

# Management of Consumer Payment Determined by Gender During the COVID-19 Pandemic

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**Abstract:** The article discusses the subject of the consumer's gender and factors that affect shopping, and more specifically whether there is a relationship between gender and preferred means of payment in times of the COVID-19 pandemic. I explore the relationship between cash and other payment instruments using the outbreak of the COVID-19 pandemic as a natural experiment exogenously affecting both the payment industry and consumers' habits. This article sheds more light on changing the payment habits of consumers since the beginning of the pandemic. The purpose of this article is to examine the styles of payment-related decision making and to identify differences and similarities in this regard according to gender. Women are different from men in every activity they perform, and therefore also in shopping styles. Consumer behaviour is an area in which the diversity of behaviour between men and women is very clear. The author conducted an empirical study in the period of January-February 2022 among the students of the University of the Third Age. The study participants were women and men over 55 years of age. The basic research method was the PAPI (Paper and Pencil Interview) method, based on a questionnaire. In the first part of the article, it was attempted to present some theoretical aspects of payment methods by consumers in Poland and in Europe, based on the analysis of literature sources. Then, the gender-dependent differences in consumer behaviour are presented. The next section describes the procedure of empirical research, as well as the most important conclusions of the research.

**Keywords:** cash, cashless payments, consumer intention, debit and credit cards, COVID-19 pandemic, management

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## 1. Introduction

The topic of consumer behaviour related to payments is important for the economy and the efficiency of the payment system (Kapler, 2014; Rahman, Ismail, Bahri, 2020; Humphrey et al, 2006; Zhang et al, 2019). However, the choice of the payment method depends on various factors (see: Arango, Huynh, Sabetti, 2015; van der Crujssen i van der Horst, 2019; Khan, Belk, Craig-Lees, 2015). It is also a geographically diverse choice (Liñares-Zegarra i Willeson, 2021; Arango-Arango et al, 2018 and Bounie, Camara, Galbraith, 2020). It seems, however, that the COVID-19 pandemic and the measures imposed by governments to stop it seem to have had a significant impact on consumer behaviour related to payments. This is most evident in the rapid increase in the acceptance of non-cash payments, despite the general decline in consumer spending. This also applies to the changes in payment methods made by older people (55+).

In addition to the current trends in the payment services industry, the COVID-19 pandemic has been an unprecedented shock to the global economy since the beginning of 2020 and has affected the behaviour of businesses and consumers, including their payment habits. As a result of the restrictions introduced, customers had to wear masks and maintain physical distance between one another in shops. They were also asked to pay with a card as often as possible. According to the information from Auer, Corneli, Frost (2020) and Panetta (2020) there is no research evidencing that banknotes are the main source of infections. Nevertheless, WHO recommended hand washing after contact with banknotes and coins (Pal and Bhadada, 2020). The decline in cash transactions was due to both fear (of cash-borne infections) and new habits developed during the enforcement of security measures.

In its study, the European Central Bank (2020) indicated that around 40% of respondents in the Euro zone reduced their use of cash, and 38% declared that the main incentive to change their payment behaviour was the possibility of being infected by using banknotes. Studies by Kim, Kumar and O'Brien (2020) show similar conclusions, further noting that some risky sellers have stopped accepting cash as a means of payment. According to Visco (2020), there has been an upward trend in the use of digital sales channels and online shopping. The pace of digital banking services has increased, including the number of contactless payments. The limits of cashless payments were increased in many countries during the pandemic, eliminating the need to enter the PIN for most transactions at the point of sale (Mastercard, 2020). It can be pointed out that the pandemic was a "game-changer" in the process of replacing cash and other traditional means of payment by introducing innovative payment solutions in merchant business models.

## **2. Literature review**

Consumer payment behavior has been a burgeoning field of research since the 1980s, starting with the seminal work of Boeschoten and Fase (1989). Trade in economic sciences is defined as a branch of the national economy, which is distinguished in the social division of labour, and its task is to move material goods between entities in the area of production to the area of consumption by means of commodity exchange, carried out by acts of purchase and sale. Therefore, trade is a buy-sell transaction, the consumer (buyer) receives a certain item, paying the seller for it with cash. There are many trade-related tasks. The basic aspect is to conclude a purchase and sale agreement and its implementation. On the other hand, the other tasks of trade are: meeting the needs of consumers, researching and analysing the market, collecting and maintaining inventories. It is also important to have a trade information function that shows consumers and other shoppers information about the products, their use and the conditions and methods of sale (Andrzejczak et al, 2010).

Bouhdaoui and Bounie (2012) stated that one of the priorities of each central bank is to increase the effectiveness retail payment systems. The technological progress observed in the recent years has a significant impact on shopping strategies, and thus sales strategies. With progress in financial innovation, payments have shifted to secure digital platforms, achieving economies of scale and increasing the relative costs of paper-based payment instruments (Callado-Muñoz, Hromcová, Utrero-González, 2018; Beijnen and Bolt, 2009; Bolt and Humphrey, 2007). Innovations in online banking, new payment technologies such as contactless, mobile and instant payments are used more often. Many factors influence the choice of the payment method by consumers. Monetary costs associated with the use of a given method, speed of transaction, ease of use and loyalty programmes associated with selected payment instruments are important. However, despite large investments in technological innovations such as debit cards (Bounie, François, Waelbroeck, 2016), prepaid cards (Shy and Tarkka, 2002), contactless cards (Fung and Halaburda, 2015) and mobile payments (Liu, Beng, Zhang, 2019), cash is still the main payment instrument used to pay at points of sale in most developed economies (Arango-Arango et al, 2018) and consumers ultimately decide which instruments they actually use. Recently, the President of the European Central Bank (2020) has stated that more than three quarters of all point-of-sale payments in the Euro zone are made in cash.

According to Kapler (2014), the majority of Poles own payment cards (66%). The results of the research indicate that demographic characteristics allow to differentiate the Polish society into groups with a significantly different profile of cash and debit card use. In general, more cash transactions are made by people living in the countryside, elderly people, single, less educated and treating new technologies with great caution. Card payments are mainly made by women, younger people, living in cities, married, with a higher level of education and using the Internet. Consumers are encouraged to use their cards frequently due to promotions, such as the possibility of refunding part of the value of their card purchases, loyalty programmes and discounts, exemption from the fee for keeping an account and a card in exchange for a certain number of card payments per month. Due to the short time required for the transaction, Polish people have been increasingly more often using contactless cards. The main reasons for not using cards by their holders are: the belief that cash payment is more convenient, better control of expenses, lack of trust in card payments and fear of losing the card. It is important for Poles to have a high sense of anonymity in cash transactions, which is not ensured by card payments. Only 7% of Poles who have payment cards but do not pay with them indicated that the reason is the lack of acceptance of payment cards in shops. The absence of cards in the wallet is another reason for the dominance of cash. The key reason for not possessing cards is the belief that you can pay significantly faster with cash. The lack of need to own a card is equally as important. Other reasons include high fees for holding and issuing a card and the belief that card payments are too complicated.

According to a study from Elavon (2020), customers in all age groups prefer to pay by card and contactless cards, but non-cash payments are most popular among young people aged 25-34 (63%) and 45-54 (62%). Those who prefer to pay in cash are between 25 and 34 years old (13%). However, this age group is already almost five times more likely to use digital payment methods: cards or contactless payments (63%) than using banknotes and coins. On the other hand, surveys conducted by the National Bank of Poland (2020) show that 65% of respondents indicated that due to the COVID-19 pandemic, their consumer habits did not change, and 0.9% of respondents were unable to determine the impact of the pandemic in this regard. The remaining 34.1% of respondents declared that due to the COVID-19 pandemic they changed their consumer behavior. Among this group of respondents, the vast majority of people (79.8%) indicated that they shop less often in physical retail and service outlets, but if they do, they try to plan purchases with a bigger value. On the other hand, 28.7% of

respondents indicated that they shop online more often (with 10% of respondents pointing to using both strategies at the same time), while 1.5% of respondents changed their consumer behaviour in a different way.

Based on research (research sample covering 5373 people) carried out by Kotowski and Polasik (2021), how the use of cash before the outbreak of the pandemic influenced the payment behaviour of consumers during the pandemic, it can be pointed out that 47.9% of the sample indicated a shift towards a larger number of non-cash payments, and 6.7% on cash payments. 45.4% of respondents did not change their payment-related behaviour. Consumers who made non-cash payments before the outbreak of the pandemic have often done so more often since then, while those who preferred to pay in cash have mostly continued to do so. This may indicate problems with financial inclusion. For instance, people without non-cash instruments may find it difficult to adapt to the new situation within the limits imposed. Secondly, the change in payment standards in response to the pandemic varies from one European country to another. The above suggests an important role for country-specific factors. Based on data from various countries (Kraenzlin, Meyer, Nellen, 2020 and Bounie et al, 2020), it can be stated that the volume of non-cash payments increased in Switzerland, Italy and France during the pandemic, despite the general decrease in consumption expenses. Research related to payments conducted in the Netherlands by Jonker et al. (2020) shows an increase in the use of debit cards from the moment the pandemic has started. However, this increase is mainly attributable to government restrictions imposed to counteract the pandemic, as well as cultural differences. An important barrier in the development of card payments are the preferences of the society, which wishes to remain anonymous when making payments.

### **3. Specifics of consumer behaviour for women and men**

The variation of messages in terms of gender is gaining importance, although it should be kept in mind that women still constitute 3/4 of the audience of all mass marketing communication and make about 90% of purchasing decisions. The marketing message addressed to women and men should be adapted to different types of personalities. We all devote a lot of our time to shopping, visiting shops, viewing products. A lot of space is taken to talk to friends about products, watch ads and think about shopping. It is known that the processes related to shopping, the attitude towards shopping - willingness to do it or not, the joy of going to shops and watching shop displays, or treating shopping as an obligation, may depend on gender. Stereotypical opinions about consumers indicate that women are the "queens" in shops, they love to buy, try on clothes, look at things, touch products. When making a decision on a given product, women fall into a kind of trance. They are very involved in searching, comparing and imagining how a given product will look (Piersiala, 2014). Women devote significantly more time to shopping than men, and the act itself is not the most important in buying, but the overall pleasant experience associated with it (Kitlińska, 2012). It is a common opinion that men are the opposite of women in this regard. They treat shopping as the "necessary evil", they do not want to walk around shops and all they want to enter the shop, buy a selected thing and leave. They do not like to try on clothes, talk to sellers, choose from many types of products (Wiśniewski, 2013). It is widely believed that men pay more attention to the price of the purchased product, as well as to the physical and functional characteristics of it, while women are driven by emotions when choosing products. Therefore, in the area of communication, there is not only a need, but also a necessity to take into account the specificity of gender in the purchasing behaviour on today's market.

### **4. Empirical research**

The proper research was carried out on a group of 128 respondents aged 55+ years in the period from 18 January to 28 February 2022, i.e. during the COVID-19 pandemic, which additionally allowed to examine the impact of the epidemiological threat and the restrictions introduced in business trade on the manner of making transactions. The implementation of the survey part was based on the PAPI method (Paper and Pencil Interview). Questions contained in the questionnaire were closed and multiple choice questions. Several questions consisted in the respondent taking a positive or negative position on a given issue. The questionnaire was anonymous and was preceded by a cover letter addressed to the surveyed consumers, in which the basic issues related to the research were explained. The research related to payments at physical points of sale and services. In the first stage of empirical research, the key methodological assumptions were built. It was assumed that the research group consisted of students of the University of the Third Age in Częstochowa, in Poland. Currently, the majority of the U3A participants are people with higher education who, after retirement, strive to fill their free time and look for the meaning of further life. The educational offer of U3A is very broad. In addition to lectures focused on general topics, there are also lectures on the history of art, the history of the Church, the history of Silesia, psychology, as well as foreign language classes. In addition, as part of physical activities, rhythmic

gymnastics, rehabilitation gymnastics, gymnastics in water, gymnastics in music, swimming, European dances, Pilates, yoga are organized. Every year there are also computer classes for beginners and advances users. As part of the research procedure, it was assumed that students of the University of the Third Age are the respondents. In the population covered by the survey, it was found that among the respondents the majority were women. 97 of the respondents were women, which constitutes 76% of the entire surveyed population, while in 31 analysed cases the decision-maker was a man, which constitutes 24% of the total surveyed sample. In terms of place of residence, the most numerous group were people living in Częstochowa (75.4%). Residents of small towns constituted 15.6% of the respondents, while residents of villages constituted 9.0%.

The article puts forward the hypothesis that it is more convenient for women to pay with cash, and for men with a credit and debit card. Both women and men do not like to pay using contactless payments. Table 1 contains a comparison the convenience of using different means of payment depending on the gender.

**Table 1:** Relationship between genders and payment methods

Variable	Gender	Average importance score	Standard deviation	Average ratios difference	t ratio	df	Relevance (double-sided)
Payment by debit card	Male	2,920	0,784	- 0,400	-	148	0,001
	Female	3,320	0,549				
Payment by credit card	Male	2,333	0,827	0,373	2,973	144	0,003
	Female	1,960	0,706				
Cash payment	Male	3,413	0,902	- 0,027	-	148	0,848
	Female	3,440	0,793				
Contactless payment	Male	1,333	0,723	0,053	0,523	148	0,602
	Female	1,280	0,508				

When analyzing this research area, it should be noted that there are no significant ( $\alpha=0.05$ ) differences when it comes to cash and contactless payments. However, in the case of a credit card and a debit card, there is a relationship with gender. Table 2 presents an analysis of the average values for different means of payment in the group of men and women.

**Table 2:** Convenience of using different means of payment

Payment methods	N	Average importance score	Standard deviation
Debit card	128	3,120	0,704
Credit card	128	2,147	0,790
Contactless payment	128	1,307	0,623
Cash payment	128	3,427	0,846

Descriptive statistics show that there are differences between particular means of payment. According to the data obtained, the respondents stated that cash comes first in terms of convenience of use, then a debit card, while a credit card comes third. On the other hand, cashless payments proved to be by far the least convenient form of payment. When analysing cash payments, it should be stated that this is the most convenient form of payment for both women (59%) and men (64%). Then, 60% of women and 50% of men rated the debit card as a convenient method. The credit card was rated as inconvenient by 62% of the surveyed women and 53% of the surveyed men. Contactless payments were rated as the least comfortable by 78% of women and 78% of men. Table 3 shows the relationship between means of payment according to gender.

**Table 3:** Relationship between means of payment depending on gender

Gender	Payment methods	t ratio	df	Relevance (double-sided)
Men	Debit card - Cash payment	3,013	74	0,004
	Debit card - Credit card	-3,987	74	0,001
	Credit card - Contactless payment	-6,917	74	0,001
Female	Debit card - Cash payment	0,838	74	0,405
	Debit card - Credit card	-13,627	74	0,001
	Credit card - Contactless payment	-5,390	74	0,001

According to the t-test for dependent samples, the hypothesis that there are no differences in the convenience of using different means of payment for the consumer depending on the gender cannot be rejected in all cases when it comes to the statistical significance  $\alpha=0.05$ . For men, each of the means of payment used is

significantly different. In the case of women, there is no significant difference in the convenience of using cash and debit cards. You can also see that contactless payments are the least convenient form of payment for both men and women.

Regarding the convenience of using different forms of payment, respondents agreed that they were reluctant to use contactless payments – they did not think that such a method of payment was convenient for them. Cash turned out to be the most convenient, while debit cards are slightly less convenient and credit cards were rated even lower. Although for men each of the means of payment used is significantly different, for women the convenience of using cash and debit cards is at the same level. This means that women do not see the difference between paying with a debit card and cash, while men still treat "plastic money" as less convenient.

The conducted research confirms that there are differences between the choice of the payment method by older people depending on gender. Despite the research conducted during the COVID-19 pandemic, cash was still the most popular payment method, which is also confirmed by the research carried out by Kotowski and Polasik (2021). Certainly, this is due to cultural differences and indicates that younger people will be more likely and willing to choose electronic payments than people in older age groups. It also results from the level of Poles using banking services, which was much lower than the average in the group of people aged 65 and over. The structure of card ownership depending on age shows similar trends as in the case of using banking services (NBP, 2020).

## 5. Conclusion

Non-cash societies and technological innovations are becoming increasingly popular worldwide (Visco, 2020). Non-cash payments are financial transactions in which consumers make financial transactions in the absence of physical cash (Liu, Beng, Zhang, 2019), mainly using cards or electronic methods. Non-cash payment systems are used significantly more intensely in some countries, such as the Netherlands, Germany, Switzerland and, above all, in the Nordic countries (Kraenzlin et al, 2020 and Bounie et al, 2020; Sreenu, 2020). Cheque usage worldwide decreased by 13.4%, and the ratio of debit cards to credit cards, interestingly, has changed from 59:41 to 90:10 in the last ten years (World Payments Report, 2018). Non-cash transactions worldwide are expected to grow at a total annual growth rate of 10.9% between 2015 and 2020 (World Payments Report, 2020), while growth in emerging Asia is expected to increase by 30.9% due to continued digital innovation and the adoption of digital payments for financial inclusion (Research and Market, 2020).

Based on the analyzed data, it can be concluded that Poles are most likely to pay in cash, even if they own payment cards and shops have terminals. The education of the society on the security of non-cash transactions, awareness of the high cost of cash as a payment instrument, savings in both the duration of the transaction and the time needed to obtain cash (withdrawal at a bank or ATM) can contribute to changing the consumer behaviour.

It should be noted, however, that although Wiśniewski et al. (2021) showed that the change in shopping behaviour and the fear of using cash due to COVID affected both payment behaviour during the pandemic and the intention to continue using non-cash payments after the pandemic. It is not obvious whether these changes will continue. This is an interesting topic for future research.

## References

- Andrzejczak, D., Mikina, A., Rzeźnik, B. and Wajgnert, M. (2010) *Podstawy działalności handlowej. Sprzedawca*, Wydawnictwa Szkolne i Pedagogiczne S.A., Warszawa.
- Arango-Arango, C., Bouhdaoui, Y., Bounie, D., Eschelbach, M. and Hernandez, L. (2018) "Cash remains top-of-wallet! International evidence from payment diaries", *Economic Modelling*, Vol 69, pp 38-48.
- Arango, C., Huynh, L. and Sabetti, L. (2015) "Consumer payment choice: merchant card acceptance versus pricing incentives", *Journal of Banking & Finance*, Vol 55, pp 130-141.
- Auer, R., Corneli, G. and Frost, J. (2020) "COVID-19, cash, and the future of payments", *BIS Bulletin*, Vol. 3,
- Beijnen, Ch. and Bolt, W. (2009) "Size matters: Economies of scale in European payments processing", *Journal of Banking & Finance*, Vol. 33, Issue 2, pp 203-210.
- Boeschoten, W.C., and Fase M.M.G. (1989) "The Way We Pay with Money", *Journal of Business & Economic Statistics*, Vol. 7(3), pp 319–326.
- Bolt, W. and Humphrey, D. (2007) "Payment Network Scale Economies, SEPA, and Cash Replacement", *Review of Network Economics*, Vol. 6, Issue 4, pp 453-473.

- Bouhdaoui, Y. and Bounie, D. (2012) "Modeling the Share of Cash Payments in the Economy: An Application to France", *International Journal of Central Banking*, Vol. 8, Issue 4, pp 175-195.
- Bounie, D., Camara, Y. and Galbraith, J.W. (2020) *Consumers' mobility, expenditure and online- offline substitution response to Covid-19: evidence from French transaction data*, CIRANO Working Papers.
- Bounie, D., François, A. and Waelbroeck, P. (2016) "Debit card and demand for cash", *Journal of Banking and Finance*, Vol. 73, pp 55-66.
- Callado-Muñoz, F. J., Hromcová, J., and Utrero-González, N. (2018) "Effects of institutional environment and technology development on payment choice", *Technological and Economic Development of Economy*, Vol. 24(1), pp 81–107.
- Elavon (2021), [online], <https://www.elavon.pl/artykuly/badanie-metod-platnosci.html>
- European Central Bank (2020) "Study on the payment attitudes of consumers in the euro area (SPACE)", [online], <https://www.ecb.europa.eu/pub/pdf/other/ecb.spacereport202012~bb2038bbb6.en.pdf>
- Fung, B.S.Ch. and Halaburda, H. (2016) *Central Bank Digital Currencies: A Framework for Assessing Why and How*, Bank of Canada.
- Humphrey, D.B., Willeson, M., Bergendahl G. and Lindblom, T. (2006) "Benefits from a changing payment technology in European banking", *Journal of Banking & Finance*, Vol 30, pp. 1631-1652.
- Jonker, N., van der Crujisen, C., Bijlsma, M. and Bolt, W. (2020) "Pandemic payment patterns", *DNB Working Papers*, Vol. 701, Netherlands Central Bank, Research Department.
- Kapler, M. (2014) "Analiza decyzji zakupowych polskich konsumentów, uwarunkowanych wyborem formy płatności", *Zeszyty Naukowe. Organizacja i Zarządzanie*, Vol. 68, pp 29-39.
- Khan, J., Belk, R.W. and Craig-Lees, M. (2015) " Measuring consumer perceptions of payment mode", *Journal of Economic Psychology*, Vol. 47, pp 34-49.
- Kim, L., Kumar, R. and O'Brien, S. (2020) "Consumer Payments & the COVID-19 Pandemic: A supplement to the 2020 Findings from the Diary of Consumer Payment Choice", Federal Reserve Bank of San Francisco.
- Kitlińska, E. (2012) „Kobiety lubią pewne miejsca”, *Marketing w Praktyce*, Vol. 10, pp 47–48.
- Kotkowski, R., Polasik, M. (2021) "COVID-19 pandemic increases the divide between cash and cashless payment users in Europe", NBP Working Paper, Vol. 339.
- Kraenzlin, S., Meyer, C. and Nellen, T. (2020) "COVID-19 and regional shifts in Swiss retail payments", *Swiss Journal of Economics Statistics*, Vol. 156.
- Liñares-Zegarra, J.M., Willeson, M. (2021) "The effects of negative interest rates on cash usage: Evidence for EU countries", *Economics Letters*, Vol 198.
- Liu, Z., Ben, S. and Zhang, R. (2019) "Factors affecting consumers' mobile payment behavior: a meta-analysis", *Electronic Commerce Research*, Vol. 19, pp 575–601.
- Mastercard (2020) "Mastercard enables Contactless limit raise across 29 countries and champions permanent increase", [online], <https://newsroom.mastercard.com/eu/press-releases/mastercard-enables-contactless-limit-raise-across-29-countries-and-champions-permanent-increase/>
- NBP (2021), "Payment habits in Poland in 2020. Key results of the survey", [online] [https://www.nbp.pl/en/system\\_platniczy/Payment-habits-in-Poland-2020.pdf](https://www.nbp.pl/en/system_platniczy/Payment-habits-in-Poland-2020.pdf)
- Pal, R. and Bhadada, S.K. (2020) "COVID-19 and non-communicable diseases", *Postgraduate Medical Journal*, Vol. 96, pp 429-430.
- Panetta, F. (2020) "Beyond monetary policy-protecting the continuity and safety of payments during the coronavirus crisis" [online], European Central Bank, <https://www.ecb.europa.eu/press/blog/date/2020/html/ecb.blog200428~328d7ca065.en.html>
- Piersiala, L. (2014) "Strategie zakupowe konsumentów uwarunkowane płcią", *Zeszyty Naukowe. Organizacja i Zarządzanie*, Vol. 68, pp 93-102.
- Rahman, M., Ismail I. and Bahri S. (2020) "Analysing consumer adoption of cashless payment in Malaysia", *Digital Business*, Vol 1.
- Research and Market (2020), "Global cards & payments market insights 2015–2019 & 2019–2023", [online], <https://www.globenewswire.com/news-release/2020/04/16/2017151/0/en/Global-Cards-Payments-Market-Insights-2015-2019-2019-2023.html>
- Shy, O., and Tarkka, J. (2002) "The Market for Electronic Cash Cards", *Journal of Money, Credit, and Banking*, The Ohio State University Press, Vol. 34 (2), pp 299-314.
- Sreenu, N. (2020) "Cashless payment policy and its effects on economic growth of India: An exploratory study", *ACM Transactions on Management Information Systems*, Vol. 11 (3), pp 1-10.
- Wiśniewski, M. (2013) „Chcą pachnieć i pić whisky”, *Marketing w Praktyce*, Vol. 11, pp 26.
- Wiśniewski, T.P., Polasik, M., Kotkowski, R. and Moro, A. (2021) "Switching from cash to cashless payments during the COVID-19 pandemic and beyond" *NBP Working Papers*, Vol. 337.
- World Payment Report (2020), "Non-cash payments volume", [online], <https://worldpaymentsreport.com/non-cash-payments-volume-2/>
- World Payments Report (2018), "Non-cash transaction analysis", [online], <https://worldpaymentsreport.com/wp-content/uploads/sites/5/2018/10/World-Payments-Report-2018.pdf>
- Zhang, Y., Zhang, G., Liu, L., De Renzis, T. and Schmiedel, H. (2019) "Retail payments and the real economy", *Journal of Financial Stability*, Vol 44.

van der Cruijssen, C., van der Horst, F. (2019) "Cash or card? Unravelling the role of socio-psychological factors", *De Economist*, Vol 167, pp 145-175.

Visco, I. (2020) "The Governor's Concluding Remarks for 2019", [online], Bank of Italy, [https://www.bancaditalia.it/pubblicazioni/interventi-governatore/integov2020/encf\\_2019.pdf?language\\_id=1](https://www.bancaditalia.it/pubblicazioni/interventi-governatore/integov2020/encf_2019.pdf?language_id=1)