



Key factors of neobanking's occurrence

Timotej Jagrič*, Aleksandra Amon**

Abstract: Neobanks, exclusively digital fintech-based banks are swiftly becoming a significant player in the financial markets. They bloomed rapidly and continue to develop swiftly, while there is little known about determinants of their establishment and performance. Purpose of this research is to find key factors determining occurrence of neobanks in selected 43 countries. We use random-effects model to analyse 13 financial, economic, and cultural-geographical factors. We find number of ATMs, S&P500 and rural population to be significant factors in occurrence of neobanks in selected countries. Our study presents first insight in factors of demand for neobanks and thus, first step in understanding demand for this new banking business model.

Keywords: neobanks, fintech, banking, factors of occurrence

JEL classification: C01, C5, G2, G21

Ključni dejavniki pojavnosti neobank

Povzetek: Neobanke, izključno digitalne fintech banke, hitro postajajo pomembni igralci na finančnih trgih. Razvile so se sunkovito in se še naprej hitro razvijajo, medtem ko je malo znanega o dejavniki njihove pojavnosti in uspešnosti. Namen te raziskave je najti ključne dejavnike, ki determinirajo pojavnost neobank v izbranih 43 državah. Z modelom naključnih učinkov analiziramo 13 finančnih, gospodarskih in kulturno-geografskih dejavnikov. Ugotavljamo, da so število bankomatov, S&P500 in podeželsko prebivalstvo pomembni dejavniki pri pojavu neobank v izbranih državah. Naša študija predstavlja prvi vpogled v dejavnike povpraševanja po neobankah in s tem prvi korak k razumevanju povpraševanja po tem novem bančnem poslovnem modelu.

Ključne besede: neobanke, fintech, bančništvo, dejavniki nastanka

*full prof. ddr., CQRM,
Univerza v Mariboru,
Ekonomsko-poslovna fakulteta
timotej.jagric@um.si

**mag. ekon. in posl. ved,
Univerza v Mariboru,
Ekonomsko-poslovna fakulteta
aleksandra.amon@um.si

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1 INTRODUCTION

Neobanks, also called fintech banks (from financial technology - fintech), are new forms of banks that have appeared in response to changes in demand in the banking sector, technological progress, digitization, and the growing shortcomings of conventional or traditional banks.

Neobanks do not have physical branches; they do business exclusively via a mobile phone application. As a result, they generate much lower costs than conventional banks and thus can offer their services at significantly lower prices.

In addition to price competitiveness, they also stand out with their innovative, modern products which are based on artificial intelligence (AI) and offer many tools related to it, such as tools for smart spending monitoring, automated budgeting, automated trading and saving, learning financial literacy, trading stocks and cryptocurrencies at low or no transaction costs.

Compared to traditional banks, which majorly use cross-selling of insurance products only to insure the borrower for larger loans, insurance products significantly more used by neobanks; most packages already include various insurances, which are especially attractive for young people; insurance for mobile phones, tablets, computers, for extreme sports, travel, the COVID-19 pandemic, etc.

In addition, they also offer the so-called "lifestyle" services, such as organizing errands and other obligations. With all its attractiveness, the neobanking phenomenon has blossomed in recent years. The Neobank Tracker tool, which keeps a global record of new bank formations and is updated quarterly, currently records more than 350 neobanks (The Financial Brand, 2023).

The question arises as to what exactly led to the emergence of these new forms of banks and what currently determines their development. What are the key factors for neobanks to appear in a given environment? What kind of environment is needed for such a modern bank to develop and do business in a country? What role do cultural and geographical factors play in this? What role do the financial system and the economy play?

This dilemma of the emergence of neobanks represents a research problem which we intend to answer by creating a model to study the influence of various financial, economic, and cultural-geographical factors on the emergence of neobanks. Understanding the reasons for the creation and preservation of these new banks is key, so that we can continue to look for answers to the many new, pressing risks arising from neobanks, and to design appropriate adaptations of banking regulation, which is currently not keeping up with all these new dimensions in the banking sector. Risk management and appropriate regulation are key tools for the stability of the financial sector and, consequently, the entire economy.

Lately, research interest in neobanks is increasing. Regarding important factors deriving from the economy, Kamath et al. (2021) found that most users have a higher income and higher education, which is more common in developed countries.

Koibichuk et al. (2021) found the importance of institutional efficiency and institutions in a certain environment (country). Temelkov (2022) emphasizes the importance of increased demand for simpler and digital banking services, faster transactions, greater investments in technology, lower costs, better socio-economic conditions, and a favorable regulatory environment.

Jagrič et al. (2021) concluded that for the development of the fintech sector or the emergence of neobanks key factors are financial development, business, financial and investment freedom, fiscal health, adoption of new technologies and tax burden. Also, Amity

et al. (2017) notes the importance of non-payment by states or national debt. Koibichuk et al. (2021) confirm the importance of new digital products and services and expansion in this direction.

Regarding factors deriving from financial system, El-Gohary et al. (2021) noted a decrease in the importance and visitation of bank branches in recent years. Kamath et al. (2021) also found infrequent, reduced use of bank branches. They also found less frequent use of ATMs, i.e., their diminished importance and an increased intention to invest in shares and fixed deposits in recent years.

As for cultural-geographic factors, Koibichuk et al. (2021) noted the importance of accessible infrastructure and levels of digital broadband internet connectivity. Maditinos et al. (2013) also confirmed the importance of internet connection quality when using digital banking. Temelkov (2022) highlighted the importance of socio-economic conditions and the further study of their impact on neobanks. El-Gohary et al. (2021) showed the importance of urbanization and the urbanized environment and the difference in access to the necessary infrastructure compared to the rural population by limiting their sample to only individuals residing in London.

This article is structured as follows. An introduction to the research is followed by a review of latest relevant scientific literature. The second chapter describes our database, followed by the third chapter presenting our model and its results. Lastly, we conclude with discussion of our findings.

2 LITERATURE REVIEW

Traditional banking model dominated financial markets for decades until technological innovations, such as blockchain technology and AI lowered the entry barriers into the banking sector and enabled possibilities for new entrants such as fintech-based banks.

Neobanks focus on a specific market segment, such as underbanked population or millennials. They have developed to the point where we have neobanks operating specifically for a particular race, religion, sexual orientation etc. They require certain level of digital literacy and a smart phone to operate their app. They have significantly lower operating costs than traditional banks because of their lack of physical branches and ATMs network; thus, they can offer significantly lower prices and more attractive products. Moreover, they have less complex administrative processes and requirements, which enables them to quicker develop new products and services and therefore more successfully adapt to ever-changing demand (Bradford, 2020; Hopkinson et al., 2019; Temelkov, 2020b, 2020a).

Key factors affecting sustainability and development of neobanks were found to be increased demand for digital solutions, increased demand for simpler process of opening bank accounts, demand for quicker transactions, increased investment in technology, generally lower costs, social-economic conditions and existing (beneficial) regulatory environment (Jagrič et al., 2021; Temelkov, 2022). Jagrič et al. (2021) found, observing neobanks' factors in 65 countries, that favorable tax environment, high degree of economic freedom, developed technological infrastructure and financial markets are key factors of neobanks' occurrence, development, and performance.

Koibichuk et al. (2021) created generalized indicator measuring risk of usage of neobanks in 90 countries. Highest ranked were Canada, Switzerland, Finland, Hong Kong and China. Slovenia was ranked as average risky.

Due to research gap in factors affecting neobanks, we also consider research on factors affecting traditional and digital banks. We consider this to be appropriate as in both cases banking services are studied, only in different business models.

Maditinos et al. (2013) examined Internet users in Greece and found perceived usefulness to significantly influence usage of digital banking. El-Gohary et al. (2021) examined the effect of AI on consumer's experience in banking sector in United Kingdom, including neobanks. Key factors for usage of digital banking were found to be simple access and quick satisfactions of banking needs. The study also found rare usage of banks' branches and users considering their banking app to provide same services as their banks' physical branch.

Kamath et al. (2021) found the majority of digital banking users have higher educations and above average income. Most users stated to only use ATM once a month during the pandemic, while third never used it. The majority also developed new investments interest in stocks during the pandemic. Authors also found the visits to bank branches lowered significantly. The level of education, level of trust and simple ease of use were found to have significant impact on usage of digital banking.

3 DATABASE

Our sample included 43 countries ($n = 43$), observed in the time period 2018-2021 ($t = 4$). Included countries were Argentina, Austria, Bangladesh, Brazil, Bulgaria, Canada, Chile, Colombia, Croatia, Cyprus, Czech Republic, Denmark, Egypt, Estonia, Finland, Greece, Hungary, India, Indonesia, Ireland, Israel, Italy, Japan, Kenya, Lithuania, Luxembourg, Malaysia, Mexico, Morocco, Netherlands, New Zealand, Nigeria, Pakistan, Peru, Philippines, Poland, Portugal, Romania, Saudi Arabia, Slovakia, Slovenia, South Africa, and Switzerland.

Because we have panel data, we will analyse it following Pfajfar's procedure, starting with pooled OLS regression, followed by fixed-effects (FE) model and if needed, random-effects (RE) model. Data will be analysed in program Gretl. Our panel is balanced.

Dependent variable represents occurrence of neobanks in selected countries. We use penetration rate of neobanks in selected countries. It includes customers that actively pay/use their accounts in ratio of total country's population in one year. It is estimated on various sources such as annual financial reports, various financial industry and other reports, various databases and surveys, as well as data registers (Statista, 2022).

We divided explanatory variables in three main categories: financial, economic, and cultural-geographical factors.

Financial factors include number of traditional banks' branches, number of ATMs and global stock index S&P 500. Number of traditional banks' branches (in percent change per 100.000 adults) is estimated by the World Bank. Commercial banks include all retail units of commercial banks that provide financial services to customers. It is an important indicator of accessibility to the financial system and a determinant of banking (ine)quality (The World Bank, 2023b).

Number of ATMS (in percentage change per 100.000 adults) is measure of financial system development estimated by the World Bank (The World Bank, 2023a). The third observed factor of the financial system is the world stock index S&P 500 (in percentage annual change). The percentage change in stock market prices in US dollars for developing economies is from Standard & Poor's Global Equity Indices (S&P IFCI) and Standard & Poor's Frontier Broad Market Index (BMI). The indicator is an important measure of overall market performance (The World Bank, 2023j).

Among the factors of the economy, we consider the growth of GDP per capita (annual percentage growth rate based on constant local currency as estimated by (The World Bank, 2023d)), the Index of Economic Freedom, inflation, the annual growth rate of gross capital formation based on constant local currency, the unemployment rate, the import of products and services and the export of products and services.

The Index of Economic Freedom (in percentage change) consists of 12 sub-areas of economic freedom: property rights, judicial efficiency, government integrity, tax burden, government spending, public financial health, business freedom, labor freedom, monetary freedom, trade freedom, investment freedom and financial freedom. Each of the areas is evaluated on a scale from 0 to 100, which makes up the total score of each country (equal weights are used). The assessments are based on our own qualitative criteria (e.g. how many days it takes to open a business, etc.), indices (e.g. the corruption index) and other data from global databases and our own quantitative criteria (e.g. to calculate fiscal freedom the equation, which includes several tax rates in the country) (The Heritage Foundation, 2023).

We further consider inflation, measured by the annual growth rate of the implicit GDP deflator, because it shows the rate of change in prices in the economy as a whole, estimated by the World Bank (The World Bank, 2023g).

We also consider the annual growth rate of gross capital formation based on constant local currency as calculated by the World Bank (The World Bank, 2023e). Aggregates are based on constant 2015 prices expressed in US dollars.

Moreover, we include the unemployment rate as a percentage of the total working population, modelled by the International Labor Organization (ILO) estimate, as estimated by the World Bank (The World Bank, 2023k). The standard definition of unemployed persons is those individuals without work who have been looking for work in the last period and are currently available for work, including persons who have lost their job or left it voluntarily. In addition, the unemployed also include persons who have not looked for work but have an agreement on future employment. Even so, some unemployment is inevitable - there are always some workers temporarily unemployed between jobs, as employers look for better workers and workers look for better jobs. The basis for this indicator is the labour force, or the economically active part of the population, and not the entire population. The indicator belongs to the "ILO modelled assessments". Microdata reported by country are based primarily on nationally representative labor force surveys, along with other sources (e.g., household surveys and population censuses) that account for differences in data sources, coverage, methodology, and other country-specific factors.

We consider the annual growth rate of imports of products and services based on constant local currency. Aggregates are based on constant 2015 prices expressed in US dollars (The World Bank, 2023f). Finally, as an economic factor, we take into account the annual growth rate of exports of products and services based on constant local currency. As with imports, aggregates are based on constant 2015 prices expressed in US dollars (The World Bank, 2023c).

When observing the cultural-geographical environment, we will observe population growth as estimated by The World Bank (2023h), rural population growth and urban population growth. The rural population is calculated using the urban share reported by the United Nations Population Division. There is no universal standard for distinguishing rural from urban areas. The World Bank proposes an operational definition of rural areas based on population density and distance from large cities. Most countries use an urban classification based on the size or characteristics of settlements. The rural population methodology is determined by different national statistical offices (The World Bank, 2023i).

Urban population refers to people living in urban areas as defined by national statistical offices. The indicator is calculated using the World Bank's estimates of population and urban proportions from the United Nations' World Urbanization Prospects (The World Bank, 2023l).

Descriptive statistics of selected variables are presented in Table 1.

Table 1. Descriptive statistics

Variable	Mean	Median	Std. dev.	C.V.	Skewness	Ex. kurtosis	Normality (Jarque-Bera test)
Penetration rate	2,06	0,72	3,48	1,69	3,17	11,48	1233,9; p=0,00
Bank branches	-0,03	-0,04	0,11	3,40	3,63	21,74	3763,58; p=0,00
ATMs	-0,01	-0,01	0,06	4,87	-0,61	4,70	169,025; p=0,00
S&P500	3,02	2,42	20,07	6,65	1,31	6,01	307,755 p=0,00
GDP	1,40	1,89	4,64	3,31	-0,40	0,52	6,43676 p=0,04
Economic freedom	0,01	0,01	0,02	2,85	-0,29	5,02	183,072; p=0,00
Inflation	4,48	2,66	7,38	1,65	4,58	24,49	4987,89; p=0,00
Gross capital formation	2,62	3,12	13,26	5,06	2,21	17,90	2435,06; p=0,00
Import	3,65	3,76	12,91	3,54	-0,19	4,37	138,107; p=0,00
Export	1,03	3,22	10,57	10,25	-0,56	1,53	25,7673; p=0,00
Population	0,72	0,75	0,93	1,28	-0,70	2,04	43,6387; p=0,00
Rural population	-0,32	-0,29	1,16	3,63	-0,82	1,47	34,7771; p=0,00
Urban population	1,18	1,08	1,15	0,97	0,11	0,78	4,68836; p=0,10
Unemployment	6,90	5,59	4,69	0,68	3,01	11,67	1234,44; p=0,00

Source: Authors' analysis, 2023

Highest mean is noted in import, while the lowest mean is noted in rural population. The median is also the highest for the import variable, and the lowest for the rural population.

We note that most of the selected data are widely scattered around the mean because most have very high standard deviations. This is further confirmed by the coefficient of variation (hereafter C.V.) as the ratio between the standard deviation and the mean. The higher it is, the higher the dispersion around the mean, and it can be seen that only two variables have a C.V. lower than 1, and the rest higher.

The skewness coefficient is skewed to the right showing a positive skewed distribution for seven variables, while it is skewed to the left and shows a negatively skewed distribution for seven variables as well. Exactly half of the observed variables, including the dependent variable, are characterized by greater hosting at smaller values of the variable, while the other half of the observed variables are characterized by greater hosting at larger values of the variable.

The coefficient of kurtosis of the distribution compared to the normal distribution shows a peaked distribution for all observed variables. The variables GDP and urban population are relatively close to a normal distribution, while, for example, the variables inflation, bank branches and gross capital formation have a distinctly peaked distribution.

Lastly, we tested for normality with Jarque-Bera test. The null hypothesis states that the data is normally distributed; the alternative hypothesis states it is not. Variables penetration rate, bank branches, ATMs, S&P500, GDP, economic freedom, inflation, gross capital

formation, import, export, population, rural population, and unemployment have p values below 0,05, thus we cannot reject the null hypothesis and thus conclude from the alternative hypothesis. For variable urban population we can conclude from the null hypothesis, therefore normal distribution. Since the dependent variable does not present signs of a normal distribution, the following results should be treated with caution. However, due to the sample size, we estimate these effects to be negligible.

4 MODEL AND RESULTS

Research problem was tested using the RE model GLS method. In the process of choosing a model we followed Pfajfar's procedure (Pfajfar, 2018). First, we performed pooled OLS regression model, then FE model and lastly, RE model. F test and Hausman's test results determined that the most appropriate fit for our research problem is RE model, which we present below in Table 2, along with RE model with robust (HAC) standard errors.

Table 2. RE model and RE model with robust (HAC) standard errors

	RE model (GLS)					RE model (GLS) with robust (HAC) standard errors				
	Coef.	Std. error	z	p	Sig.	Coef.	Std. error	z	p	Sig.
const	1.64	0.91	1.83	0.07	*	1.64	0.85	1.94	0.05	*
bank_branches	-1.58	1.63	-0,97	0.33		-1.58	1.19	-1,33	0.18	
ATMs	-12.85	3.69	-3,48	0	***	-12.85	6.58	-1,95	0.05	*
SP	0.02	0.01	2.41	0.02	**	0.02	0.01	1.85	0.06	*
GDP	0.03	0.06	0.56	0.58		0.03	0.05	0.64	0.52	
econ_freedom	-2.28	9.69	-0,24	0.81		-2.28	6.79	-0,34	0.74	
Inflation	0.03	0.05	0.56	0.58		0.03	0.04	0.67	0.5	
gross_cap_f	-0.02	0.02	-1,24	0.22		-0.02	0.02	-1,082	0.28	
Imports	0.01	0.02	0.64	0.52		0.01	0.02	1.28	0.2	
Exports	0.01	0.02	0.64	0.53		0.01	0.01	1.15	0.25	
population	1.84	1.22	1.51	0.13		1.84	1.04	1.77	0.08	*
rural_pop	-0.93	0.51	-1,83	0.07	*	-0.93	0.6	-1,56	0.12	
urban_pop	-1.2	0.9	-1,34	0.18		-1.2	0.57	-2,10	0.04	**
unemployment	-0.03	0.08	-0,38	0.7		-0.03	0.09	-0,34	0.74	
Mean dep. var	2.06					2.06				
Sum squar. res.	1618					1618				
Log-likelihood	-436.82					-436.82				
S.D. dependent var	3.48					3.48				
S.E. of regression	3.19					3.19				
Akaike criterion	901.65					901.65				
Schwarz criterion	945.71					945.71				
rho	0.35					0.35				
Hannan-Quinn	919.52					919.52				
Durbin-Watson	0.81					0.81				

'Between' variance = 6,05 'Within' variance = 4,00 theta used for quasi-demeaning = 0,62 Joint test on named regressors - Asymptotic test statistic: Chi-square(13) = 35,60 with p-value = 0,00 Breusch-Pagan test - Null hypothesis: Variance of the unit-specific error = 0 Asymptotic test statistic: Chi-square(1) = 75,45 with p-value = 0,00 Hausman test - Null hypothesis: GLS estimates are consistent Asymptotic test statistic: Chi-square(13) = 16,80 with p-value = 0,21	'Between' variance = 6,05 'Within' variance = 4,00 theta used for quasi-demeaning = 0,62 Joint test on named regressors - Asymptotic test statistic: Chi-square(13) = 28,40 with p-value = 0,00 Breusch-Pagan test - Null hypothesis: Variance of the unit-specific error = 0 Asymptotic test statistic: Chi-square(1) = 75,45 with p-value = 0,00 Hausman test - Null hypothesis: GLS estimates are consistent Asymptotic test statistic: Chi-square(13) = 18,84 with p-value = 0,13
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Source: Authors' analysis, 2023

The model shows that if the number of ATMs increases by one percentage point, the penetration rate of neobanks will decrease by 12.85 percentage points, *ceteris paribus*. This finding makes sense because neobanks are largely used by those individuals who have hindered or difficult access to traditional banks and their tools, i.e., ATMs. An increased volume of ATMs means an increased reach of traditional banking, and with this we can conclude that the penetration of neobanks into the banking market is less successful.

It can also be seen that if the global stock index S&P500 increases by one percentage point, the penetration rate of neobanks increases by 0.02 percentage points, *ceteris paribus*. This finding also makes sense from the point of view of the greater attractiveness of investments in shares for consumers, which neobanks encourage and offer significantly more simply than traditional banks.

We can also conclude that if the size of the rural population increases by one percentage point, the penetration rate of neobanks will decrease by 0.929 percentage points, *ceteris paribus*. This may indicate either the absence of a significant correlation between unbanked individuals and the rural environment, but it may also simply stem from the lack of quality internet connections in the rural environment, which are a condition for the use of neobanking services.

Furthermore, the model tells us the average value of the dependent variable, which is 2.06. The unexplained sum of squares is 1618.00, which is the highest of all models evaluated so far.

The log-likelihood is greater than it was for the pooled data model and the fixed effects model, indicating model improvement. The Schwarz criterion is slightly higher than it was for the previous two models. In general, when comparing models, we choose the one with the lowest value of this criterion, but the differences in our case are minimal. Rho in RE model represents the portion of the total variance due to the random variable ϵ and shows the variation due to the changing error term. It tells us that 35.27% of the variation is explained by the error term and the other 64.73% by the constant term (Bălă & Prada, 2014).

The standard deviation of the dependent variable is 3.48, which tells us that the data is fairly spread out and above the mean. The standard error of the regression is 3.19, which is relatively high. This generally means that the averages are more spread out, so it is more

likely that the sample mean is an inaccurate representation of the true population mean. Given that we are evaluating 43 countries out of 195 countries in the world, the finding is not surprising. A larger sample would be needed for a more accurate representation. The purpose of this model is to show whether there are any significant effects present.

We checked for the presence of autocorrelation with the Durbin-Watson statistic and for the presence of heteroscedasticity with the Breusch-Pagan test. Tests show possible presence; however, we did not take any further measures due to the model's nature.

Furthermore, we conducted correlation analysis, presented in Table 3. Based on the correlation analysis we also paid attention to the effect of possible multicollinearity. We checked for these effects by eliminating individual variables from the model. We also applied robust estimation as an additional measure for possible presence of autocorrelation and heteroscedasticity. The difference appeared only in the significance of the population types, which we associate with the results of the correlation analysis, where a high correlation between these variables is shown.

Table 3. Correlation matrix

penetration_r	bank_br	ATMs	SP	
1,00	-0,093	-0,38	0,21	penetration_r
	1,00	0,19	0,06	bank_br
		1,00	-0,10	ATMs
			1,00	SP
GDP	economic_fr	inflation	gross_cap	
0,3	-0,00	-0,01	0,02	penetration_r
0,10	-0,08	0,10	0,08	bank_br
-0,03	0,01	0,16	0,06	ATMs
0,01	-0,08	0,11	0,02	SP
1,00	-0,20	0,05	0,47	GDP
	1,00	-0,09	-0,14	economic_fr
		1,00	0,05	inflation
			1,00	gross_cap
imports	exports	pop	rural_pop	
0,03	0,10	-0,07	-0,19	penetration_r
0,08	0,11	0,02	0,11	bank_br
0,04	-0,03	0,06	0,13	ATMs
-0,09	-0,04	-0,13	-0,14	SP
0,63	0,61	-0,18	-0,06	GDP
-0,17	-0,15	-0,18	-0,14	economic_fr
0,05	0,10	0,14	0,07	inflation
0,69	0,32	-0,08	-0,03	gross_cap
1,00	0,51	-0,05	-0,02	imports
	1,00	-0,12	-0,06	exports
		1,00	0,71	pop
			1,00	rural_pop

urban_pop	unemployment	
-0,13	-0,02	penetration_r
0,04	-0,06	bank_br
0,07	-0,16	ATMs
-0,15	-0,06	SP
-0,13	-0,12	GDP
-0,12	-0,01	economic_fr
0,11	0,15	inflation
-0,05	-0,09	gross_cap
-0,00	-0,07	imports

-0,09	0,02	exports
0,92	0,04	pop
0,60	-0,08	rural_pop
1,00	0,06	urban_pop
	1,00	unemployment

Source: Authors' analysis, 2023

Correlation Coefficients, using the observations 1:1 - 43:4
 5% critical value (two-tailed) = 0,1497 for n = 172

The model also shows an important feature of the structure of longitudinal data, that is, that the total variance of the observed variables is divided between t. i. variation within and variation between. The within-variation score is 4.00 and the between-variation score is 6.05. The first refers to the variability between subjects at a single point in time, while the second refers to the variability caused by observing the same unit at multiple points in time (Mertens et al., 2017). For instance, the penetration rate of neobanks can vary from year to year.

Lastly, we use Hausman test for checking the consistency of ratings in use of GLS. Because p value is not smaller than $p = 0,05$, we cannot reject the null hypothesis and conclude from the alternative hypothesis, that ratings of the model are not consistent. Because we cannot reject the null hypothesis, by Pfajfar's procedure we find that the RE model is the best fit for our research problem.

5 CONCLUSIONS

The special advantage of the RE model in our case is that it allowed us to verify the actual impact of the selected variables on the level of penetration of neobanks into the countries. We found that the influence of the rural and urban population on the penetration rate of neobanks is not statistically significant, which is the opposite of the finding in the pooled data model (even if we take into account the calculation of robust standard errors, the model still showed a statistical characteristic of the urban population).

The conclusion of the research is that certain factors of the financial system and the cultural-geographical environment have a significant influence on the occurrence of neobanks in the selected countries in the observed period. More specifically, we find that these factors are the number of ATMs, stock market movements and rural population growth. These findings are consistent with theoretical findings. As such our model presents first insight into drivers of demand for neobanking services.

There are many possibilities for further research. Model can be expanded to include more financial, economic, and cultural-geographical factors, as well as more countries, thus increasing its explanatory power and practical implications. Expanding the model with more explanatory variables and/or more time units or series would also undoubtedly eliminate, at least to some extent, the shortcomings of this model.

As it is common in research, main limit is data availability. We hope to have more possibilities in this area in this future. The neobanking field is common and relevant research field in current digital and dynamic financial ecosystem and should be further studied.

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