revenues: *CONV* – the reported (perceived) convenience; *ENV* – (environment); *QUAL* – quality; *TARRIFS* – the general perceived level of rates and tariffs used by the bank in relationship with the client; and *EBANK* – e-banking services.

From the 1094 respondents, 563 reported female gender, and 531 males, respectively; regarding the residence area, 897 live in urban and 214 live in the rural areas. This is consistent with the Romanian situation, generally characterized by a reduced penetration of banking services in rural areas.

The estimations use *probit* and *logit* techniques presented above and they are performed using the Eviews software package. The results are reported in Table 2 and Table 3.

As a perquisite for future processing, the data series must be tested for normality using the Jarque-Bera statistic, calculated upon the formula:

$$JB_c = n\left[\frac{S^2}{6} + \frac{(K-3)^2}{24}\right],$$

in which, n is the number of observations, S represents the skewness, and by K is denoted the kurtosis, calculated based on:

$$S = \frac{\frac{1}{n}\Sigma\left(y_i - \bar{y}\right)^3}{\sigma^3}, \text{ and } K = \frac{\frac{1}{n}\Sigma\left(y_i - \bar{y}\right)^4}{\sigma^4}, \text{ respectively.}$$

According to the values of Jarque-Bera test, presented in Table 1, the considered data series respect the hypothesis of normal distribution and consequently, suitable for further processing based on this assumption.

Table 2. Estimated customer satisfaction

Dependent Variable: CS			
Variables	PROBIT Coefficient	LOGIT Coefficient	Ordered extreme Coefficient
AGE	–0.0686** (–1.984)	–0.1289** (–2.092)	–0.1622*** (–4.155)
CONV	0.1838*** (3.648)	0.331*** (3.616)	0.2244*** (3.892)
EBANK	0.103*** (2.879)	0.1805*** (2.733)	0.1177*** (2.891)
EDU	0.0822 (1.2757)	0.183 (1.574)	0.1809*** (2.5749)
ENV	0.0024 (0.0477)	–0.0164 (–0.179)	–0.0421 (0.7281)
GEN	0.0031 (0.0396)	0.0198 (0.142)	0.1245 (1.4506)
PROF	0.0471* (1.664)	0.0878 (1.737)	0.0817*** (2.576)
QUAL	0.5927*** (8.383)	1.1464*** (8.671)	0.7512*** (9.844)
TARIFFS	0.1028** (2.250)	0.0202** (2.399)	0.1122** (2.211)
RES	–0.390** (–4.097)	–0.7219*** (–4.091)	–0.5002*** (–4.779)
REV	0.0631*** (3.229)	0.1404*** (3.973)	0.0789*** (3.714)
Pseudo R^2	0.140	0.154	0.163
LR statistic	279.17(***	307.6***	324.21(***
Log-likelihood	–857.269	–843.073	–834.747
Restr. log likelihood	–996.853	–996.853	–996.853
Avg. log likelihood	–0.7836	–0.771	–0.7631

End of Table 2

Dependent Variable: CS			
Variables	PROBIT Coefficient	LOGIT Coefficient	Ordered extreme Coefficient
$-\beta' x_i$	0.6686* (1.742)	0.6243 (0.778)	–1.5372** (–2.4623)
$\delta_1 - \beta' x_i$	1.178*** (3.271)	2.140*** (3.195)	–0.0267 (–0.0603)
$\delta_2 - \beta' x_i$	2.236*** (6.339)	4.437*** (6.871)	2.0307*** (5.2501)
$\delta_3 - \beta' x_i$	4.582*** (12.31)	8.62*** (12.34)	5.0342*** (12.24)

Note: the values in brackets are the z -statistics. ***, **, * indicate the coefficients which are statistically significant at 1, 5, and 10%, respectively.
**CS* – customer satisfaction; *AGE* – the age of the respondent (in years); *EDU* – the educational status of the interviewee; *GEN* – the gender of the interviewee; *PROF* – the social and professional status; *RES* – the area of residence (urban/rural); *REV* – the level of revenues: *CONV* – the reported (perceived) convenience; *ENV* – (environment); *QUAL* – quality; *TARRIFS* – the general perceived level of rates and tariffs used by the bank in relationship with the client; and *EBANK* – e-banking services.

Table 3. Estimation of conditional probabilities and marginal effects

	Φ	Marginal effects						
		CONV	EBANK	ENV	QUAL	TARIFFS	RES	REV
$y^*= 0$	0.7481	–0.05864	–0.03284	–0.00077	–0.1891	–0.0328	0.1246	–0.0201
$y^*= 1$	0.8806	0.022006	0.012324	0.000288	0.0710	0.0123	–0.0467	0.0076
$y^*= 2$	0.9873	0.030616	0.017146	0.000401	0.0987	0.0171	–0.0650	0.0105
$y^*= 3$	0.999998	0.006015	0.003368	0.000079	0.0194	0.0034	–0.0128	0.0021
$y^*= 4$	1.0000	0.000002	0.000001	0.00000003	0.000007	0.000001	–0.000004	0.000001

Note: **RES* – the area of residence (urban/rural); *REV* – the level of revenues: *CONV* – the reported (perceived) convenience; *ENV* – (environment); *QUAL* – quality; *TARRIFS* – the general perceived level of rates and tariffs used by the bank in relationship with the client; and *EBANK* – e-banking services.

The output results using the two techniques employed are very similar, as expected, consistent with the findings in literature (Baltagi, 2008). Also, Table 2 contains the results of estimating through the ordered extreme technique, as the reported results are slightly different compared to the other two aforementioned estimation methods. The variables that reported statistically significant influence upon the customer satisfaction in relationship with their bank are: CONV (convenience), EBANK (the e-banking services), QUAL (the perceived quality of services), and REV (declared revenues) – at 1% level of significance; AGE (the age of the customer), TARIFFS, and RES (declared residence area) – at 5% level of significance; and PROF (the social and professional status) – at 10% level of significance. Nevertheless, within the ordered extreme model, all the above-mentioned variables reported significant influence at 1% level of significance (except for RES, significant at 5%). Moreover, unlike the two aforementioned techniques, the results of the ordered extreme model reported a significant influence (at 1% level of significance), also for the variable EDU (the educational level of the interviewee).

According to these results, the hypotheses 0,1,3,4, and 5 are confirmed, while hypothesis 2 was not confirmed.

Despite the attention granted by the survey to the environmental factors, to ensure a proper measure of their influence, all the employed techniques reported statistically insignificant results for the corresponding variable. This is also the case of the variable regarding gender, leading to the conclusion that the perceived satisfaction for the baking services is not related to the gender of the customer. Interestingly, the variables AGE and RES bear the negative sign, expressing an increasing probability of reducing satisfaction with the age of the interviewee; regarding the residence area, the codification within the model is 1 for the urban and 2 for the countryside residents. This result may be related to the specific situation of banking services in Romania, characterized by their reduced addressability for the rural areas.

Specific to the ordered models is that neither the value nor the sign of the parameters can provide information regarding the results of the estimation; therefore, the direct interpretation of parameters represents a serious source of ambiguity. In order to establish their true sense (that is, the marginal effects), the coefficients of the variables reported as significant through the model are subject to future processing. Using the Eq. (2), the coefficients are evaluated using standard normal densities at the "threshold"-points φ(δj), (Baltagi, 2008). The resulting coefficients from Eq. (1) using probit model (Table 2) are subject to this processing (as all the „threshold"-points δj reported statistically significant values). The estimates of the present research for the probit model imply:

$$CS^* = -0.069AGE + 0.18CONV + 0.10EBANK + 0.08EDU + 0.002ENV + 0.003GEN + 0.047PROF + 0.59QUAL + 0.10RATES - 0.39RES + 0.063REV; \quad (4)$$

$$CS^* = \begin{cases} 0, \text{ if } CS^* = 0 \\ 1, \text{ if } 0 < CS^* \le 0.6686 \\ 2, \text{ if } 0.6686 < CS^* \le 1.1781 \\ 3, \text{ if } 1.1781 < CS^* \le 2.2362 \\ 4, \text{ if } 2.2362 < CS^* \le 4.5824 \\ 5, \text{ if } CS^* > 4.5824 \end{cases}. \quad (5)$$

The results are presented in Table 2.

The marginal effects express the influence upon the specific probabilities per unit change in the regressor; it depends on all the parameters considered in the model, the data, and which probability (cell) is of interest. It can be negative or positive. The figures in the Table 2 express the implied model for a respondent with average characteristics: age of 3.3 (according to the established categories ≈ 38 years), resident mainly in the urban area (1.2), with a professional status of employee (2.62), and revenues of 2,350 Lei (≈3.69), reporting an average satisfaction regarding: the environmental conditions of 3.64, the quality of interaction of 4.13 and tariffs of 3.71. The Figure 1 depicts the implied probability distribution in the population for individuals with these (mean) characteristics. At the change in characteristics (x), the probability distribution changes accordingly. In terms of the figure, changes in the characteristics induce changes in the placement of the partitions in the distribution and, in turn, in the probabilities of the outcomes. The implied model for a person with average characteristics, as described above, is plotted in Figure 1.

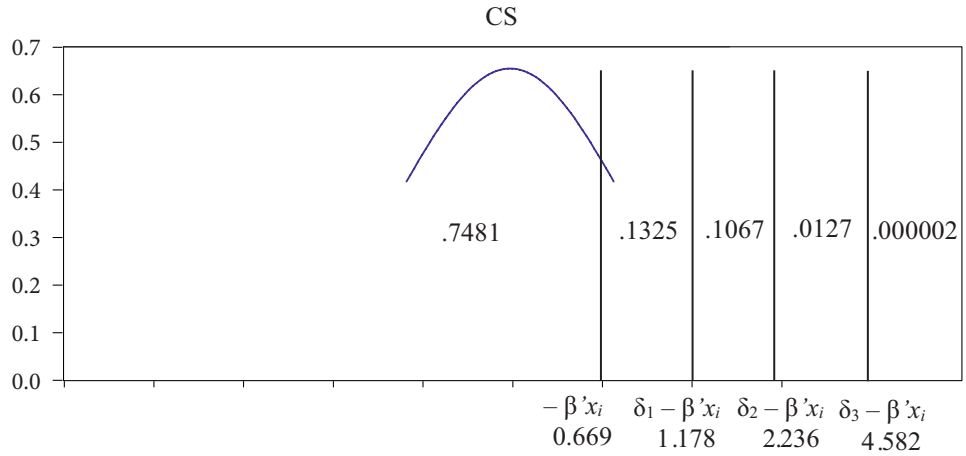

Figure 1. Estimated Ordered Probit Model

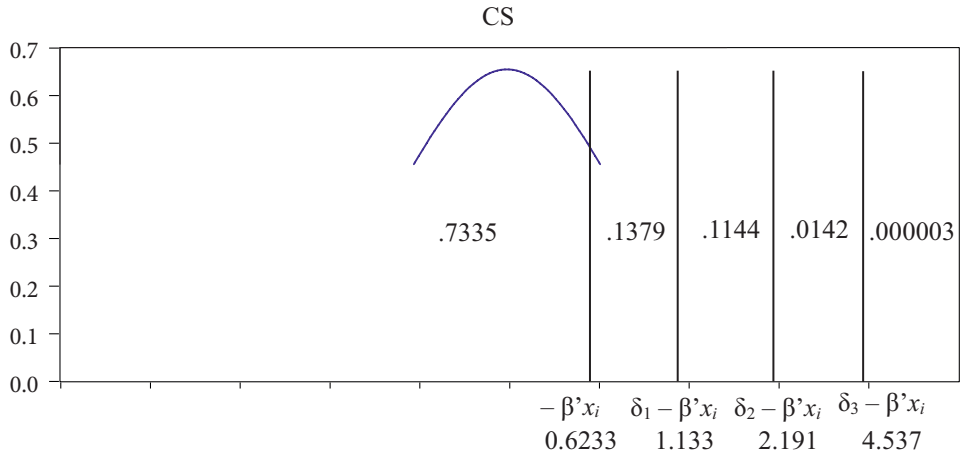

Figure 2. Partial effect of increase of convenience reported (to 4) in Ordered Probit Model estimated

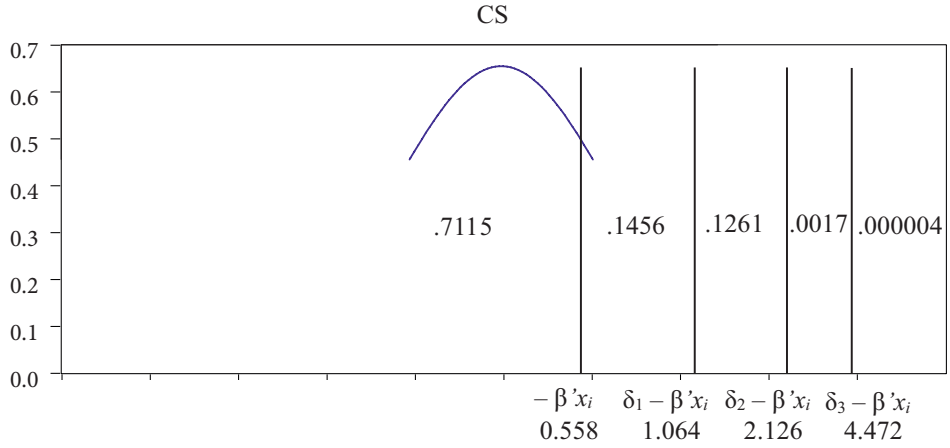

Figure 3. Partial effect of increase the satisfaction reported for e-banking services (to 4.5) in Ordered Probit Model estimated

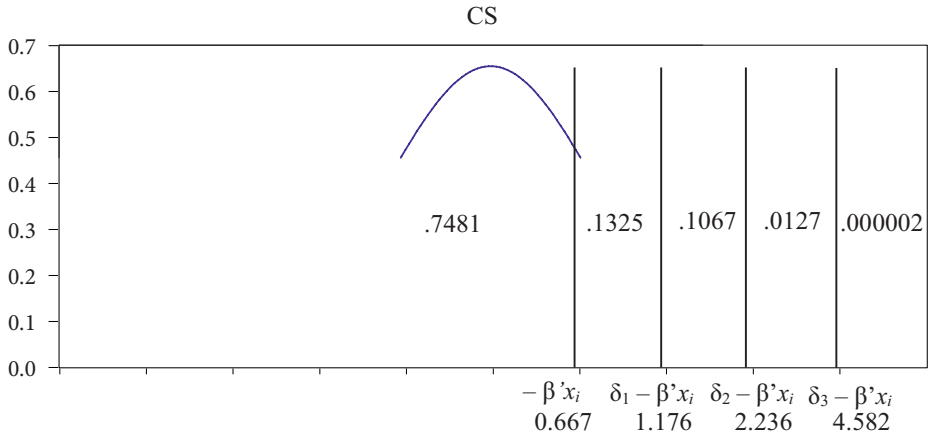

Figure 4. Partial effect of increase the satisfaction reported for environmental conditions (to 4.5) in Ordered Probit Model estimated

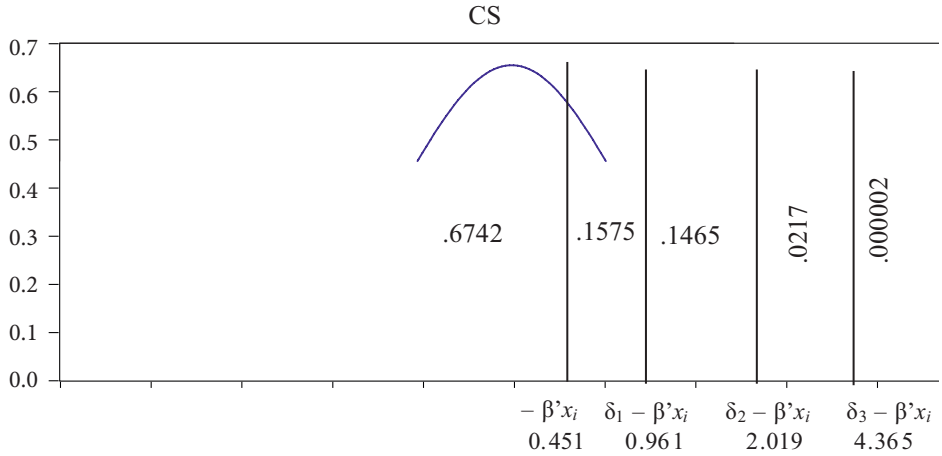

Figure 5. Partial effect of increase the satisfaction reported for quality elements (to 4.5) in Ordered Probit Model estimated

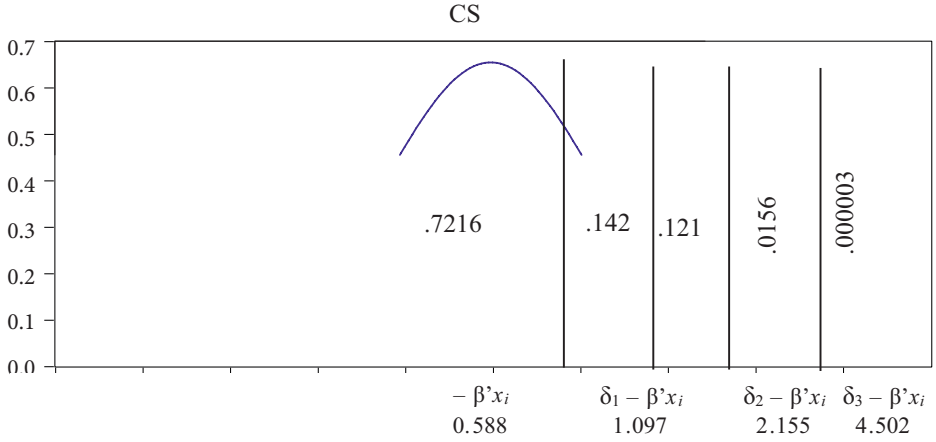

Figure 6. Partial effect of increase the satisfaction reported for banking tariffs (to 4.5) in Ordered Probit Model estimated

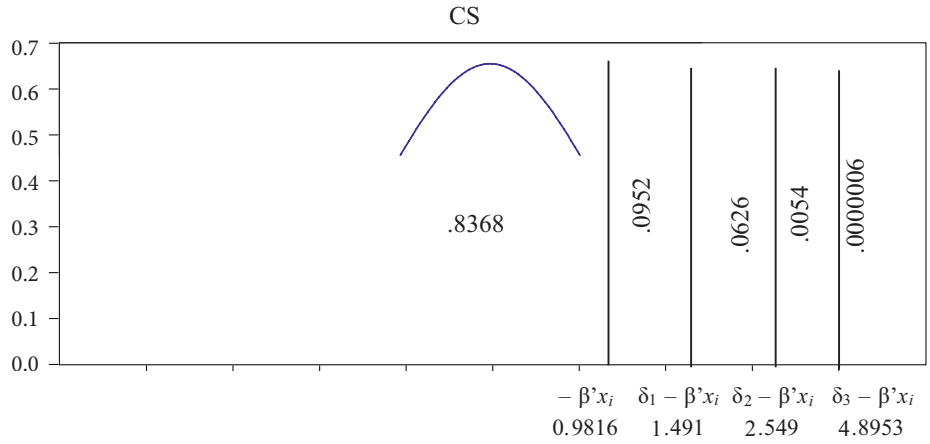

Figure 7. Partial effect of change in residence area (to 2) in Ordered Probit Model estimated

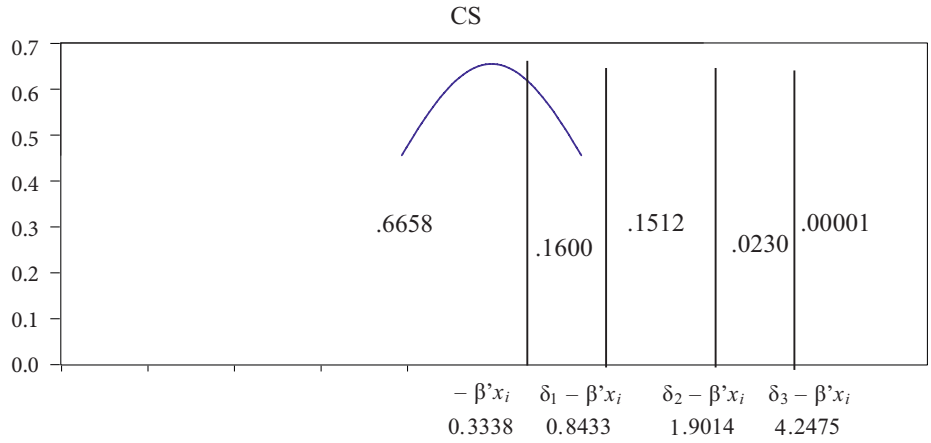

Figure 8. Partial effect of change in revenues (to 9) in Ordered Probit Model estimated

The partial effects describe the expected impact on the probabilities per additional change for each of the variables; in the present research, only the variables with significant influence are considered: CONV, EBANK, ENV, QUAL, TARIFFS, RES, and REV, respectively. Roughly speaking, an improvement in any of these categories is expected to lead to improvements in customer satisfaction; since the effects are denominated as "marginal", the changes implied are typically of reduced magnitude, as it appears in Table 3.

As the figures in Table 3 indicate, the situation shown in Figure 2 is common for the other significant variables (plotted in Figures 3 to 7), except the revenues. The marginal effects for the variable regarding the revenues are of the most important magnitude. If there is considered the same individual shown in Figure 1, except now, with reported revenue placed between 3,501 and 4,000 lei, corresponding to a value of 7.5, the satisfaction probability distribution is presented in Figure 8.

4.2. Discussion

Our findings support previous research regarding the existence of various determinants of customer satisfaction with banking services and the particularities of our study will be detailed next. The convenience factor is present in numerous studies regarding customer satisfaction with banking services, even though the considered dimensions are slightly different. Our findings regarding the strong impact of the convenience factor on customer satisfaction are consistent with previous studies (Kombo, 2015; Mylonakis, 2009). However, there are also studies that found convenience not relevant to customer satisfaction (Keisidou et al., 2013). The impact of e-banking on customer satisfaction seems to be a particular topic of research, approached from various angles, both as a unique determinant of customer satisfaction, and as part of a broader list of determinants. The relevance of e-banking as a customer satisfaction determinant in our research confirms the conclusions of previous studies (Baskar & Ramemesh, 2010; Firdous & Farooqui, 2017; Hamamoud et al., 2018; Kombo, 2015; Moraru & Duhnea, 2018a; Musiime & Ramadhan, 2011). Moreover, at present, the research regarding banking services seems to be particularly focused on the importance of e-banking. Recent trends in technology development, the proliferation of disruptive innovations, as well as the general situation shaped by the pandemic led to an ample separate research topic – customer satisfaction regarding e-banking services. In our study, the quality dimensions were related to both specific banking operations as well as to personnel involvement and skills, and, as expected, reported significant influence on customer satisfaction. Therefore, our research joins a plethora of studies that reveal a direct and strong impact of quality on customer satisfaction (Amin et al., 2018; Belás & Gabčová, 2014; Gan et al., 2011; Ilie et al., 2017; Quayson et al., 2019). Tariffs play a particular role in the research on customer satisfaction with banking services. On the one hand, tariffs are considered a determinant with a strong influence on customer satisfaction, and our research is in line with these findings (Gan et al., 2011; Kombo, 2015; Pakurár et al., 2019). On the other hand, tariffs were considered as moderators in the relationship between other determinants and customer satisfaction (Caruana et al., 2000; Gan et al., 2011). The dimensions we included in our study under the environment category may be found in other studies as tangibles or may be included under the convenience category. In our study, in one of the performed models, the environment was revealed as not having a statistically significant impact on customer satisfaction. This conclusion is in line with those of previous studies (Ilie et al., 2017; Jamal & Naser, 2002; Ladhari et al., 2011). However, other studies found this determinant significant (Abdullah et al., 2014; Keisidou et al., 2013; Narteh & Kuada, 2014; Pakurár et al., 2019; Sabir et al., 2014).

If the literature focusing on different determinants impact on customer satisfaction with banking services is rather well represented, the assessment of demographic factors' impact on customer satisfaction appears in only a few studies. The present research covers this gap, offering a comprehensive framework. Our study revealed that age, revenue, and residence bear a strong impact on customer satisfaction, while professional status and educational level seem to have a marginal influence. In addition, the research results found gender statistically insignificant. Previous studies revealed mixed results concerning the impact of demographic factors on customer satisfaction: in some cases, income, age, and occupation were found relevant (Gan et al., 2011), in others, income and education levels appear to determine customer satisfaction (Jamal & Naser, 2002), while in others, gender, age, and educational attainment were found insignificant (Belás & Gabčová, 2014).

Conclusions

The Romanian banking system holds a particular place within the European context with indicators above the European average. However, in Romania customer satisfaction with banking services was not thoroughly investigated; most previous studies either focused on only one bank or were conducted on small samples of respondents. Our study adds to the existing literature by focusing on a large sample of Romanian customers, in one of the most important regions of the country as far as the economic activity is concerned.

The novelty of our approach resides in considering quality as a customer satisfaction determinant, compared to numerous studies, which have investigated customer satisfaction through the different dimensions of service quality. Moreover, in our research, alongside the series of customer satisfaction determinants (convenience, environment, quality, tariffs, and e-banking) there were added several demographic factors to the econometric modelling.

The *probit* and *logit* techniques employed revealed similar results, namely, the most important customer satisfaction determinants were convenience, e-banking, quality, and revenues from the group of demographic variables. On the other hand, within the *ordered extreme* model convenience, e-banking, quality, tariffs (customers' satisfaction determinants) and revenues, age, and professional status (demographic factors) were revealed as significant. All the employed techniques reported statistically insignificant results for the environment as determinant of customer satisfaction and for the demographic factor gender. The age variable bears the negative sign, expressing an increasing probability of reducing satisfaction with the age of the interviewee. The same case is reported for the demographic factor residence, a result that relates to the specific situation of banking services in Romania, characterized by their reduced addressability for the rural areas.

The results of the present research may represent a framework for the bank management – customer relationship. Not only has the era of "*client seeking the bank*" ended, but also banks cannot ignore anymore the pressure to include disruptive technologies into banking service offer. Paying attention to the determinants of customer satisfaction as well as to the socio-demographic particularities may well become the strategic approach of banks regarding new service development and service improvement. Consumer behavior is constantly changing; customers are more informed and willing to search for the offer that suits them best. The banking industry is changing as well; banks are facing unprecedented competition and new challenges. The global economy and the society are reshaping. Digitalization, tailored services, a constant concern for customer satisfaction determinants and identification of consumer profiles are bound to become the norm in the banking industry.

Although our study adds to the existing literature, one of its limitations refers to the area of study, that is, only one geographical region. That is why a future research direction could focus on the entire country, thus capturing a broader sector image. Moreover, the replication of the research to compare customer behavior before and after the SARS-CoV-2 pandemic could be of interest. In addition, the construct of determinants considered in this paper may be amended for future research to reflect the growing importance of e-banking and new technologies.

References

Abdullah, M. A., Manaf, N. H., Yusuf, M.-B. O., Ahsan, K., & Azam, F. (2014). Determinants of customer satisfaction on retail banks in New Zealand: An empirical analysis using structural equation modelling. *Global Economy and Finance Journal*, *7*(1), 63–82. https://doi.org/10.21102/gefj.2014.03.71.04

Afzal, N. (2013). Impact of customer satisfaction and demographic factors on customer's loyalty in banking sector of Pakistan. *Middle East Journal of Scientific Research*, *18*(5), 721–727.

Al-Eisa, A. S., & Alhemoud, A. M. (2009). Using a multiple-attribute approach for measuring customer satisfaction with retail banking services in Kuwait. *International Journal of Bank Marketing*, *27*(4), 294–314. https://doi.org/10.1108/02652320910968368

Ali, M., & Raza, S. A. (2015). Service quality perception and customer satisfaction in Islamic banks of Pakistan: The modified SERVQUAL model. *Total Quality Management & Business Excellence*, *28*(5–6), 559–577. https://doi.org/10.1080/14783363.2015.1100517

Amin, H. J., Onyeukwu, P. E., & Osuagwu, H. I. (2018). E-banking, service quality and customer satisfaction in selected Nigerian Banks. *Journal of International Business Research and Marketing*, *4*(2), 51–57. https://doi.org/10.18775/ijied.1849-7551-7020.2015.42.2004

Anderson, E. W., & Sullivan, M. W. (1993). The antecedents and consequences of customer satisfaction for firms. *Marketing Science*, *12*(2), 125–143. https://doi.org/10.1287/mksc.12.2.125

Antohi, I. (2016). The high performance working practices in Romanian companies – an empirical study. *„Ovidius" University of Constanta Annals, Economic Sciences Series*, *16*(1), 264–268.

Bahia, K., & Nantel, J. (2000). A reliable and valid measurement scale for the perceived service quality of banks. *International Journal of Bank Marketing*, *18*(2), 84–91. https://doi.org/10.1108/02652320010322994

Baltagi, B. H. (2008). *Econometrics* (4th ed.). Springer-Verlag.

Bank Governance Leadership Network. (2018). *The future of talent in banking: Workforce evolution in the digital era*. https://www.tapestrynetworks.com/sites/default/files/publication_pdf/BGLN%20ViewPoints%20-%20Future%20of%20talent%20in%20banking%20-%20Final%20-%2020%20April%202018%20-%20web_0.pdf

Baskar, S., & Ramemesh, M. (2010). Linkage between online banking service quality and customers. *Perspectives of Innovations, Economics & Business*, *6*(3), 45–51. https://doi.org/10.22004/ag.econ.125807

Beckett, A., Hewer, P., & Howcroft, B. (2000). An exposition of consumer behavior in the financial services industry. *International Journal of Bank Marketing*, *18*(1), 15–26. https://doi.org/10.1108/02652320010315325

Belás, J., & Gabčová, L. (2014). Reasons for satisfaction and dissatisfaction of bank customers. study from Slovakia and the Czech Republic. *International Journal of Entrepreneurial Knowledge*, *2*(1), 4–13. https://doi.org/10.15759/ijek/2014/v2i1/53759

Belás, J., & Gabčová, L. (2016). The relationship among customer satisfaction, loyalty and financial performance of commercial banks. *Ekonomie a Management*, *2*(1), 132–144. https://doi.org/10.15240/tul/001/2016-1-010

Bitner, M. J. (1990). Evaluating service encounters: The effects of physical surroundings and employee responses. *Journal of Marketing*, *54*(4), 69–82. https://doi.org/10.1177/002224299005400206

Bolton, R., & Drew, J. A. (1991). Longitudinal analysis of the impact of service changes on customer attitudes. *Journal of Marketing*, *55*(1), 1–10. https://doi.org/10.1177/002224299105500101

Cameron, A. C., & Triverdi, P. K. (2005). *Microeconometrics – methods and applications*. Cambridge University Press. https://doi.org/10.1017/CBO9780511811241

Cardozo, R. (1965). An experimental study of customer effort, expectation, and satisfaction. *Journal of Marketing Research*, *2*(3), 244–249. https://www.jstor.org/stable/3150182?seq=6#page_scan_tab_contents

Carman, J. (1990). Consumer perceptions of service quality: An assessment of the SERVQUAL dimension. *Journal of Retailing*, *66*(1), 33–55.

Caruana, A., Money, A., & Berthon, P. (2000). Service quality and satisfaction – the moderating role of value. *European Journal of Marketing*, *34*(11–12), 1338–1353. https://doi.org/10.1108/03090560010764432

Chavan, J., & Ahmad, F. (2013). Factors affecting on customer satisfaction in retail banking: An empirical study. *International Journal of Business and Management Invention*, *2*(1), 55–62.

Chocholáková, A., Gabcová, L., Belás, J., & Sipko, J. (2015). Bank customers' satisfaction, customers' loyalty and additional purchases of banking products and services. A case study from the Czech Republic. *Economics & Sociology*, *8*(3), 82–94. https://doi.org/10.14254/2071-789X.2015/8-3/6

Churchill, G. A. Jr., & Surprenant, C. (1982). An investigation into the determinants of customer satisfaction. *Journal of Marketing Research*, *19*(4), 491–504. https://doi.org/10.1177/002224378201900410

Constanta County Statistics Directorate. (n.d.). *Interactive database*. https://constanta.insse.ro/

Cronin, J. J., & Taylor, S. A. (1992). Measuring service quality: A re-examination and extension. *Journal of Marketing*, *56*(3), 55–68. https://doi.org/10.1177/002224299205600304

Cronin J. J., & Taylor, S. A. (1994). Servperf vs. Servqual: Reconciling performance based and perceptions-minus-expectations measurement of service quality. *Journal of Marketing*, *58*(1), 125–131. https://doi.org/10.1177/002224299405800110

Daniel, W. W., & Cross, C. L. (2013). *Biostatistics: A foundation for analysis in the health sciences* (10 ed.). Wiley.

European Central Bank. (n.d.). *Statistical Data Warehouse*. https://sdw.ecb.europa.eu/

Firdous, S., & Farooqi, R. (2017). Impact of internet banking service quality on customer satisfaction. *Journal of Internet Banking and Commerce*, *22*(1), 1–17.

Fornell, C. (1992). National satisfaction barometer: The Swedish experience. *Journal of Marketing*, *56*(1), 6–21. https://doi.org/10.1177/002224299205600103

Gan, C., Clemes, M., Wei, J., & Kao, B. (2011). An empirical analysis of New Zealand bank customers' satisfaction. *Banks and Bank Systems*, *6*(3), 63–77.

Global Alliance for Banking on Values. (2012). *Strong, straightforward and sustainable banking* (A Report on Financial Capital and Impact Metrics of Values Based Banking). www.gabv.org/wp-content/uploads/Full-Report-GABV-v9d.pdf

Greene, W. H. (2011). *Econométrie* (7 ed.). Pearson Education France.

Hammoud, J., Bizri, R. M., & El Baba, I. (2018). The impact of E-Banking service quality on customer satisfaction: Evidence from the Lebanese banking sector. *SAGE Open*, *8*(3), 1–12. https://doi.org/10.1177/2158244018790633

Hossain, M., & Leo, S. (2009). Customer perception on service quality in retail banking in Middle East: The case of Qatar. *International Journal of Islamic and Middle Eastern Finance and Management*, *2*(4), 338–350. https://doi.org/10.1108/17538390911006386

Hunt, K. H. (1977). CS/D: Overview and future research direction. In H. K. Hunt (Ed.), *Conceptualization and measurement of consumer satisfaction and dissatisfaction* (pp. 455–488). Marketing Science Institute.

Ilie, M., Moraru, A.-D., & Ghita-Mitrescu, S. (2017). The hierarchical determination of customer satisfaction with banking services using an artificial neural network. *Transformations in Business & Economics*, *16*(2A), 401–420.

Jamal, A., & Naser, K. (2002). Customer satisfaction and retail banking: An assessment of some of the key antecedents of customer satisfaction in retail banking. *International Journal of Bank Marketing*, *20*(4), 146–160. https://doi.org/10.1108/02652320210432936

Keisidou, E., Sarigiannidis, L., Maditinos, D. I., & Thalassinos, E. I. (2013). Customer satisfaction, loyalty and financial performance: A holistic approach of the Greek banking sector. *International Journal of Bank Marketing*, *31*(4), 259–288. https://doi.org/10.1108/IJBM-11-2012-0114

Khatoon, S., Zhengliang, X., & Hussain, H. (2020). The mediating effect of customer satisfaction on the relationship between electronic banking service quality and customer purchase intention: Evidence from the Qatar banking sector. *SAGE Open*, *10*(2), 1–12. https://doi.org/10.1177/2158244020935887

Kombo, F. (2015). Customer satisfaction in the Kenyan banking industry. *Journal of International Studies*, *8*(2), 174–186. https://doi.org/10.14254/2071-8330.2015/8-2/15

Kotler, P. (2000). *Marketing management millenium edition* (10 ed.). Pearson Prentice Hall.

Ladhari, R., Souiden, N., & Ladhari, I. (2011). Determinants of loyalty and recommendation: The role of perceived service quality, emotional satisfaction and image. *Journal of Financial Services Marketing*, *16*(2), 111–124. https://doi.org/10.1057/fsm.2011.10

Li, F., Lu, H., Hou, M., Cui, K., & Darbandi, M. (2021). Customer satisfaction with bank services: The role of cloud services, security, e-learning and service quality. *Technology in Society*, *64*, 101487. https://doi.org/10.1016/j.techsoc.2020.101487

Liang, C.-C., & Pei-Ching, W. (2014). Internet-banking customer analysis based on perceptions of service quality in Taiwan. *Total Quality Management & Business Excellence*, *26*(5–6), 550–568. https://doi.org/10.1080/14783363.2013.856546

Moraru, A.-D., & Duhnea, C. (2018a). E-banking and customer satisfaction with banking services. *Strategic Management*, *23*(3), 3–9. https://doi.org/10.5937/StraMan1803003M

Moraru, A.-D., & Duhnea, C. (2018b). Assessing customer satisfaction with banking services using 3D mathematical representation. In B. Krstic (Ed.), *Strengthening the competitiveness of enterprises and national economies. Thematic collection of papers of international significance* (pp. 19–37). University of Nis, Serbia.

Musiime, A., & Ramadhan, M. (2011). Internet banking, consumer adoption and customer satisfaction. *African Journal of Marketing Management*, *3*(10), 261–269.

Mylonakis, J. (2009). Bank satisfaction factors and loyalty: A survey of the Greek bank customers. *Innovative Marketing*, *5*(1), 16–25.

Narteh, B., & Kuada, J. (2014). Customer satisfaction with retail banking services in Ghana. *Thunderbird International Business Review*, *56*(4), 353–371. https://doi.org/10.1002/tie.21626

National Bank of Romania. (2020, June). *Financial stability report*. https://www.bnr.ro/Publicatii-periodice-204.aspx

National Bank of Romania. (n.d.). *Statistics Interactive Database*. www.bnr.ro

OECD. (2020). *Digital disruption in banking and its impact on competition*. http://www.oecd.org/daf/competition/digital-disruption-in-financial-markets.htm

Oliver, R. L. (1980). A cognitive model of the antecedents and consequences of satisfaction decisions. *Journal of Marketing Research*, *17*(4), 460–469. https://doi.org/10.1177/002224378001700405

Ozatac, N., Saner, T., & Sen, Z. (2016). Customer satisfaction in the banking sector: The case of North Cyprus. *Procedia Economics and Finance*, *39*, 870–878. https://doi.org/10.1016/S2212-5671(16)30247-7

Quayson, P., Chen, Y., Nti, T., & Sarfo, B. F. (2019). The impact of service quality on customer satisfaction and loyalty in the banking industry of Ghana. *International Journal of Management Sciences and Business Research*, *8*(8), 57–67.

Pakurár, M., Haddad, H., Nagy, J., Popp, J., & Oláh, J. (2019). The service quality dimensions that affect customer satisfaction in the Jordanian Banking Sector. *Sustainability, 11*(4), 1–24. https://doi.org/10.3390/su11041113

Parasuraman, A., Zeithaml, V. A., & Berry, L. L. (1985). A conceptual model of service quality and its implications for future research. *Journal of Marketing*, *49*(4), 41–50. https://doi.org/10.1177/002224298504900403

Parasuraman, A., Zeithaml, V. A., & Berry, L. L. (1988). ServQual: A multi-item scale for measuring consumer perceptions of quality. *Journal of Retailing*, *64*(1), 12–40.

Parasuraman, A., Berry, L. L., & Zeithaml, V. A. (1991). Perceived service quality as a customer-based performance measure: An empirical examination of organizational barriers to using an extended service quality model. *Human Resource Management*, *30*(3), 335–364. https://doi.org/10.1002/hrm.3930300304

Parasuraman, A., Zeithaml, V. A., & Berry, L. L. (1994). Alternative scales for measuring service quality: A comparative assessment based on psychometric and diagnostic criteria. *Journal of Retailing*, *70*(3), 201–230. https://doi.org/10.1016/0022-4359(94)90033-7

Peel, M. J., Goode, M. M. H., & Moutinho, L. (1998). Estimating consumer satisfaction: OLS versus ordered probability models. *International Journal of Commerce and Management*, *8*(2), 75–93. https://doi.org/10.1108/eb047369

Pooya, A., Abed Khorasani, M., & Gholamian Ghouzhdi, S. (2020). Investigating the effect of perceived quality of self-service banking on customer satisfaction. *International Journal of Islamic and Middle Eastern Finance and Management*, *13*(2), 263–280. https://doi.org/10.1108/IMEFM-12-2018-0440

Romanian National Institute of Statistics. (n.d.). *Statistical database*. http://statistici.insse.ro:8077/tempo-online/

Romānova, I., & Kudinska, M. (2016). Banking and fintech: A challenge or opportunity? In *Contemporary Studies in Economic and Financial Analysis: Vol. 98. Contemporary issues in finance: Current challenges from across Europe* (pp. 21–35). Emerald Group Publishing Limited. https://doi.org/10.1108/S1569-375920160000098002

Sabir, R. I., Ghafoor, O., Akhtar, I., Hafeez, N., & Rehman, A. (2014). Factors affecting customer satisfaction in banking sector of Pakistan. *International Review of Management and Business Research*, *3*(2), 1014–1025.

Seiler, V., Rudolf, M., & Krume, T. (2013). The influence of socio-demographic variables on customer satisfaction and loyalty in the private banking industry. *International Journal of Bank Marketing*, *31*(4), 235–258. https://doi.org/10.1108/IJBM-10-2012-0101

Seyal, A., & Rahim, M. (2011). Customer satisfaction with internet banking in Brunei Darussalam: Evaluating the role of demographic factors. *E-Service Journal*, *7*(3), 47–68. https://doi.org/10.2979/eservicej.7.3.47

Siek, M., & Sutanto, A. (2019, August 19–20). Impact analysis of fintech on banking industry. In *2019 International Conference on Information Management and Technology (ICIMTech)* (pp. 356–361). Jakarta/Bali, Indonesia. IEEE. https://doi.org/10.1109/ICIMTech.2019.8843778

Supriyanto, A., Wiyono, B. B., & Burhanuddin, B. (2021). Effects of service quality and customer satisfaction on loyalty of bank customers. *Cogent Business & Management*, *8*(1), 1937847. https://doi.org/10.1080/23311975.2021.1937847

Tse, D. K., & Wilton, P. C. (1988). Models of consumer satisfaction: An extension. *Journal of Marketing Research*, *25*(2), 204–212. https://doi.org/10.1177/002224378802500209

Verbeek, M. (2008). *A guide to modern econometrics* (3rd ed.). Wiley.

Westbrook, R. A., & Oliver, R. L. (1981). Developing better measures of consumer satisfaction: Some preliminary results. In K. B. Monroe & A. Arbor (Eds.), *Advances in consumer research* (Vol. 8, pp. 94–99). Association for Consumer Research,

Yi, Y. (1990). *A critical review of consumer satisfaction*. In V. A. Zeithaml (Ed.), *Review of marketing* (pp. 68–123). American Marketing Association, Chicago.

APPENDIX

Table A1. Summary of general information

Customer satisfaction	Value assigned in the model	Respondents (N = 1094)
Very unsatisfactory	1	0.004
Rather unsatisfactory	2	0.013
Neutral	3	0.097
Rather satisfactory	4	0.662
Very satisfactory	5	0.225
Age of the respondent		
18–24 years	1	0.155
25–34 years	2	0.169
35–44 years	3	0.223
45–54 years	4	0.224
55–64 years	5	0.142
Over 65 years	6	0.087
Level of education		
Secondary education	1	0.519
University degree	2	0.373
Postgraduate university degree	3	0.108
Professional status		
Student	1	0.146
Employee	2	0.640
Employer	3	0.064
Contributing family worker	4	0.001
Self employed	5	0.020
Unemployed	6	0.005
Pensioner	7	0.124
Tariffs		
Very unsatisfactory	1	0.004
Rather unsatisfactory	2	0.013
Neutral	3	0.097
Rather satisfactory	4	0.662
Very satisfactory	5	0.225
Level of revenues (monthly average per family member)		
Under 1,000 Lei	1	0.196
1,001–1,500 Lei	2	0.155
1,501–2,000 Lei	3	0.211
2,001–2,500 Lei	4	0.135
2,501–3,000 Lei	5	0.076
3,001–3,500 Lei	6	0.068
3,501–4,000 Lei	7	0.069
4,001–4,500 Lei	8	0.066
Over 4,500 Lei	9	0.024

Convenience	Value assigned in the model	Customers (N = 1094)			
		1. Location	2. Distance to the bank	3. Availability of parking space	4. ATM availability
Very unsatisfactory	1	0.012	0.018	0.194	0.069
Rather unsatisfactory	2	0.069	0.055	0.127	0.045
Neutral	3	0.133	0.186	0.257	0.219
Rather satisfactory	4	0.325	0.368	0.275	0.368
Very satisfactory	5	0.461	0.372	0.147	0.299

e-Banking	Value assigned in the model	Customers (N = 1094)	
		1. Availability of services	2. Performance of services
Very unsatisfactory	1	0.108	0.129
Rather unsatisfactory	2	0.077	0.081
Neutral	3	0.301	0.277
Rather satisfactory	4	0.318	0.257
Very satisfactory	5	0.197	0.256

Environment	Value assigned in the model	Customers (N = 1094)				
		1. Office furniture	2. Equipment	3. Cleannesss	4. Personnel physical appearance	5. Atmosphere
Very unsatisfactory	1	0.095	0.028	0.022	0.051	0.041
Rather unsatisfactory	2	0.124	0.098	0.041	0.042	0.041
Neutral	3	0.318	0.323	0.252	0.252	0.284
Rather satisfactory	4	0.372	0.387	0.433	0.366	0.410
Very satisfactory	5	0.090	0.165	0.251	0.289	0.224

Quality	Value assigned in the model	Customers (N = 1094)			
		1. Bank confidence	2. Personnel promptitude	3. Safety of operations	4. Personnel solicitude
Very unsatisfactory	1	0.005	0.007	0.006	0.009
Rather unsatisfactory	2	0.016	0.033	0.021	0.034
Neutral	3	0.181	0.156	0.101	0.223
Rather satisfactory	4	0.380	0.498	0.385	0.457
Very satisfactory	5	0.418	0.305	0.487	0.277