



Consumers' changing financial behavior during the COVID-19 lockdown: the case of Internet banking use in Greece

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Abstract

This paper studies the impact of the 1st COVID-19 lockdown in Greece on the internet banking. Our study relies on a survey conducted, during the first lockdown period between April 13th and May 3rd, 2020 in Greece, among respondents between 18 and 64-years-old. The sample was appropriately weighted with the raking method to accurately reflect the distribution of the real population. The main result is straightforward: more days in a lockdown may be associated with an increased possibility for further i-banking use. We provide important insights to financial services' providers by pointing out female gender, increasing age, living in a metropolitan area and job security status as the most crucial predictors for shaping changing financial behavior.

Keywords Financial behavior · Consumer sentiments · Financial services · Internet banking · COVID-19 lockdown period

JEL Classification C83 · G41 · G59

Introduction

Nowadays, when countries are working to strengthen their health systems to fight against Coronavirus disease 2019 (COVID-19), the economy is suffering from restrictions and lockdowns. The Guardian's economics editor Larry Elliot wrote that the coronavirus crisis may lead to a new way of economic thinking.¹ The post-digital-revolution economy that we live, encourages this new way of thinking through the use of digital skills that are an integral part of the modern behavioral finance toolkit. Such skills enhance individuals' capacity to interact with financial institutions and accelerate internet financial activity. The latter is obvious when one considers that, in 2020, seven out of ten most valuable companies by market capitalization worldwide were digital platforms (Kitsing 2021).

In this regard, we are interested to investigate the impact of COVID-19 lockdown in the financial behavior of Greek

consumers concerning the internet banking (i-banking) use. In this regard, a question arises: Why should we choose a country like Greece to apply this research? In this respect, in the last 10 years Greece has experienced a sovereign debt crisis, a bank-run and currently the pandemic (Featherstone 2011; Mink and De Haan 2013; Konstantakis et al. 2021). The debt crisis led to a fiscal consolidation for almost 8 years, the banking crisis called for the imposition of capital controls in domestic and international capital flows, and the health crisis imposed a lockdown in almost all sectors in the Greek economy. Even though the debt crisis might not affect the consumers' behavior concerning digital financial transactions, the restrictions on capital flows, lasted for 4 years beginning in 2015, had an unprecedented effect in i-banking use.² In 2020, Greece implemented one of the most successful lockdown policies in the Europe against the pandemic which lasted for almost two months. Briefly, on February 26th 2020, the first patient infected by COVID-19 was officially confirmed, and the Greek government gradually adopted a variety of restrictive measures, for instance school

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¹ The article can be found here: <https://www.theguardian.com/business/2020/mar/22/the-coronavirus-is-leading-to-a-whole-new-way-of-economic-thinking>.

² Eurostat report states that, in Greece, i-banking use have been doubled during the capital controls' period. See <https://ec.europa.eu/eurostat/web/products-eurostat-news/-/DDN-20180115-1>.



suspensions on March 12th, lockdown in restaurants, café, sport facilities and hair and beauty salons on March 14th, national restriction of traffic movement and prohibition of transportations on March 23th (Tsiotas and Magafas 2020). From March 23th to May 4th, people could move only after an SMS approval from the Ministry of Digital Governance, whereas, at the same time, digital services have been supported by institutional and commercial entities (Mavragani and Gkillas 2021). Prompted by these findings, we search the extent to which COVID-19 lockdown affected the digital financial activities in Greece.

Within this timeframe, our empirical analysis contributes to the emerging financial literature on the consumers' changing financial behavior regarding the i-banking use during the COVID-19 lockdown period. By putting emphasis on this changing financial behavior, we find that consumer sentiments are mainly influenced by the number of days in the lockdown that strongly positively associates with an increased reported i-banking use. The empirical results clearly show that among demographic characteristics, the gender, an increasing age, living in a metropolitan area and working in the public sector are associated with a higher likelihood of an increasing i-banking use.

The remainder of our paper proceeds as follows. “Literature review” section provides the literature review, and “Research design” section introduces the research design. “The changing behavior” section presents the data, “I-banking use” section discusses the empirical results, “Implications” section offers some implications, and “Conclusion” section concludes.

Literature review

Our paper offers new insights on digital consumer behavior and is related to the following streams of the current literature, i.e., on the COVID-19 health crisis, the i-banking, and the discussion on pandemic's consequences for the financial markets and consumers' financial behavior.

The COVID-19 has evolved to a global pandemic with nearly 269 million confirmed cases and about 5.3 million deaths globally so far³; for Greece, the infected people are more than 1 million, and deaths are close to 20 thousand,⁴ respectively. COVID-19 is considered the most serious infectious disease since the Spanish flu in 1918, when measures adopted then had reduced the general population's contact rates (Ferguson et al. 2020). Previous research

emphasized the effectiveness of similar international preventive measures proposed nowadays by the World Health Organization (WHO), which decreased mortality rates from the beginning of the COVID-19 pandemic (Nueangnong et al. 2020).

Over time, an extensive literature has developed on i-banking use and the factors which influence it. Onyia and Tagg (2011) provide insights into demographic variables that shape its use; among them, gender, level of education and employment status are significantly associated with the consumers' intention toward i-banking adoption. Harrison et al. (2014) highlight the importance of consumers' awareness of the availability of the i-banking-channel option and previous experience on other technologies such as automated teller machine (ATM) or debit/credit cards use. Jehan and Ansari (2018) found that trust and security were the two most significant factors for consumer's i-banking adoption. Al-Hattami et al. (2021) also verify the importance of trust and find that the intention to continue using i-banking is further associated with service quality and user satisfaction, while Nguyen-Viet and Ngoc Huynh (2021) point out that i-banking use is directly affected by several factors such as perceived usefulness, attitude, perceived risk, innate innovativeness, domain-specific innovativeness and internet experience. Likewise, Chauhan et al. (2021) explore aspects that may affect the adoption of electronic banking services such as consumer innovativeness, perceived risk and security information.

An increasing number of existing studies examine the impact of the pandemic on financial markets and consumers' financial behavior. Eichenbaum et al. (2020) put emphasis on the consumer's health risk exposure, due to an epidemic, and discuss the way that this exposure affects the consumption demand of goods and services. Goodell (2020) highlights the direct or indirect impact of COVID-19 on financial systems and outlines the discussion about the economic impact of other pandemics.⁵ Jung et al. (2016), by using consumers' debit and credit card transactions collected by a mobile phone application in Korea during the MERS epidemic, clearly demonstrate that consumers alter their behavior to reduce the risk of infection. Further, Andersen et al. (2020) by using transaction-level consumer data from the largest bank in Denmark find that card spending dropped sharply by 25% after the partial shutdown of the economy, due to COVID-19 pandemic, while Gouveia et al. (2020) argue that the ongoing health crisis will provide a boost to innovative

³ <https://www.who.int/publications/m/item/weekly-epidemiological-update-on-covid-19---14-december-2021> [accessed 19 Dec 2021].

⁴ <https://covid19.gov.gr/covid19-live-analytics/> [accessed 19 Dec 2021].

⁵ See e.g., Haacker (2004) who presents the impact of HIV on government finance and Leoni (2013) who argues that the spread of HIV in developing countries caused sharp deposit withdrawals.



digital banking services. In Financial Times (2020),⁶ a similar trend for the use of electronic money among many European countries is reported, where cash use has significantly dropped during the pandemic. For instance, the daily use of cash withdrawals from ATMs fell 40% in Ireland and 62% in the UK at the start of the lockdown. Furthermore, a study of D-Rating⁷ was conducted over an eight-week period, from February 2nd to March 28th 2020 in the COVID-19 crisis, and provides useful information about the evolution of mobile banking among 16 major retail banks in France, UK, Italy and Spain. Based on their results, a downward trend, in terms of traffic and engagement, was observed, while before the lockdown, the number of active users peaked in all countries. Haroon and Rizvi (2020) found that immense panic generated by the news is associated with an increased volatility in the equity markets, whereas negative sentiments from COVID-19 related news deteriorate stock market liquidity and stability (Baig et al. 2021). Priem's (2021) findings suggest a contrarian strategy from the individuals that increased their equity positions during the pandemic, while a general shift in a more risk-averse behavior has been noted (Heo et al. 2021; Yue et al. 2020). Additionally, Al-Hattami (2021) found that consumers' expectations, task-technology fit and trust are significantly associated with the intention to continue usage of online shopping during the pandemic. Finally, a recent survey of the literature reveals the adverse economic effects that have been observed due to the COVID-19 (Padhan and Prabheesh 2021).

Research design

Questionnaire design

Within a high-pressure time window, a survey was conducted using a non-probability sampling method,⁸ the convenience method (see e.g., Dever et al. 2008) that is cost-effective and allows for a high speed of dissemination. To understand why this method was crucial to collect the data, we need to stress upon the accelerated diffusion of COVID-19 that called for an immediate lockdown to combat the epidemic (in the current analysis, we refer to the 1st lockdown period in 2020 in Greece). At the same time, Greek consumers ought to use more electronic money, both debt

and credit cards,⁹ and i-banking in their transactions, instead of cash, so as to avoid the virus contamination. Therefore, during this period, a lot has changed so fast in the consumers' financial behavior and their sentiments over the digital financial services.

In order to rapidly achieve our research aim, i.e., to observe if the working age population in Greece changed their financial behavior, during the lockdown, we sent out the questionnaire to more than 200 senior students of our department who endorsed it through social networking websites. Bearing in mind the age proportion of the Greek population (see Table 2 in the following subsection), we asked students to find at least 25 individuals from several age groups (about 6 per age group, i.e., 18–29, 30–39, 40–49 and 50–64) and from several regions in the country in order to maximize the variance in our sample. As we a priori expected, students promoted the questionnaire mainly to other students and thus, the age group 18–29 and the high educational level are over-populated (see column 2 of Table 2). Another rather minor issue of the unweighted sample is the small deviation in gender (around 4%).

The questionnaire is divided into two sections: demographic data (gender, age, district of residence, annual income, education level, profession industry and occupation) available in Table 3, and digital financial services questions listed in Table 1. Using a number of questions from Demirguc-Kunt et al. (2018), individuals were asked for their banking activity and behavior, for instance the bank account holding, the credit and debit card ownership, and the use of cards, phone or internet for any transactions over the last 12 months. We further applied 2 questions about the frequency of i-banking use, before and during the lockdown. The baseline analysis focuses on internet users (Table 1).

Sample and respondent characteristics

The survey sample includes 4,807 Greek residents aged between 18 and 64-years-old who clearly comprise the vast majority of the working-age population. The number of respondents is sufficiently large compared to the standard surveys conducted in Greece.¹⁰ To reduce bias and variance in our survey and ensure that our sample reflects the composition of the current population, we use weight calibration adjustments, adapted from probability sampling methods (Deville and Särndal 1992). The most common calibration

⁶ See Financial Times, May 27, 2020: "Coronavirus accelerates shift away from cash". <https://www.ft.com/content/430b8798-92e8-4b6a-946e-0cb49c24014a>.

⁷ D-Rating was created in 2017 and is the first rating agency involved in the company's digital performance.

⁸ Most commercial companies choose non-probability internet sampling techniques to collect survey data in the US (Yeager et al. 2011).

⁹ The contactless payments limit has been raised from 25€ to 50€ during the lockdown in Greece.

¹⁰ See e.g., EU Program of Business and Consumer Surveys for Greece.

https://ec.europa.eu/info/business-economy-euro/indicators-statistics/economic-databases/business-and-consumer-surveys/methodology-business-and-consumer-surveys/metadata-partner-institutes_en.



Table 1 Digital financial services questions

No.	Question	Answer choices		Question source
Q1	Do you have a bank account?	Yes	No	Demirguc-Kunt et al. (2018)
Q2	Do you have a debit card?	Yes	No	
Q3	Do you have a credit card?	Yes	No	
Q4	In the last 12 months, did you use debit or credit card?	Yes	No	
Q5	In the last 12 months, did you make any internet transaction?	Yes	No	
Q6	In the last 12 months, did you use your mobile for any banking transaction?	Yes	No	
Q7	Before the lockdown, how often did you use i-banking for transactions?	Rarely/never	Few times	Authors' own questions
		Often	Very often	
Q8	During the lockdown, how often do you use i-banking for transactions?	Rarely/never	Few times	
		Often	Very often	

In this Table, 8 survey questions are listed. The second column provides the questions, the third column lists the available choices for each one of them, and the fourth one reports the question source

Table 2 Weighting scheme

Variables	Population distribution (%)	Unweighted sample distribution (%)	Weighted sample distribution (%) (Raking method)	Weighted sample distribution (%) (Poststratification method)
<i>Gender</i>				
Male	48.56	45.48	48.99	48.07
Female	51.44	54.52	51.01	51.93
<i>District (NUTS1/NUTS2)</i>				
Attica (EL3)	34.89	33.89	34.89	34.24
Attica (EL30)	34.89	33.89	34.89	34.24
Aegean islands, Crete (EL4)	11.19	15.21	11.19	11.20
North Aegean (EL41)	2.06	3.25	2.06	2.13
South Aegean (EL42)	3.21	4.55	3.21	3.37
Crete (EL43)	5.92	7.41	5.92	5.71
Northern Greece (EL5)	28.67	11.77	28.67	28.96
Eastern Macedonia and Thrace (EL51)	5.59	1.75	5.59	5.74
Central Macedonia (EL52)	17.47	4.45	17.47	17.51
Western Macedonia (EL53)	2.49	0.64	2.49	2.53
Epirus (EL54)	3.11	4.93	3.11	3.18
Central Greece (EL6)	25.25	39.13	25.25	25.60
Thessaly (EL61)	6.70	6.18	6.70	6.76
Ionian Islands (EL62)	1.90	1.98	1.90	1.87
Western Greece (EL63)	6.11	8.95	6.11	6.28
Central Greece (EL64)	5.18	8.18	5.18	5.20
Peloponnese (EL65)	5.36	13.84	5.36	5.49
<i>Age</i>				
18–24	13.97	24.76	13.97	13.97
25–29	10.10	18.39	10.10	10.10
30–34	10.72	14.69	10.72	10.72
35–39	12.91	9.09	12.91	12.91
40–44	13.51	6.14	13.51	13.51
45–49	11.81	8.05	11.81	11.81
50–54	11.46	8.92	11.46	11.46
55–59	8.03	6.91	8.03	8.03
60–64	7.50	3.06	7.50	7.50
<i>Education</i>				
ISCED 0–2	22.00	3.49	22.00	19.07
ISCED 3–4	48.70	28.77	48.70	50.33
ISCED 5–8	29.30	67.73	29.30	30.60

Population distribution data come from Eurostat. Distribution of population age group is adjusted for internet users. Weights are calculated by using “survwgt” command proposed by Winter (2002)



Table 3 Respondent's characteristics

Characteristics	Unweighted sample						Weighted sample					
	Male		Female		Total		Male		Female		Total	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
<i>A. Demographics</i>												
Gender	2186	45.48	2621	54.52	4807	100	2355	48.99	2452	51.01	4807	100
<i>Region (NUTS1/NUTS2)</i>												
Attica (EL3)	715	14.88	914	19.01	1629	33.89	817	17.00	860	17.89	1677	34.89
Attica (EL30)	715	14.87	914	19.01	1629	33.89	817	17.00	860	17.89	1677	34.89
Aegean islands, Crete (EL4)	332	6.91	399	8.30	731	15.21	268	5.57	270	5.62	538	11.19
North Aegean (EL41)	71	1.48	85	1.77	156	3.25	46	0.96	53	1.10	99	2.06
South Aegean (EL42)	104	2.16	115	2.39	219	4.55	89	1.85	65	1.36	154	3.21
Crete (EL43)	157	3.27	199	4.14	356	7.41	132	2.76	152	3.16	285	5.92
Northern Greece (EL5)	256	5.33	310	6.44	566	11.77	676	14.06	702	14.60	1378	28.66
Eastern Macedonia & Thrace (EL51)	41	0.85	43	0.89	84	1.75	162	3.37	107	2.22	269	5.59
Central Macedonia (EL52)	92	1.91	122	2.54	214	4.45	384	7.99	456	9.48	840	17.47
Western Macedonia (EL53)	14	0.29	17	0.35	31	0.64	67	1.39	53	1.10	120	2.49
Epirus (EL54)	109	2.27	128	2.66	237	4.93	63	1.31	86	1.80	149	3.11
Central Greece (EL6)	883	18.37	998	20.76	1881	39.13	594	12.36	620	12.90	1214	25.25
Thessaly (EL61)	138	2.87	159	3.31	297	6.18	145	3.02	177	3.68	322	6.70
Ionian Islands (EL62)	46	0.96	49	1.02	95	1.98	39	0.82	52	1.08	91	1.90
Western Greece (EL63)	211	4.39	219	4.56	430	8.95	157	3.28	136	2.83	294	6.11
Central Greece (EL64)	179	3.72	214	4.45	393	8.18	121	2.52	128	2.66	249	5.18
Peloponnese (EL65)	309	6.42	357	7.42	666	13.84	132	2.74	126	2.62	258	5.36
<i>Area</i>												
Metropolitan	715	14.87	914	19.02	1629	33.89	817	17.00	860	17.89	1677	34.89
Island	378	7.86	448	9.32	826	17.18	307	6.39	322	6.70	629	13.09
Rest	1093	22.74	1259	26.19	2352	48.93	1231	25.61	1269	26.41	2501	52.02
<i>Age</i>												
18–24	510	10.61	680	14.15	1190	24.76	303	6.30	369	7.68	672	13.98
25–29	429	8.92	455	9.47	884	18.39	236	4.91	250	5.20	486	10.11
30–34	342	7.12	364	7.57	706	14.69	288	5.99	227	4.72	515	10.71
35–39	201	4.18	236	4.91	437	9.09	287	5.97	333	6.93	620	12.90
40–44	137	2.85	158	3.29	295	6.14	336	6.99	313	6.51	649	13.50
45–49	131	2.73	256	5.32	387	8.05	222	4.62	345	7.18	567	11.80
50–54	188	3.91	241	5.01	429	8.92	225	4.68	326	6.78	551	11.46
55–59	169	3.52	163	3.39	332	6.91	225	4.68	161	3.35	386	8.03
60–64	79	1.64	68	1.42	147	3.06	232	4.83	129	2.68	361	7.51
<i>Income</i>												
Lower than 10,000 €	703	14.63	1162	24.17	1865	38.80	746	15.52	1161	24.15	1907	39.67
10,001 to 20,000 €	771	16.04	758	15.77	1529	31.81	998	20.76	652	13.56	1650	34.32
20,001 to 30,000 €	244	5.08	174	3.62	418	8.70	245	5.10	135	2.81	380	7.91
More than 30,000 €	185	3.85	92	1.91	277	5.76	145	3.01	98	2.03	242	5.04
Don't Know/Don't Answer	283	5.89	435	9.05	718	14.94	221	4.60	406	8.46	628	13.06
<i>B. Education & Profession</i>												
<i>ISCED levels</i>												
Less than primary, primary and lower secondary education (levels 0–2)	99	2.06	69	1.43	168	3.49	645	13.42	413	8.58	1058	22.00
Upper secondary and post-secondary non-tertiary education (levels 3–4)	628	13.06	755	15.71	1383	28.77	1078	22.43	1263	26.27	2341	48.70
Tertiary education (levels 5–8)	1459	30.35	1797	37.38	3256	67.73	632	13.15	776	16.15	1408	29.30



Table 3 (continued)

Characteristics	Unweighted sample						Weighted sample					
	Male		Female		Total		Male		Female		Total	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Disciplines												
Business/ Economics	326	6.78	431	8.97	757	15.75	218	4.53	321	6.68	539	11.21
STEM	370	7.70	268	5.57	638	13.27	256	5.32	207	4.31	463	9.63
Rest	1490	31.00	1922	39.98	3412	70.98	1881	39.14	1924	40.02	3805	79.16
Occupation												
Private employee	955	19.87	1232	25.63	2187	45.5	918	19.10	1139	23.69	2057	42.79
Public employee	371	7.71	418	8.70	789	16.41	404	8.40	331	6.89	735	15.29
Self-employed/entrepreneur	469	9.76	326	6.78	795	16.54	671	13.96	334	6.95	1005	20.91
Student	200	4.16	292	6.08	492	10.24	86	1.79	124	2.58	210	4.37
Other	191	3.97	353	7.35	544	11.32	276	5.74	524	10.90	800	16.64

methods that may be useful in non-probability techniques are poststratification and raking (Baker et al. 2013). In Table 2 below, we calculate both weighting schemes based on gender, age, education level and district of residence criteria. However, we finally select the raking algorithm since it succeeds to represent the Greek population more accurately.

In Table 3 below, we report sample statistics concerning the frequency and the proportion of participants' information, tabulated across male, female and the entire sample. This table is separated into two broader columns, the unweighted and weighted sample. Based on the raking method, the latter sample shows that males account for 48.99% and females 51.01% of the respondents. Following European Union's first-level classification of territorial units for statistics (NUTS1), 34.89% of all respondents live in Attica, 11.19% live in Aegean islands and Crete, 28.66% live in Northern Greece and the rest 25.25% live in Central Greece. Further, young people aged 18 to 24 are 13.98%, people aged 25 to 39 are 33.72%, and the rest are 52.30% of the entire sample. Low-income (less than 10,000€), middle income (between 10,001€ and 30,000€) and high-income (more than 30,000€) respondents comprise 39.67%, 42.23% and 5.04%, respectively, while a proportion of 13.06% did not answer this question. In addition, according to the International Standard Classification on Education (ISCED) maintained by the United Nations Educational Scientific and Cultural Organization (UNESCO), we merged 9 levels of education into 3 separate groups, i.e. low (0–2), medium (3–4) and high (5–8) level of education. The first group constitutes 22%, the second group 48.70% and the third group 29.30% of the whole sample. We also present 3 different groups according to job disciplines, i.e. respondents in a business or economic sector are 11.21%, in a STEM (Science-Technology-Engineering-Mathematics) sector are 9.63%, and the rest are 79.16% of the total sample. Finally, based on their occupation, participants are 42.79% private

employees, 15.29% public servants, 20.91% self-employees, 4.37% students and 16.64% other.

The changing behavior

In this section, we present analytically the consumer responses and the factors that affected the behavior concerning i-banking services in Greece during the lockdown period. Based on the questions related to the change in the use of these services in the ex-ante and during the period of the lockdown (see Table 1), we shed some light on the number of respondents that increase, decrease or keep unchanged their transactions concerning the i-banking use. In addition, focusing on the week of the answer, we give more attention to the weekly change of sentiments regarding the use of digital services in the core period between April 12th and May 3rd (end of the lockdown). Table 4 below presents all variable definitions.

Descriptive analysis

Figure 1 depicts the weighted and unweighted answers of the respondents for i-banking use before and after the 1st lockdown period in 2020 in Greece for the whole sample, while Fig. 2 depicts the weighted responses per age group. A summary of the responses by male, female and the entire sample is also reported in Table 5. This table has been split into two parts: the unweighted and the weighted sample. The rest of our analysis is conducted by using the weighted sample. Panel A reports that almost all respondents denote that they keep a bank account (98.23%), 85.02% of the respondents have a debit card, and 42.06% hold a credit card. Further, as for the use of these financial tools in the last 12 months, 91.49% of the respondents used a card, 85.56% did an internet transaction and 60.29% carried out



Table 4 Variables' definition

Variables	Description
<i>Behavior change</i>	
i-Banking Total Use	0 if the respondent reported a decreased, 1 an unchanged/constant and 2 an increased use of i-banking services during the lockdown
i-Banking Decrease	1 if the respondent reported a decreased use of i-banking during the lockdown, 0 otherwise
i-Banking Constant	1 if the respondent reported a constant use of i-banking during the lockdown, 0 otherwise
i-Banking Increase	1 if the respondent reported an increased use of i-banking during the lockdown, 0 otherwise
<i>Demographics</i>	
Female	1 if the respondent is a female, 0 otherwise
Age	the age of the respondent
Gen Z*	1 if the respondent was born from 1995 to 2010, 0 otherwise
Gen Y (millennial)*	1 if the respondent was born from 1980 to 1994, 0 otherwise
Gen X*	1 if the respondent was born from 1960 to 1979, 0 otherwise
Baby Boomers*	1 if the respondent was born before 1959, 0 otherwise
Metropolitan	1 if the respondent lives in the capital (Athens), 0 otherwise
Islands	1 if the respondent lives in North Aegean, South Aegean, Crete or Ionian Islands, 0 the otherwise
Low Income	1 if the respondent's annual income is below €10,000, 0 otherwise
High Income	1 if the respondent's annual income is more than €30,000, 0 otherwise
Tertiary	1 if the respondent has attended tertiary education (5–8 ISDEC levels), 0 otherwise
Business/Economics	1 if the respondent works in an economics or business field, 0 otherwise
STEM	1 if the respondent works in a science, technology, engineering or mathematics field, 0 otherwise
Public Sector	1 if the respondent works in the public sector, 0 otherwise
Private Sector	1 if the respondent works in the private sector, 0 otherwise
<i>Financial services</i>	
Bank account	1 if the respondent owns a financial institution account, 0 otherwise
Debit Card	1 if the respondent owns a debit card, 0 otherwise
Credit Card	1 if the respondent owns a credit card, 0 otherwise
Card Transaction	1 if the respondent used a debit or credit card to make a purchase in the past year, 0 otherwise
Internet Transaction	1 if the respondent used the internet for transactions, 0 otherwise
Phone Transaction	1 if the respondent used the mobile phone for transactions, 0 otherwise
<i>Time of Answer</i>	
Days in lockdown	The difference, in number of days, between the date that the respondent answered the questionnaire and the 23th of March (the starting date of lockdown in Greece)
4th Week	1 if the respondent answered the questionnaire during the 4th week after starting the lockdown (between the 13th and 19th of April), 0 otherwise
5th Week	1 if the respondent answered the questionnaire during the 5th week after starting the lockdown (between the 20th and 26th of April), 0 otherwise
6th Week	1 if the respondent answered the questionnaire during the 6th week after starting the lockdown (between the 27th of April and 3rd of May), 0 otherwise

*Grouping of ages according to the McKinsey and Company: <http://innovationinsider.com.br/wp-content/uploads/2019/05/Generation-Z-and-its-implication-for-companies.pdf>

phone transactions. Regarding the use of i-banking before and during the lockdown, in panel B a distinction among decline, increase or constant status has been reported. For instance, only a very small part of the respondents (3.64%) declined the i-banking use, 17% increased it, and almost 80% reported an unchanged behavior. To understand when the

respondents' sentiments change, we use three time clusters, i.e. the first represents 68.59%, the second includes 22.98% and the third one corresponds to 8.43% of all answers, during the 4th, 5th and 6th week after the beginning of the lockdown, respectively. Figure 3 depicts the change in i-banking use during the lockdown period.



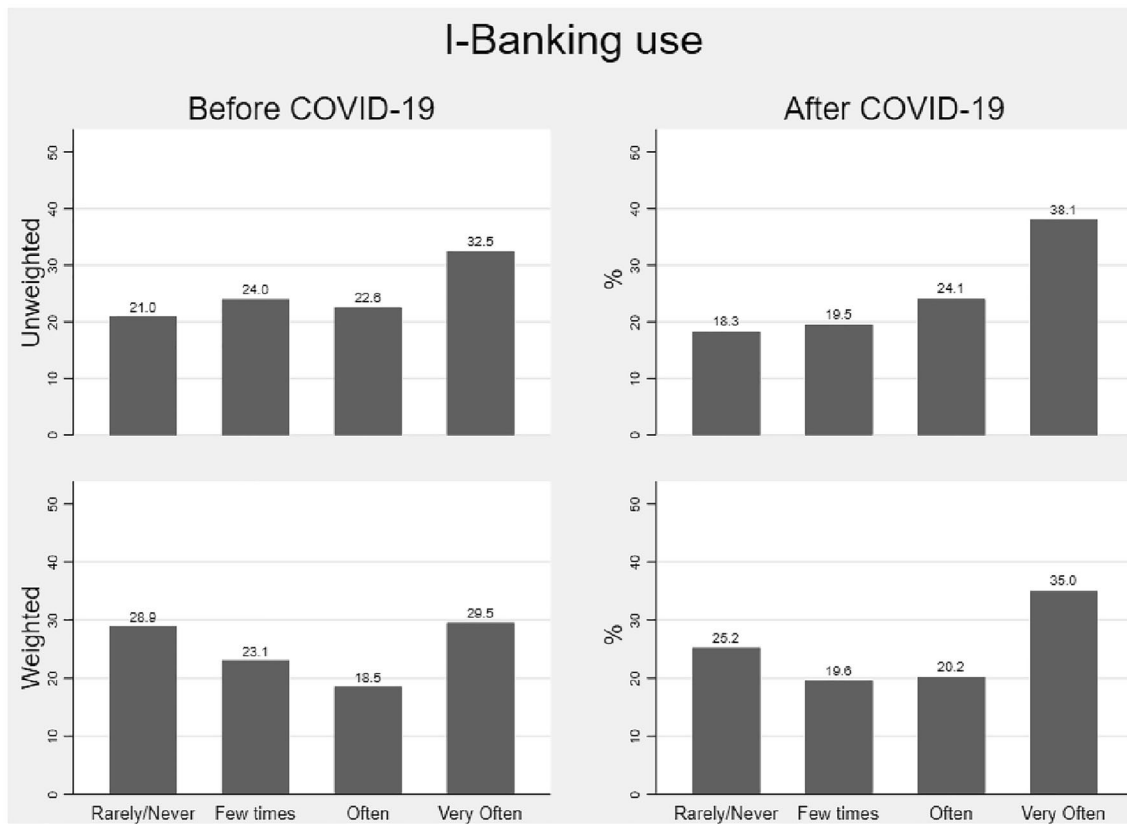


Fig. 1 Responses to i-banking use before and after the 1st lockdown period in Greece (unweighted and weighted sample)

Determinants of financial services use

Table 6 reports descriptive statistics of all variables used in the multivariate regression analysis, over the entire sample or those respondents who reported a declined, a constant or an increased i-banking use. Pearson correlations¹¹ and univariable estimates (odds ratios)¹² are also reported to highlight the predictors' importance regarding the change in i-banking use.

Regarding demographics, there is a slight positive correlation between being a woman and reporting an increased i-banking use during the lockdown. Younger respondents (Gen Z) correlate strongly negatively, older respondents (Gen X) correlate strongly positively, while millennials (Gen Y) show an almost zero correlation with an increase in i-banking use. Further, respondents living in a metropolitan

¹¹ Differences between the Pearson and Spearman correlation appear mostly at the fourth decimal digit.

¹² Odds ratio is a ratio of likelihoods (an event to be occurred in terms of an event not to be occurred). Thus, when the odds ratio is higher than 1 increases the possibility an outcome to be happened, given an initial assumption; when the odds ratio is less than 1 decreases the possibility. To calculate the possibility, we just subtract a given odds ratio from one.

area are 23.9% more probable to report an increased i-banking use, while the possibility increases by 46.8% when the respondent is a public servant. Finally, concerning financial services, a positive correlation exists between conducting phone transactions and reporting an increase in i-banking use (p -value < 0.01).

Further, an increase in i-banking use starts after 27.753 days from the first day of the lockdown. However, during the 4th week after the lockdown, the possibility of reporting an increased the i-banking use decreases by 43.6%; instead, during the 6th week after the lockdown, the same possibility increases by 145%.

I-banking use

This section presents the multivariate analysis and the estimation results. To unveil important aspects of group characteristics, a number of different tests are conducted.

Modeling

The likelihood of a respondent i reporting a change in i-banking use can be described as below:



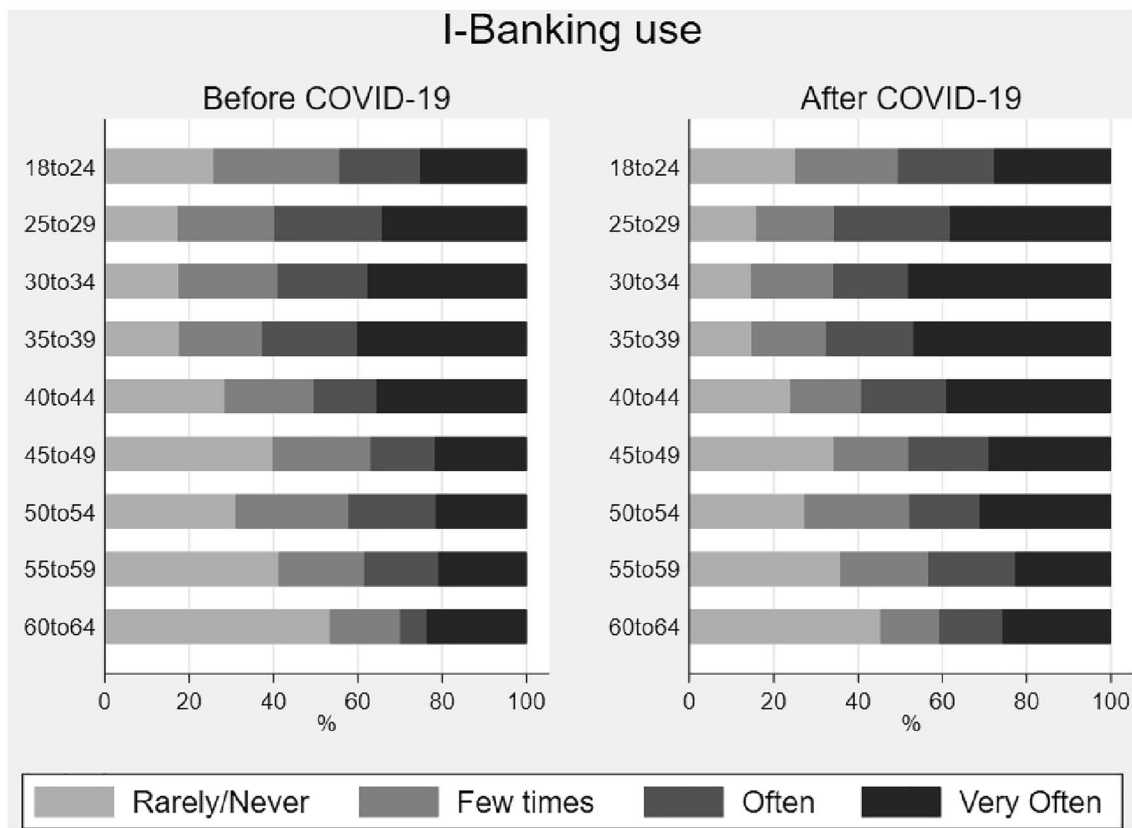


Fig. 2 I-banking use per age group in Greece (Before and after the 1st lockdown period)

$$\text{Prob}(Y = c|X_i) = F(X_i\beta), \tag{1}$$

where variable Y describes the reported behavioral change regarding i-banking use during the lockdown, either as an ordinal variable (it takes 0 for decreased, 1 for unchanged and 2 for increased i-banking use)¹³ or as a dummy variable which takes 1 when the respondent reported decreased, unchanged or increased i-banking use, 0 otherwise (see Table 4); F is the standard logistic cumulative distribution function, and X is a set of predictors in which:

$$\begin{aligned} X_i\beta = & \beta_1 \text{Demographics}_i \\ & + \beta_2 \text{FinancialServices}_i \\ & + \beta_3 \text{TimeofAnswer}_i + \epsilon_i, \end{aligned} \tag{2}$$

where Demographics_i includes gender, age group, region, education, field and sector of occupation. The relevant literature has identified these characteristics as important in shaping financial services use. Poon (2008) showed that the

adoption of electronic banking services is associated with different age groups, educational and income levels. Some authors have also suggested that gender, educational level, area of residence and employment matter for the adoption of internet banking (Onyia and Tagg 2011). Abdul-Muhmin and Umar (2007) found that gender is an important factor that shapes financial behavior, while Alfansi and Sargeant (2000) point out that the occupation variable offers greater utility, as targeted promotional messages per employment category could be used. Moin et al. (2017) highlight the importance of age and income in shaping trust in financial services. Specifically, older consumers with high incomes are found to be more trusting than others. FinancialServices_i involves bank account or card ownership and internet or mobile transactions with cards. Empirical evidence corroborates the value of different channels in financial services marketing and their association among them (see e.g., Easingwood and Storey 1996; Black et al. 2002), whereas the importance of multiple channels on customer loyalty has been highlighted (Chen and Ching 2007). The overall weight of prior involvement in banking technologies has also been reported in the literature and implies that consumers who previously used banking technology tools will be more inclined to use internet banking than those with no previous

¹³ Zuckerman (2005) and Boero (2015) use 0 for decreased, 1 for unchanged and 2 for increased changes in the levels of political support and earning changes, respectively.



Table 5 A summary of responses

Variables	Unweighted sample						Weighted sample					
	Male		Female		Total		Male		Female		Total	
	Frequency	%	Frequency	%	Frequency	%	Frequency	%	Frequency	%	Frequency	%
<i>Panel A: Distribution of answers</i>												
Q1: Bank account												
Yes	2162	44.98	2565	53.36	4727	98.34	2337	48.62	2385	49.61	4722	98.23
No	24	0.50	56	1.16	80	1.66	18	0.37	67	1.40	85	1.77
Q2: Debit card												
Yes	1959	40.75	2246	46.73	4205	87.48	2062	42.90	2025	42.12	4087	85.02
No	227	4.72	375	7.80	602	12.52	293	6.10	427	8.88	720	14.98
Q3: Credit card												
Yes	1048	21.80	975	20.28	2023	42.08	1126	23.42	920	19.14	2046	42.56
No	1138	23.68	1646	34.24	2784	57.92	1229	25.57	1532	31.87	2761	57.44
Q4: Card Transactions												
Yes	2079	43.25	2462	51.22	4541	94.47	2144	44.60	2254	46.89	4398	91.49
No	107	2.22	159	3.31	266	5.53	211	4.39	198	4.12	409	8.51
Q5: Internet transactions												
Yes	1890	39.31	2223	46.25	4113	85.56	1852	38.53	1907	39.67	3759	78.20
No	296	6.16	398	8.28	694	14.44	503	10.46	545	11.34	1048	21.80
Q6: Phone payments												
Yes	1568	32.62	1654	34.41	3222	67.03	1496	31.12	1402	29.17	2898	60.29
No	618	12.86	967	20.11	1585	32.97	859	17.87	1050	21.84	1909	39.71
Q7: I-Banking use Before COVID-19												
Rarely/Never	367	7.63	642	13.36	1009	20.99	592	12.32	798	16.60	1390	28.92
Few Times	504	10.48	650	13.53	1154	24.01	522	10.86	588	12.23	1110	23.09
Often	562	11.69	522	10.86	1084	22.55	462	9.61	426	8.86	888	18.47
Very Often	753	15.66	807	16.79	1560	32.45	779	16.21	640	13.31	1419	29.52
Q8: I-Banking use After COVID-19												
Rarely/Never	336	6.99	544	11.32	880	18.31	523	10.88	691	14.37	1214	25.25
Few Times	411	8.55	528	10.98	939	19.53	431	8.97	510	10.61	941	19.58
Often	575	11.96	582	12.11	1157	24.07	508	10.57	463	9.63	971	20.20
Very Often	864	17.97	967	20.12	1831	38.09	893	18.58	788	16.39	1681	34.97
<i>Panel B: Distribution of variables of interest</i>												
I-Banking Use status												
Decline	121	2.52	141	2.93	262	5.45	75	1.56	100	2.08	175	3.64
Constant	1718	35.74	1951	40.59	3669	76.33	1918	39.90	1897	39.46	3815	79.36
Increase	347	7.22	529	11.00	876	18.22	362	7.53	455	9.47	817	17.00
Answer in weeks after lockdown (23 March)												

Table 5 (continued)

Variables	Unweighted sample				Weighted sample							
	Male		Female		Total		Male		Female		Total	
	Frequency	%	Frequency	%	Frequency	%	Frequency	%	Frequency	%	Frequency	%
4th (13th to 19th of April)	1543	32.10	1825	37.96	3368	70.06	1582	32.91	1715	35.68	3297	68.59
5th (20th to 26th of April)	429	8.92	590	12.28	1019	21.20	549	11.42	556	11.56	1105	22.98
6th (27th of April to 3rd of May)	214	4.45	206	4.29	420	8.74	224	4.66	181	3.77	405	8.43

experience (Harrison et al. 2014). Finally, Timeof Answer, aims at capturing the intention of changing behavior during the COVID-19 lockdown. Digital transformation and changing consumer behavior during or after the pandemic are being keenly explored by the recent literature (see e.g., Donthu and Gustafsson 2020; Fletcher and Griffiths 2020).

Considering the different cases of dependent variable Y , we employ logistic and ordered logistic regression models, in which the estimated set of β coefficients predict the outcome probability. We estimate our models using maximum likelihood estimation (MLE) techniques.

Regression results

Table 7 shows the multivariate regression results. Columns (1) to (6) report the odds estimates of Eq. (1) where a dummy dependent variable is assumed, while in columns (7) and (8) an ordinal variable is used. For robustness reasons, Timeof Answer is split into the “number of days in lockdown” and the “week of lockdown” in odd-numbered and even-numbered columns of the Table, respectively. Heteroscedasticity-adjusted standard errors are reported in parentheses.

In terms of demographic characteristics, the gender and the age group of the respondent seem to be the most important factors in shaping i-banking use during the lockdown. Female gender and increasing age associate with higher likelihood concerning an increased i-banking use. Further, living in a metropolitan area associates positively with an increased reported use (25.7%), while it is less probable, though not significant, that people with high income report an increased i-banking use (-47.3%). In addition, there is also evidence that people working in public and private sectors reacted differently during the pandemic lockdown, showing that the different number of working hours and job security (see e.g., Markovits et al. 2007) associate strongly with i-banking use. Finally, both tertiary education and work in a business or economic field do not affect significantly an increased i-banking use.

Financial Services, on average, does not seem to greatly contribute to the shaping of i-banking use change during the pandemic. However, the timing of the answer that perhaps proxies peoples' sentiments, plays a pivotal role in the i-banking use. For instance, the respondent living more days in a lockdown has greater likelihood to report an increased i-banking use.

Sub-group analysis

In Table 8, we conduct a sub-group analysis. We cut our sample based on the respondent's gender, age group, education and job safety. The highly robust results for all



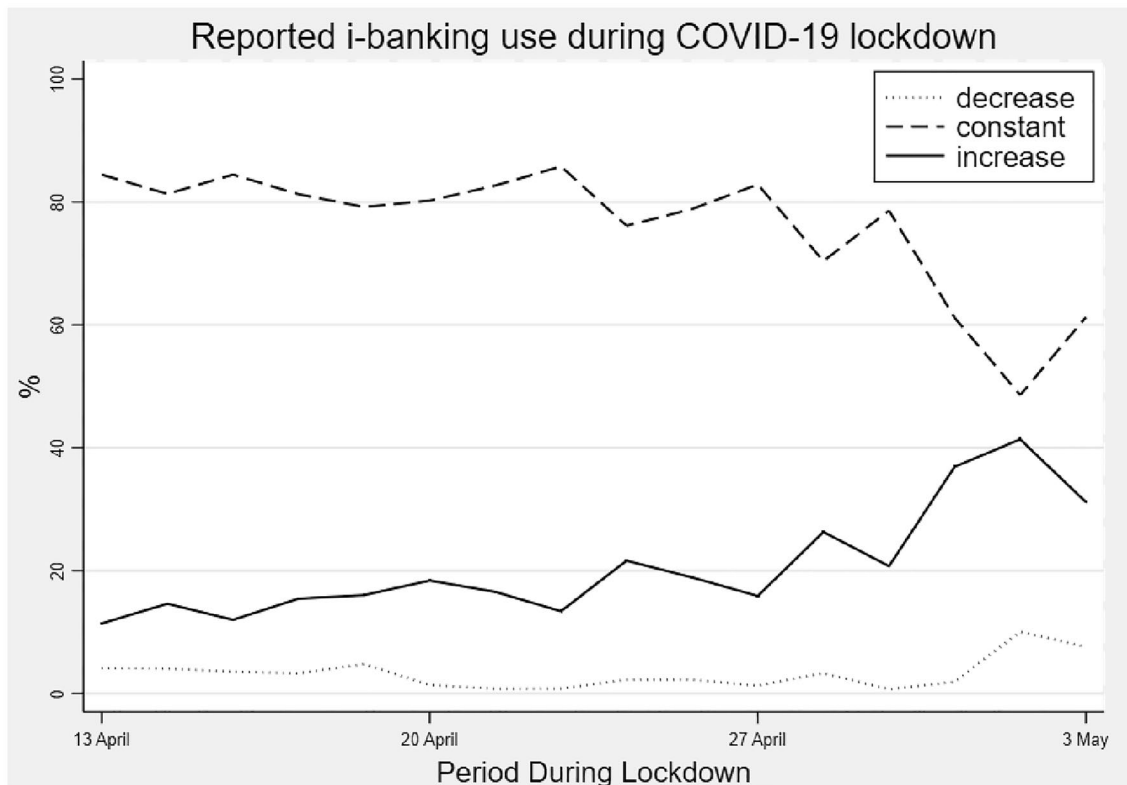


Fig. 3 The evolution of i-banking use in Greece (The last 3 weeks of the 1st lockdown in 2020)

sub-groups show that the higher the period of lockdown, the higher the effect on the increase in i-banking use. The effect of the other variables on i-banking changes regarding the sub-group. For instance, respondents from the public sector show a high probability to increase their i-banking use if they live in a metropolitan area and perform card transactions, while respondents with Business/Economics background increase their i-banking use if they belong in Gen Z.

Implications

Our study contributes to the emerging literature on the consumers' changing financial behavior during the pandemic and specifically the consequences of the COVID-19 lockdown on i-banking use. We initially find that the most influential factor, concerning respondents' sentiments, is the number of days in the lockdown which strongly positively associates with an increased reported i-banking use. Further, regarding demographic characteristics, we observe that females, an increasing age, living in a metropolitan area, and working in the public sector are associated with a higher likelihood of an increasing i-banking use.

From a theoretical perspective, it contributes to the financial services literature by providing a comprehensive analysis of consumers' behavior predictors towards the changing i-banking use during harsh economic and social conditions, as both demographic and prior financial behavior variables are taken into account in our modeling approach. Moreover, to our knowledge, no prior studies have examined the differentiated consumers' sentiment, proxied by the time variable during a lockdown (number of days in lockdown), and enables us to capture the changing financial behavior in time as shown in Fig. 3 and Tables 6, 7, 8.

From an applied point of view, we offer a significant hint to financial services providers to understand consumers' changing intention to use i-banking services or other digital financial services and innovative financial products. Consumers will be motivated during lockdown periods to alter their behavior to restrict cash payments, reduce infection risk and find alternative channels of conducting transactions. Specific demographic factors and prior involvement activity in financial technologies point out potential clusters for marketing targeting and promotional operations. Retail bank personnel and managers could more efficiently communicate alternate financial channels and tools to attract potential or increase engagement of existing consumers who are more eager to accept them.



Table 6 Summary statistics and univariate analysis

Variables	I-Banking use						
	Weighted Sample	Decline	Constant	Increase	Pearson's chi-squared test or ANOVA	Corr. Coef	Univariate Analysis—Ordinal Logistic regression with i-banking Total Use as independent variable OR
	Mean	Mean	Mean	Mean			
	(1)	(a)	(b)	(c)	(5)	(6)	(7)
<i>Demographics</i>							
Female	0.510 (0.499)	0.572 ^b (0.495)	0.497 ^{ac} (0.500)	0.556 ^b (0.497)	*	0.026*	1.151 (0.141)
Age	40.217 (12.403)	33.178 ^{bc} (12.312)	40.519 ^a (12.35)	40.318 ^a (12.224)	***	0.051***	1.001* (0.004)
Gen Z	0.168 (0.373)	0.415 ^{bc} (0.493)	0.157 ^a (0.363)	0.166 ^a (0.372)	***	-0.057***	0.693** (0.097)
Gen Y (millennial)	0.347 (0.476)	0.300 (0.459)	0.354 (0.478)	0.323 (0.468)		-0.011	0.935 (0.120)
Gen X	0.409 (0.491)	0.284 ^{bc} (0.451)	0.409 ^a (0.491)	0.435 ^a (0.496)	***	0.042***	1.220 (0.161)
Baby boomers	0.075 (0.263)	0.001 ^{bc} (0.030)	0.078 ^a (0.268)	0.075 ^a (0.263)	***	0.024*	1.204 (0.321)
Metropolitan	0.349 (0.477)	0.392 (0.489)	0.334 ^c (0.471)	0.406 ^b (0.491)	**	0.039***	1.239* (0.156)
Islands	0.131 (0.337)	0.152 (0.360)	0.129 (0.336)	0.131 (0.338)		-0.004	0.969 (0.153)
Low income	0.396 (0.489)	0.394 (0.489)	0.394 (0.488)	0.406 (0.491)		0.009	1.045 (0.136)
High income	0.050 (0.218)	0.098 ^{bc} (0.299)	0.049 ^a (0.217)	0.042 ^a (0.202)	**	-0.033*	0.682 (0.299)
Tertiary	0.293 (0.455)	0.408 ^{bc} (0.492)	0.287 ^a (0.452)	0.295 ^a (0.456)	**	-0.018	0.914 (0.097)
Business/economics	0.112 (0.315)	0.101 (0.301)	0.115 (0.319)	0.100 (0.301)		-0.011	0.906 (0.122)
Stem	0.096 (0.295)	0.102 (0.304)	0.097 (0.296)	0.091 (0.287)		-0.009	0.925 (0.143)
Public sector	0.152 (0.359)	0.100 ^c (0.301)	0.146 ^c (0.353)	0.196 ^{ab} (0.397)	*	0.059***	1.468** (0.285)
Private sector	0.427 (0.494)	0.381 (0.486)	0.436 (0.496)	0.397 (0.489)		-0.016	0.916 (0.125)
<i>Financial services</i>							
Bank account	0.982 (0.131)	0.979 (0.143)	0.982 (0.131)	0.983 (0.126)		0.005	1.116 (0.422)
Debit card	0.851 (0.356)	0.843 (0.364)	0.855 ^c (0.351)	0.826 ^b (0.378)	**	-0.024*	0.843 (0.164)
Credit card	0.425 (0.494)	0.266 ^{bc} (0.442)	0.433 ^a (0.495)	0.421 ^a (0.494)	**	0.023*	1.107 (0.144)
Card transaction	0.914 (0.278)	0.964 ^{bc} (0.186)	0.911 ^a (0.283)	0.920 ^a (0.271)	*	-0.007	0.956 (0.225)
Internet transaction	0.782 (0.412)	0.863 ^{bc} (0.343)	0.776 ^a (0.416)	0.789 ^a (0.408)	*	-0.009	0.955 (0.146)
Phone transaction	0.602 (0.489)	0.725 ^b (0.446)	0.581 ^{ac} (0.493)	0.676 ^b (0.468)	***	0.037***	1.235* (0.157)



Table 6 (continued)

Variables	I-Banking use				Pearson's chi-squared test or ANOVA	Corr. Coef	Univariate Analysis—Ordinal Logistic regression with i-banking Total Use as independent variable OR
	Weighted Sample Mean	Decline Mean	Constant Mean	Increase Mean			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
<i>Time of answer</i>							
Days in lockdown	26.503 (4.516)	25.749 ^c (94.535)	26.270 ^c (4.286)	27.753 ^{ab} (5.281)	***	0.122***	1.067*** (0.016)
4th week	0.686 (0.464)	0.796 ^{bc} (0.403)	0.703 ^{ac} (0.456)	0.578 ^{ab} (0.494)	***	-0.110***	0.564*** (0.089)
5th week	0.230 (0.421)	0.116 ^{bc} (0.321)	0.228 ^a (0.420)	0.258 ^a (0.437)	***	0.049***	1.307 (0.239)
6th week	0.084 (0.277)	0.086 (0.282)	0.067 (0.251)	0.162 (0.369)	***	0.110***	2.450*** (0.623)

Variables are defined in Table 2. Column (1) reports the variables' mean for the entire sample. Columns (2) to (4) report variables' mean for those respondents who reported a decreased, constant or increased i-banking use, respectively. Column (5) reports p-value statistical significance resulting from Pearson's chi-squared test or ANOVA. Column (6) reports variables' Pearson correlation coefficients with i-banking total use. Column (7) reports the Odds Ratios (OR) of the univariate ordered logistic regression of the variables with i-banking total use. Letters denote the columns with which a statistically significant (p-value < 0.10) pairwise comparison exists using Bonferroni's correction method (Weisstein 2020). Standard deviation is reported in parenthesis for columns (1) to (4) and standard error for column (7); (*), (**), (***) denote significance levels at 10%, 5% and 1%, respectively

Conclusion

COVID-19 has impacted almost every sector of the economy. For several businesses, the global health crisis became an opportunity and forced the accelerated transformation and expansion of their digital services toolkit. Banks are not an exception, as during the pandemic people are seeking for efficient and contactless financial services. The present study has examined the inquiry results for the reported i-banking use among 4807 respondents between 18 and 64-years-old who are part of the labor force and use internet. It was conducted during the 1st lockdown period between April 13th and May 3rd 2020 in Greece, and the sample was appropriately weighted to accurately reflect the Greek population.

The results clearly demonstrate that more days in a lockdown increases the possibility of an increased i-banking use. In addition, females, a higher age group, living in a metropolitan area and being public servants were also associated

with an increased i-banking use. An interesting point is that in the pre-pandemic crisis period female and older respondents were those with the lower use of i-banking.

The present analysis should be interpreted bearing in mind some limitations. First, the study was conducted during the first lockdown adopted in Greece to stop the pandemic, and thus, a sweeping assertion that a lockdown may change the i-banking use in other countries may have potential bias, especially coming from cultural components which are usually different among countries. Second, the sample was collected with the convenience method and restricted to current internet users. Although the weighting scheme of the raking method applied, there are still potential issues of bias, and a minimal part of the population that does not use the internet is not captured by the present online survey. Finally, future research could sight more light on changing financial behavior after repeated lockdowns or take into account other unexplored factors.



Table 7 Multivariate analysis

Variables	I-banking use							
	Decrease		Constant		Increase		Total use	
	Logit	Logit	Logit	Logit	Logit	Logit	Ordered logit	Ordered logit
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<i>Demographics</i>								
Female	1.164 (0.233)	1.184 (0.238)	0.755** (0.095)	0.751** (0.096)	1.334** (0.187)	1.340** (0.191)	1.228* (0.151)	1.229* (0.153)
Gen Y	0.374*** (0.082)	0.373*** (0.081)	1.512*** (0.213)	1.506*** (0.214)	0.890 (0.144)	0.893 (0.147)	1.221 (0.197)	1.227 (0.200)
Gen X	0.336*** (0.108)	0.333*** (0.108)	1.176 (0.204)	1.178 (0.207)	1.205 (0.234)	1.201 (0.234)	1.599** (0.309)	1.597** (0.309)
Baby boomers	0.005*** (0.006)	0.005*** (0.006)	1.400 (0.541)	1.433 (0.545)	1.236 (0.470)	1.211 (0.457)	1.856** (0.541)	1.837** (0.532)
Metropolitan	1.184 (0.236)	1.201 (0.244)	0.738** (0.092)	0.727** (0.092)	1.365** (0.198)	1.380** (0.203)	1.251* (0.170)	1.257* (0.173)
High income	3.191** (1.575)	3.142** (1.540)	0.899 (0.391)	0.902 (0.395)	0.787 (0.421)	0.783 (0.423)	0.622 (0.312)	0.623 (0.313)
Tertiary	1.326 (0.241)	1.313 (0.237)	0.922 (0.100)	0.929 (0.101)	1.012 (0.124)	1.007 (0.125)	0.962 (0.111)	0.960 (0.111)
Business/economics	0.798 (0.222)	0.790 (0.221)	1.188 (0.187)	1.193 (0.185)	0.856 (0.147)	0.852 (0.142)	0.909 (0.127)	0.904 (0.124)
Public sector	0.599 (0.209)	0.588 (0.203)	0.767 (0.166)	0.772 (0.167)	1.516* (0.341)	1.513* (0.339)	1.565** (0.308)	1.567** (0.306)
Private sector	0.579*** (0.112)	0.583*** (0.112)	1.280* (0.189)	1.276 (0.193)	0.878 (0.151)	0.880 (0.155)	1.012 (0.154)	1.011 (0.157)
<i>Financial services</i>								
Bank account	1.290 (0.874)	1.316 (0.890)	0.910 (0.430)	0.898 (0.424)	1.029 (0.535)	1.037 (0.535)	0.992 (0.448)	0.990 (0.444)
Debit card	0.521 (0.236)	0.534 (0.246)	1.584** (0.308)	1.519** (0.296)	0.682* (0.140)	0.712* (0.147)	0.805 (0.170)	0.834 (0.176)
Credit card	0.429*** (0.132)	0.433*** (0.134)	1.353** (0.202)	1.340* (0.204)	0.853 (0.140)	0.862 (0.144)	1.009 (0.151)	1.018 (0.155)
Card transaction	3.526** (1.862)	3.479** (1.847)	0.704 (0.204)	0.679 (0.194)	1.166 (0.339)	1.201 (0.346)	0.936 (0.207)	0.952 (0.207)
Internet transaction	0.875 (0.316)	0.889 (0.322)	1.064 (0.189)	1.076 (0.195)	0.976 (0.193)	0.963 (0.193)	1.017 (0.175)	1.004 (0.174)
Phone transaction	1.513 (0.449)	1.513 (0.447)	0.562*** (0.091)	0.571*** (0.093)	1.760*** (0.335)	1.730*** (0.330)	1.470** (0.251)	1.452** (0.249)
<i>Time of answer</i>								
Days in lockdown	0.970 (0.027)		0.943*** (0.014)		1.075*** (0.017)		1.070*** (0.016)	
(ref:4th Week)								
5th Week		0.443*** (0.101)		0.8133 (0.172)		1.4853* (0.320)		1.521** (0.281)
6th week		0.999 (0.368)		0.366*** (0.079)		3.070*** (0.697)		2.777*** (0.655)
Observations	4,807	4,807	4,807	4,807	4,807	4,807	4,807	4,807
R-squared	0.095	0.102	0.037	0.041	0.038	0.040	0.027	0.028
Wald	193.5	209.6	84.67	87.13	61.14	64.94	52.38	58.81
LL	-680.9	-675.4	-2355	-2348	-2106	-2102	-2831	-2829

Odds Ratios and Heteroscedasticity-adjusted standard errors (in parentheses) reported. (*), (**), (***) denote significance levels at 10%, 5% and 1%, respectively



Table 8 Sub-group analysis

Variables	I-banking use							
	Gender		Age		Education		Job safety	
	Male	Female	Gen Z	Older	Non tertiary	Tertiary	Public sector	Other sector
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<i>Demographics</i>								
Female			1.400*	1.194	1.261	1.227*	0.882	1.286*
			(0.240)	(0.181)	(0.226)	(0.142)	(0.237)	(0.181)
Gen Y	1.381	1.231			1.569*	0.920	1.311	1.299
	(0.297)	(0.275)			(0.412)	(0.143)	(0.848)	(0.218)
Gen X	2.961***	1.054			2.047**	1.194	5.225***	1.285
	(0.855)	(0.248)			(0.575)	(0.208)	(3.154)	(0.266)
Baby boomers	3.963***	0.838			2.475**	1.037	4.353*	1.637
	(1.584)	(0.275)			(0.926)	(0.268)	(3.601)	(0.498)
Metropolitan	1.361	1.175	1.000	1.358*	1.411*	0.992	3.612***	1.030
	(0.285)	(0.175)	(0.156)	(0.234)	(0.262)	(0.128)	(1.217)	(0.139)
High income	0.520*	0.780	0.836	0.624	0.552	0.703	0.433*	0.655
	(0.192)	(0.795)	(0.744)	(0.360)	(0.531)	(0.172)	(0.191)	(0.349)
Tertiary	1.068	0.849	1.203	0.812			1.340	0.962
	(0.171)	(0.155)	(0.222)	(0.113)			(0.339)	(0.115)
Business/economics	0.888	0.985	1.532*	0.806	0.707	1.119	1.277	0.838
	(0.229)	(0.161)	(0.353)	(0.131)	(0.173)	(0.158)	(0.511)	(0.113)
Public sector	1.787**	1.451	1.049	1.656**	1.696*	1.370*		
	(0.522)	(0.343)	(0.340)	(0.375)	(0.493)	(0.222)		
Private sector	1.053	0.963	1.160	0.936	1.009	1.050		
	(0.259)	(0.182)	(0.246)	(0.170)	(0.217)	(0.147)		
<i>Financial services</i>								
Bank account	0.324	1.180	1.044	0.867	1.013	0.751	3.444**	0.996
	(0.350)	(0.561)	(0.697)	(0.422)	(0.559)	(0.491)	(1.680)	(0.439)
Debit card	0.872	0.796	1.136	0.804	0.784	1.128	1.264	0.837
	(0.267)	(0.244)	(0.306)	(0.206)	(0.206)	(0.286)	(0.560)	(0.194)
Credit card	0.998	1.033	0.872	1.129	0.975	1.177	0.591*	1.158
	(0.226)	(0.188)	(0.146)	(0.195)	(0.196)	(0.126)	(0.171)	(0.192)
Card transaction	1.046	0.953	1.103	0.948	0.978	0.842	3.059***	0.830
	(0.329)	(0.328)	(0.431)	(0.253)	(0.244)	(0.325)	(1.284)	(0.196)
Internet transaction	1.123	0.917	1.303	0.893	0.980	1.085	1.465	0.941
	(0.331)	(0.196)	(0.336)	(0.187)	(0.213)	(0.162)	(0.480)	(0.182)
Phone transaction	1.462	1.398*	1.011	1.524**	1.667**	1.081	1.548	1.385*
	(0.355)	(0.277)	(0.185)	(0.306)	(0.375)	(0.153)	(0.517)	(0.246)
<i>Time of answer (ref:4th Week)</i>								
5th week	1.837**	1.307	1.350	1.558*	1.705**	1.171	0.944	1.599**
	(0.482)	(0.262)	(0.258)	(0.358)	(0.399)	(0.181)	(0.336)	(0.314)
6th week	3.904***	2.127**	0.502**	3.525***	3.249***	1.933**	5.078***	2.587***
	(1.164)	(0.768)	(0.169)	(0.867)	(0.953)	(0.622)	(2.956)	(0.592)
Observations	2186	2621	1448	3359	1551	3256	789	4018
R-squared	0.061	0.016	0.018	0.038	0.042	0.011	0.152	0.026
Wald	52.90	20.91	45.56	55.53	49.62	20.61	39.67	56.65
LL	-1249	-1548	-585	-2194	-1905	-904	-393.3	-2372

Odds ratios and standard errors (in parentheses) reported. (*), (**), (***) denote significance levels at 10%, 5% and 1%, respectively



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Declarations

Conflict of interest The authors declare that there is no conflict of interest.

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