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Cash or card? – An explorative analysis of consumers’ payment behaviour in Hungary

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Summary: *The main purpose of this study is to explore the payment patterns and cash usage behaviour of the Hungarian public and examine the effects of age, income, education and other socio-demographic factors on these habits. We focus especially on the public’s general attitude towards cash and the subjective perception of different payment methods. Our research is primarily based on data acquired from a questionnaire-based survey of 1,500 people. Wherever possible, we compare our results to those of foreign studies with a similar focus. We find that the Hungarian population generally prefer cash to electronic payment methods and this is especially true for the youngest and eldest age groups, the economically inactive and those with lower educational attainment or lower income. A significant portion considers using cash only a necessity because the lack of card acceptance, but they are outnumbered by those, who want to retain banknotes and coins in the future, mainly because of subjective reasons. The most common perceived advantages of cash are its quickness and better control over spendings, but habits also play an important role in payment choices.*

JEL Classification: D12, D14, E42

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1. Why does it matter how we pay?

Efficient and reliable payment systems catering to the needs of the population are extremely important with respect to the operation of the economy and financial stability, as they provide the means for the smooth exchange of various goods and services. Articles published by Hungarian (*Turján et al., 2011*) and non-Hungarian authors (*Schmiedel et al., 2012*) both confirm that the social costs of the implementation and maintenance of payment systems are significant, amounting to or even exceeding 1 per cent of GDP. It is therefore particularly

important to examine the population's attitude to the different payment instruments available, the share of their use of individual payment instruments and the criteria upon which they base their choices. A proper understanding of this information may assist in improving the efficiency of payment transactions and hence, supporting the operation of the national economy.

In the first part of our study we briefly outline the data and trends that characterise Hungarian payment transactions in recent days. In the next section, relying on the representative survey conducted by the Magyar Nemzeti Bank in 2017 we provide a detailed analysis of households' cash payment habits, attitude to cash and the factors most likely to influence their choice between cash and electronic payment methods. Since numerous Hungarian and foreign publications on previous, similar surveys are available, we are able to put our results in an international context and to describe the change in Hungarian consumers' payment behaviour.

2. Characteristics of Hungarian payments

As indicated by the *Payment Systems Report* published by the Magyar Nemzeti Bank in 2018, the efficiency of electronic payments is improving continuously. All three indicators monitored by the MNB – credit transfers and the electronic payment of retail purchases and utility bills – have edged closer to the values prevailing in the European Union in recent years. Hungary's lag in the credit transfer to GDP ratio has shrunk further; in addition, a strong development was observed in the electronic payment of both retail purchases and utility bills and other service charges, primarily owing to the significant expansion in the domestic card payment infrastructure and the increase in card purchase turnover. It should be noted, however, that electronic bill payments continue to fall significantly behind the EU averages, which can be largely attributed to the unceasing popularity of “yellow cheque” – postal inpayment money order – payments.

The turnover of card purchase transactions and the number of acceptance points and POS terminals have grown by around 25 per cent per annum. Based on the MNB's 2016 database, however, the ratio of card accepting Hungarian retailers is still only 30 per cent, even though these merchants account for nearly 75 per cent of total turnover. The increasing popularity of contactless technology is especially remarkable: also based on the MNB's data, in 2017, 73.4 per cent of all card payment transactions were contactless purchases, accounting for 60.1 per cent of the total value of the transactions. Last year there was only a minor, 2 per cent increase in the number of payment card cash withdrawals, while the value of the withdrawals grew somewhat faster by 8 per cent: accordingly, the average transaction value (approximately HUF 68,000) also increased.

Despite these trends, however, data of the online cash registers directly connected to the National Tax and Customs Administration continue to indicate that cash transactions still account for a considerable part of retail turnover both in terms of number and value. In line with this trend, cash in circulation (HUF) has been growing steadily for years, not only in terms of nominal value but also in terms of its ratio to GDP and to households' consumption expenditures. According to the MNB's data, by the end of 2017 the value of forint banknotes in circulation approached HUF 5,040 billion, representing an annual 13.5 per cent increase on average compared to the corresponding value of 2,670 billion recorded in 2012. Regarding individual denominations, the number of 10,000 and 20,000 forint notes showed the greatest increase, and since November 2017 the 20,000 forint banknote has been the most popular banknote in Hungary even in terms of volume in circulation, which implies that a substantial portion of currency in circulation does not only serve transaction purposes.

In summary, the significance of cash is inevitable in the Hungarian financial system even today; therefore, for any improvement in payment efficiency it is extremely important to understand households' attitude to cash, the situations in which cash is their preferred payment choice, the methods chosen for cash payments, and the criteria that determine the choice between cash and electronic payment methods. Thus, for the rest of our study we shift our focus to these questions.

3. Research methodology

We based our analysis on the survey conducted by the MNB in the autumn of 2017 in order to review the Hungarian population's cash usage habits and attitudes, as well as the general experiences related to cash payments, and to explore the population's knowledge about forint banknotes and the banknote replacement programme in progress. The survey consisted of two parts: a quantitative survey conducted on a sample of 1,500 persons – representative in terms of age, sex and residence and heterogeneous in terms of economic activity –, and a series of interviews conducted in 10 regional (Budapest, Western and Eastern Hungary) focus groups constructed with consideration of lifestyle and age criteria. Commissioned by the MNB, the survey was conducted by the Századvég School of Politics Foundation. A short summary of the relevant questions of the applied questionnaire is included in the annex.

The quantitative survey used a hybrid method: 900 persons (age groups above 35) were interviewed over the phone by pollsters, while 600 persons (age groups 16–24 and 25–34) completed the questionnaire independently online. In the case of both methods, the questionnaires began with questions on socio-demographic characteristics (age, sex, education level, labour market status, income, type of residence), followed by questions regarding the method of accessing cash, cash holdings, cash payment habits and finally, regarding the respondent's attitude to cash and motives for cash usage. Questions intended to assess the respondents' knowledge about the security features of banknotes, the redesigned banknotes and the banknote replacement programme comprised separate blocks within the questionnaire, but the analysis of the replies provided to these questions are outside of the scope of this study.

In the qualitative round of the survey 8 respondents were polled in each of the 10 focus groups. The interviews were conducted by skilled moderators, and the structure of the interviews was consistent with that of the quantitative questionnaires. In general, the experiences from the interviews confirmed the conclusions drawn from the replies to the questions of the questionnaire; therefore, our analysis primarily relies on the results of the quantitative part of the survey.

4. Previous surveys with a similar focus

The MNB had previously conducted a number of surveys aimed at payment habits and cash usage (*Ilyés – Varga, 2015; Takács, 2011*); moreover, numerous foreign central banks have regularly published questionnaire-based surveys with a similar focus. Similar to the MNB, the Polish (*Goczek – Witkowski, 2015*) and the Spanish (*Pérez et al., 2014*) central banks exclusively use questionnaires to gauge households' habits, whereas the Austrian (*Rusu – Stix, 2017*), German (*Deutsche Bundesbank, 2018*), Swiss (*Schweizerische Nationalbank, 2017*) and Dutch (*Crujisen et al., 2015; Crujisen – Plooi, 2015*) central banks, as well as the European Central Bank (*Bagnall et al., 2014; Esselink – Hernández, 2017*) and the US Federal Reserve (*Bennett et al., 2014; Wang, 2015*) combine questionnaires with the application of "payment diaries". The essence of this method is to ask respondents to take detailed notes of all of their purchases or transactions either independently or with the help of their pollster for a period of 1–7 days.

In our analysis we attempt to interpret the payment habits of the Hungarian population also in comparison to other countries; however, quantitative comparability is limited due to the fact that even questions targeting similar topics are formulated somewhat differently in the various questionnaires and the response options are typically different as well. It should also be borne in mind that the population's payment habits and preferences may change – even significantly – year after year nowadays, which also deteriorates the comparability of our data to previously published studies.

For example, a cross-country research on payment habits and cash usage have been performed by *Bagnall et al. (2016)* but the underlying data pertain to the period of 2009–2012; therefore, it is primarily the author's findings

on the typical reasons behind the differences between individual countries that bear relevance to this study. It is also important to mention a paper by *Alvarez – Lippi (2017)*, in which the authors analyse a dynamic cash-management model to identify the factors that influence the choice between the use of cash and electronic payment instruments.

5. The Hungarian population's payment and cash usage habits

In this chapter of our study we present in detail the quantitative results of the MNB's 2017 survey and – wherever methodologically possible – we compare its data and the conclusions that may be drawn from them to previously published Hungarian or international research, with special regard to a paper by *Esselink – Hernández (2017)* that relies on data from a survey conducted by the European Central Bank in 2016. Due to space limitations, the data tables are not included in this paper, but they are readily available for download at the following link: <https://www.mnb.hu/en/banknotes-and-coins/publications>.

According to *Bagnall et al. (2017)*, cross-country differences in cash usage can be attributed to 6 possible reasons:

- Cash-related costs (costs of cash withdrawals and cash holding, including opportunity costs such as loss of interest or risk of theft)
- POS terminal coverage (or the subjective assessment thereof)
- Consumer preferences
- Expenditure structure (payment habits, how much money the population typically spends on different products/services)
- Various state or market incentives
- Size of the hidden or black economy

Although the primary data source for this study, the questionnaire-based survey is unsuitable to cover in detail each of the criteria listed above and in some cases, we cannot even rely on statistics (e.g. size of the shadow economy), in analysing the Hungarian situation we try to address, or at least touch upon, all of the six factors mentioned above.

5.1. Acquiring cash, cash holding

According to the results of the survey under review, 71 per cent of the respondents mostly receive their income via credit transfer, while 21 per cent typically get paid in cash. Based on *Esselink – Hernández (2017)*, the Hungarian values broadly correspond to those recorded in Slovakia, Lithuania or Cyprus, i.e. the euro area member countries closest (according to economic indicators) to Hungary. Across the euro area as a whole, a somewhat greater percentage of the population – 84 per cent – receive their income purely by electronic means.

Our data suggest that incomes are received in cash at a significantly greater percentage in the youngest (ages 16–29) and oldest (above 60) age groups of our respondents. Among the youngest respondents, this typically means allowance received from parents in cash, while in the oldest age group it can be attributed to a distrust of banks and electronic solutions, or pensions received in cash. This is supported by the fact that pensioners are far more likely to receive a large portion of their income in cash compared to active employees (30.5 versus 15.8 per cent). We also found that those having a low education level or living in low-income households receive their incomes in cash at a greater percentage. Presumably, this is partly because employees in these groups are employed at a greater rate in sectors that are characterised by hidden incomes to an above-average extent, such as construction, retail trade or catering.

Respondents who receive at least a part of their incomes via credit transfer typically get access to cash by using ATM terminals (79 per cent). The ratio of those who use bank tellers for this purpose is much smaller (10 per cent), whereas some respondents (8 per cent) do not withdraw cash at all. In general, respondents reported to

have 1 or 2 cash withdrawals a month (81 per cent), and most respondents (47 per cent) selected the HUF 50,000 – 100,000 range as the typical amount withdrawn per occasion. Fewer respondents withdraw an amount below HUF 50,000 (32 per cent) or between HUF 100,001 and 150,000 (19 per cent). Based on this, we may presume that a large part of the population tries to take advantage of the option granted by law to withdraw cash twice a month free of charge in a total value of HUF 150,000. This is also supported by a comparison with international data, which shows that Hungarians on average tend to withdraw higher amounts of cash but significantly less often than their Western European peers.

Esselink – Hernández (2017) found that euro area residents withdraw cash from ATMs 2.5 times a month on average. Although it is not possible to calculate a precise average from the data of the MNB's questionnaire-based survey, based on the numbers we can assume that the number of times Hungarians withdraw cash on average is lower than that. This can be partly explained by the smaller coverage of ATMs and branches and high cash withdrawal fees. While there are significant cross-country differences in the euro area regarding the typical cash amount withdrawn per occasion, we can state that 80 per cent of the respondents tend to withdraw less than EUR 200 per occasion. In comparison, in Hungary only 32 per cent of the respondents reported to withdraw cash only up to HUF 50,000 at a time (the two amounts are fairly close to each other also in terms of purchasing power parity). We should also note that, by their own admission, 60 per cent of euro area residents can acquire cash free of charge at any time, whereas this rate is 25–35 per cent in Slovakia, Slovenia and the Baltic States.

A similar survey conducted by the Swiss central bank (*Schweizerische Nationalbank, 2017*) yielded some interesting results: it found that the most frequently withdrawn denomination is the 100-franc note, whereas the overwhelming majority of cash transactions are paid with 10 and 20-franc notes. According to the authors, a possible explanation for this is the fact that, due to logistic reasons, larger denominations are more commonly found in ATMs, and the smaller denominations are typically received as change when cash users pay with larger-denomination notes. In this context it should be noted that, based on the MNB's questionnaire-based survey, 40 per cent of the Hungarian respondents face, at least on occasion, a problem when the denominations dispensed by the ATM are too large, and 69 per cent occasionally experienced that cashiers were unable to make change when the respondent wanted to use a large banknote. This suggests that the significant dominance of large denominations in the Hungarian banknotes in circulation does not necessarily reflect households' cash payment preferences.

Although the MNB's questionnaire-based survey focused primarily on cash usage for transaction purposes, the survey also asked about savings. By their own admission, slightly less than a third of the respondents (31.4 per cent) hold at least a part of their savings in cash; this data, however, should be treated with some reservation as presumably, a non-negligible number of respondents may try to hide their potential savings. Based on *Esselink – Hernández (2017)*, this ratio is 24 per cent in the euro area, but the numbers recorded in Central European countries and the Baltic States roughly correspond to the Hungarian data. Cash savings are presumably boosted by the current low interest environment, as a result of which holding cash does not entail substantial costs (or loss of interest). However, a further analysis of this correlation is outside of the scope of this study.

In relation to incomes received in cash and cash savings, the role of the shadow economy is often contemplated both in public opinion and in the scientific community. A good example is *Rogoff (2016)*, whose book sparked widespread debate by taking a stand for the complete elimination of cash because, as the author claims, most of the vast amount of paper money in circulation around the world is used to finance illegal activities (tax evasion, corruption, terrorism, trafficking). *Hummel (2017)*, however, pointed out that this statement is scientifically unfounded and, analysing data from numerous developed countries with statistical methods, *Seitz et al. (2018)* stated that no significant relationship could be established between cash demand and the estimated size of the shadow economy. Although we believe that analysing the relationship in the context of Hungary would clearly merit further research, the methodology of this paper does not allow for a more detailed analysis.

5.2. Payment habits

It was an important objective of our questionnaire-based survey to understand how the Hungarian population – and selected demographic groups thereof – pay for day-to-day items. Instead of asking respondents about the proportion at which they use different payment methods, in the questionnaire respondents had to decide whether they are more likely to pay in cash in everyday situations (hereinafter: *cash payers*) or more likely to use bank cards (hereinafter: *cashless payers*)¹, or they have no fixed preference and use either cash or non-cash solutions depending on the situation (hereinafter: *situational payers*).

The responses revealed that cash is still the most popular payment method (46 per cent) in Hungary. Slightly more than a quarter of the participants (26 per cent) use predominantly electronic payment methods and a similar percentage (28 per cent) choose their payment method depending on the situation.

Somewhat surprisingly, the replies broken down by age group (*Figure 1*) revealed that young respondents (ages 16–29) and hence, students, use cash at a rate significantly above the average. The likely reason behind this finding is the fact that this age group, in particularly ages 16–18, predominantly receive their income (pocket money) in cash. When the 18–29 age group is examined separately, the difference observed in the rate of *cash payers* to the total population becomes far less pronounced, although it still remains significant. As expected, older generations (above 60) are also more likely to use cash regularly. It is also evident that the share of *cash payers* shows a strong, positive correlation with education level and household income. The share of *cash payers* among people with the lowest educational attainment and among those living in households with the lowest income is 4-5 times higher than the share of those having college or university education and living in more affluent households. Again, this is partly due to the fact that these groups are more likely to receive their income in cash, but we can also assume that lower-income respondents are far more sensitive to bank charges, and financial literacy is lower among less educated respondents. The interrelationship between income and cash use is also confirmed by *Bagnall et al. (2017)*, as well as the research conducted by the Federal Reserve (*Bennett et al., 2014*) and the Swiss (*Schweizerische Nationalbank, 2017*) and Austrian (*Rusu – Stix, 2017*) central banks. In addition, the authors of the latter studies established a similar relationship between age and cash usage as we did.

The influence of type of residence on payment habits was far less pronounced than the factors mentioned above; our data did not clearly confirm the stereotype that cash use is more prevalent in small towns and villages. Although it is true that there is a significantly higher percentage of *cash payers* among the respondents living in smaller cities than among those living in Budapest; however, the same is not true for those living in towns and villages. This may be explained primarily by the fact that access to cash may often be time-consuming and costly in smaller settlements but at the same time, it may also point to an improvement in the electronic payment infrastructure.

Since almost all of the previously referred surveys include questions with more or less the same wording², our data are easily comparable to the figures of neighbouring countries (*Figure 2*). By their own admission, 32 per cent of euro area residents use predominantly cash, 43 per cent pay electronically, and 25 per cent decide depending on the situation. Based on the MNB's survey, the share of *cash payers* in Hungary is similar to that of Slovenia, and surprisingly, in this regard we “outpace” Austria, an expressly cash-friendly Member State of the

¹ The questionnaire also included an “Other, namely...” option, allowing respondents to identify other electronic payment methods besides bank cards, but none of the respondents opted for selecting this option. Therefore, we can assume that the group of those who selected bank card payments include all of the respondents who typically pay by electronic means, i.e. cashless payers.

² The questions in foreign surveys typically asked which payment method would the respondent choose in situations where there is an option to use either cash or card

European Union and the euro area. The ratio of *cashless* or *situational payers* is higher among the residents of Slovakia and the Baltic States, and the same is true for the citizens of Switzerland and the most developed countries of the euro area. The lowest percentage of *cash payers* was recorded in France.

Figure 1: Distribution of payment methods chosen for day-to-day purchases according to socio-demographic groups

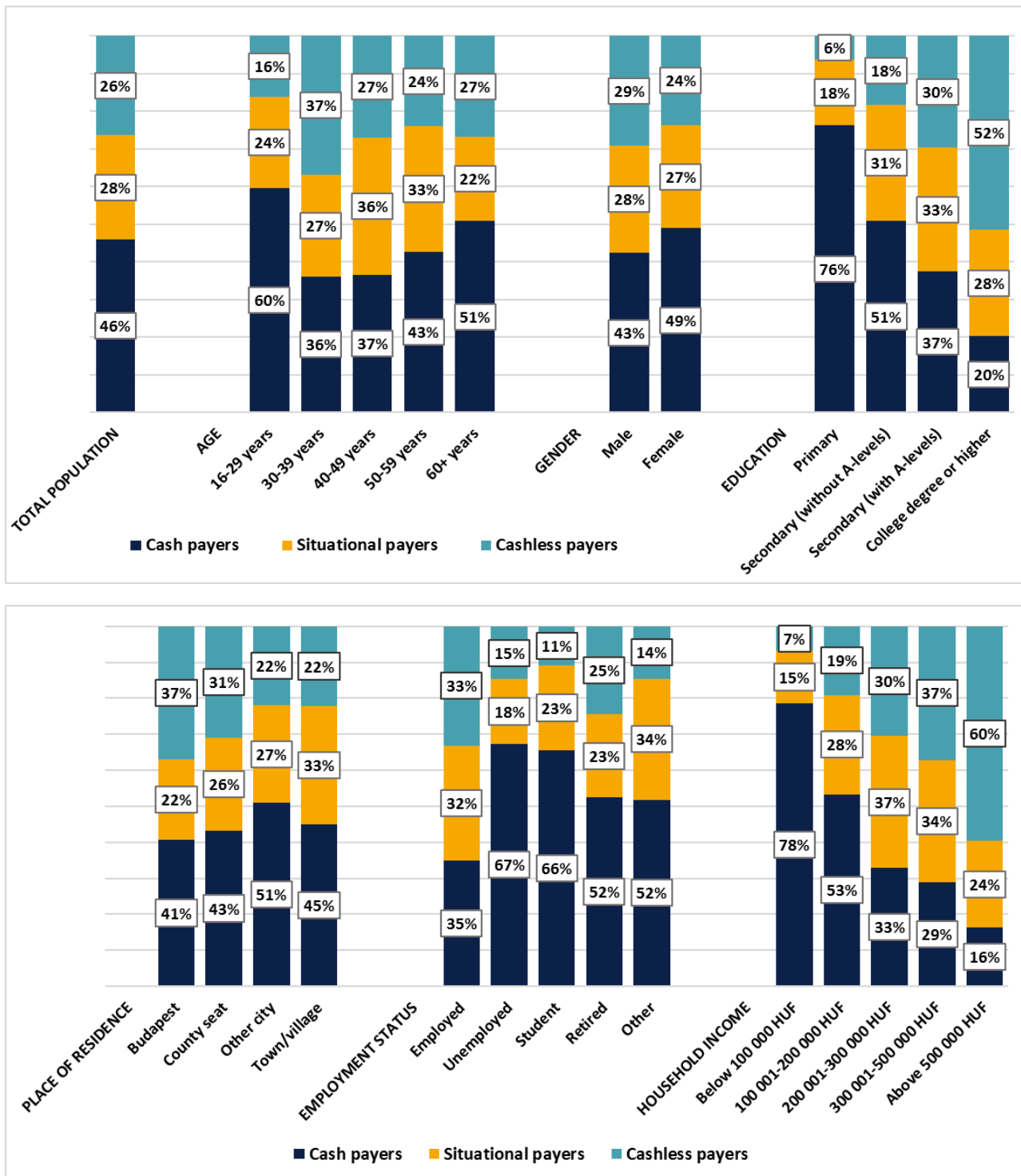
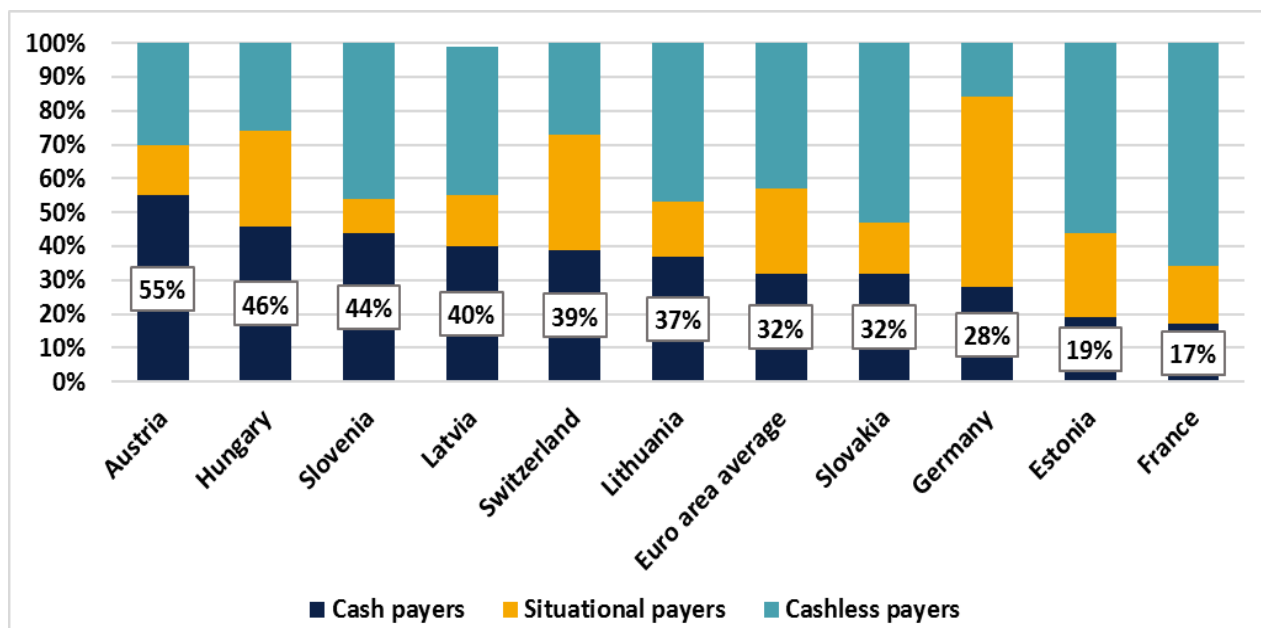


Figure 2: An international comparison of the population’s preferred payment methods (based on self-assessment)



Although the different methodology does not allow for the comparison of numerical values, our results are consistent with the findings of *Ilyés – Varga (2015)* regarding the situation in Hungary, namely, that respondents with higher education level and higher income are more likely to use cashless solutions, and the same is true for active employees. While both studies agree that the use of cash is significantly more common in age groups above 60, it is an important difference between the two researches that we drew the same conclusion about the 16–29 age group, whereas the difference is insignificant according to the data of the study mentioned above. These conflicting findings might be the result of the difference in the age groups under review: while the MNB’s survey underlying this study also included ages 16–18 – an age group that typically does not have access to a bank account and is especially likely to make all payments in cash –, the data collection by *Ilyés – Varga (2015)* was limited to the adult population.

The results are worth being compared to the conclusions drawn by the referenced foreign studies about the payment diaries. According to the data of the European Central Bank (*Esselink – Hernández, 2017*), 80 per cent of all everyday purchase transactions are conducted in cash in the euro area, which account for 59 per cent of the value paid in shops (the corresponding numbers in the case of Switzerland are 70 per cent and 45 per cent, respectively). The share of card payments is slightly higher in Slovakia, Slovenia and the Baltic States, while cash payments are most prevalent in Austria and South European countries (Italy, Spain, Greece).

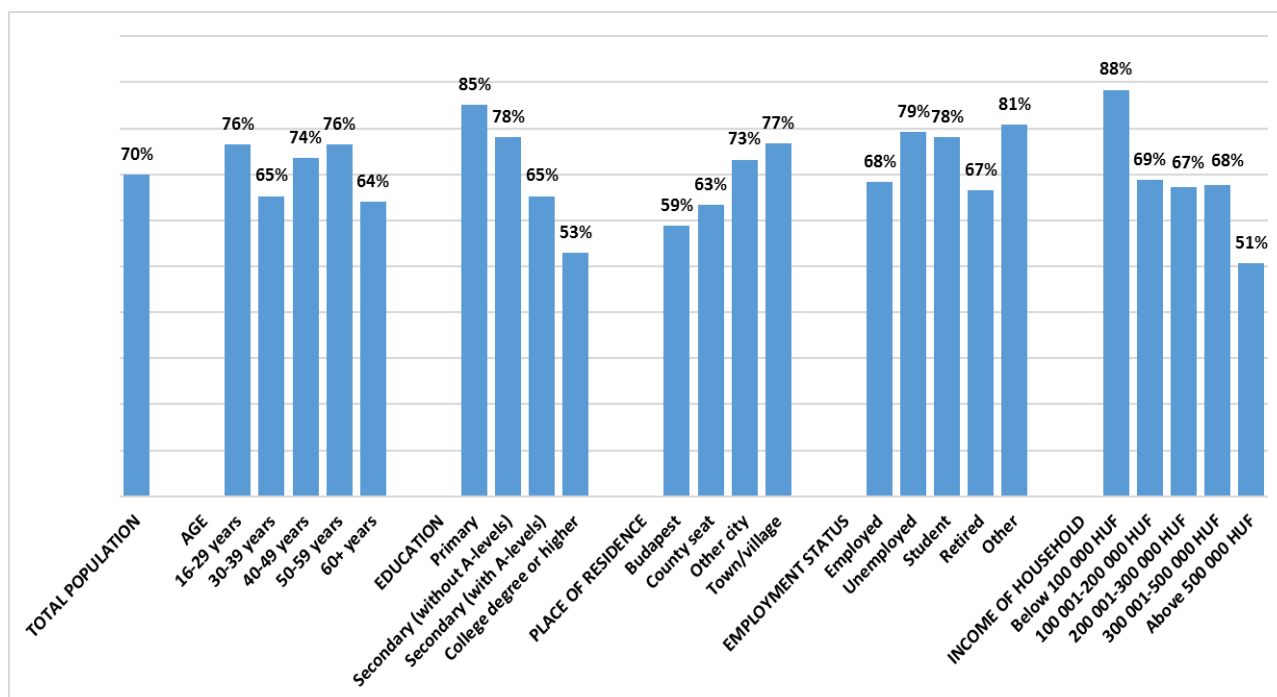
Although a survey of this nature has not been conducted recently in Hungary, the turnover data of the online cash registers connected to the tax authority (*MNB, 2018*) are available, and largely cover the domestic retail sector. Based on this information, cash payments represented 87.7 per cent of the total number of payment transactions and 71.5 per cent of the total value of payment transactions in 2016. It should be emphasised that – although these numbers appear significantly higher than the European data cited above – they are not directly comparable to the European figures because they exclude, for example, a large portion of the service sector or housing costs.

5.2.1 Recurrent payments

Within payment habits, the survey underlying this study separately examined respondents’ choices of payment methods with respect to the payment of utility bills. The most popular method was cash payment, including both “yellow cheque” (postal inpayment money order) payments and non-cheque payments at customer service

desks: 70 per cent of the respondents paid their bills either in part or in full, by using this method. Credit transfer was used by 43, and direct debit by 28 per cent of the respondents, while 26 per cent reported to choose, at least occasionally, online card payment.

Figure 3: Use of cash in utility bill payments by socio-demographic group



Not surprisingly, data of the questionnaire-based survey indicated that utility bills are more typically paid in cash in socio-demographic groups that are more likely to use cash anyway, including the 16–29 age group as well as respondents with low educational attainment and members of low-income households (Figure 3). It is more interesting, however, that respondents above 60 and pensioners choose this payment method at a below-average rate. We also found clear evidence that residents of small towns and villages are more likely to use cash when paying their utility bills. However obsolete the “yellow cheque” method may seem, we cannot say that it is mostly used by the older generations out of necessity. A possible reason for this may be that young people and low-income households consciously try to keep a track of their expenditures, as indeed, cash-paid bills are subject to more flexible payment deadlines.

We can establish that the use of all electronic utility bill payment methods is more prevalent among respondents with high education levels, among the members of higher-income households and among active employees. Young respondents and students are particularly likely to pay their bills by credit transfer or card payment, whereas the popularity of direct debit and card payment is above average among the citizens of Budapest. It is important to emphasise that young respondents and students typically selected more than one payment method (two methods on average compared to 1.5 indicated by elderly respondents). Consequently, we may assume that this group is less likely to commit to a single method and it tends to use different payment instruments to pay different bills.

By comparison, in terms of electronic bill payment Hungary appears to lag significantly behind euro area countries, where the ECB’s previously mentioned research found that 53 per cent of the population does not pay

any of their utility bills in cash (including rent and insurances). Apart from Greece, Cyprus and Malta, the share of households which typically pay utility bills in cash is below 30 per cent in all Member States.

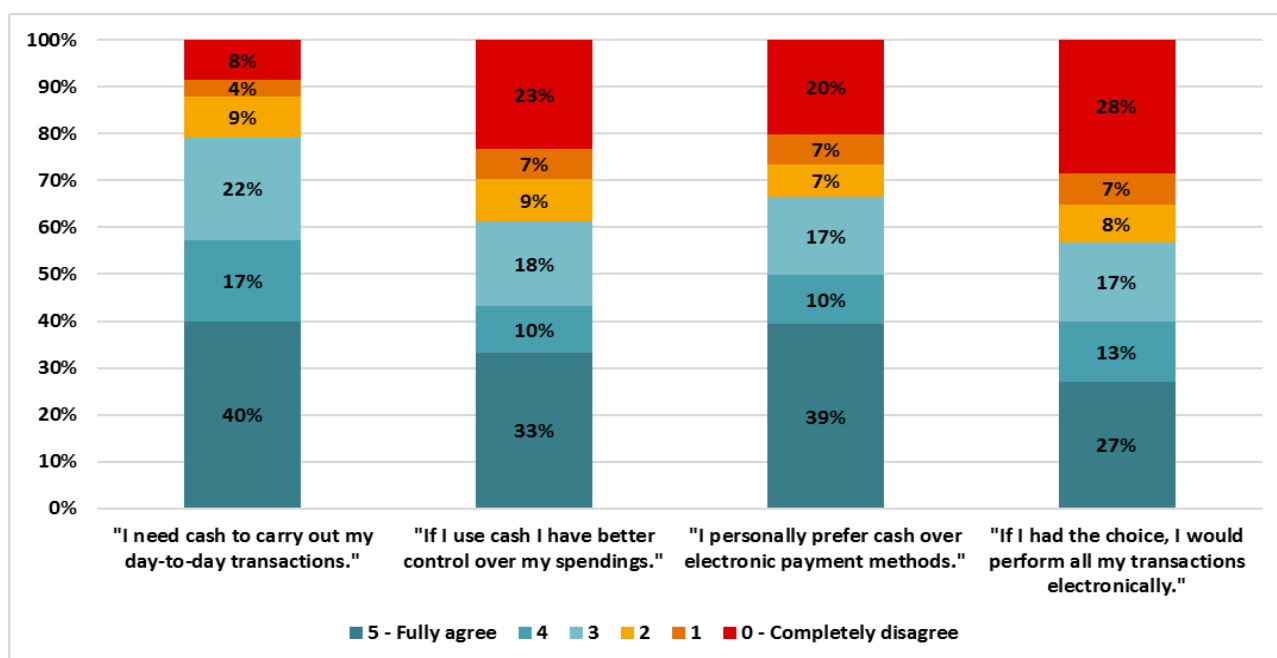
Hungary's lag in this regard is also confirmed by the MNB's statistical indicators. Based on the data available, in 2017 a total of 56.1 per cent of bill payments were paid in cash in Hungary. While this represents a remarkable improvement compared to the 76.5 per cent registered in 2012, it is still significantly higher than the 30 per cent average value³ prevailing in the European Union in 2016 (the corresponding Hungarian indicator in 2016 was 60.8 per cent).

5.3. What is our attitude towards cash?

Since households' payment habits are largely influenced by attitudes toward individual payment instruments and subjective opinions (*Bagnall et al., 2017; Rusu – Stix, 2017*), the MNB's survey also contained a number of questions in this regard. Below we provide an analysis of the answers received to these questions.

The first group of questions comprised a list of statements, and the respondents had to rate the extent to which they agree with them on a scale of six (0: completely disagree – 5: fully agree). Accordingly, those selecting options 1 and 2 tend to disagree, while those selecting 3 and 4 tend to agree. The share of each option is summed up on *Figure 4*, and in the next part of the paper we analyse the answers in more detail.

Figure 4: Assessment of the attitudes toward cash and electronic payment methods



I. "I need cash to carry out my day-to-day transactions."

The statement was primarily intended to assess respondents' perception of the POS terminal coverage of the shops visited by them. Nearly 40 per cent of the respondents fully agreed that cash was indispensable for day-to-day payments, and this group is augmented further by those who tended to agree (38 per cent). In other words, respondents predominantly believe that the POS terminal coverage in Hungary is insufficient to support the purely electronic payment of everyday transactions, which confirms the observation that the population is open to a further shift towards electronic payments. There was no significant difference between the replies of

³ Estimated value based on the per capita direct debit figures of EU Member States and central bank analyses (Source: MNB Payment Systems Report 2018)

individual demographic groups apart from the fact that a higher percentage of older respondents agreed with the statement. It is important to note that the statement was not perceived true at a higher rate even among *situational payers*. It is also worth mentioning that based on the figures of US surveys, *Wang (2015)* found that younger generations are less likely to regularly carry cash “just in case”, when they mostly pay by card.

With the assistance of their inventory model and relying on the cash usage data of the central banks of Austria and Canada, *Huynh et al. (2014)* found that increased card acceptance reduced the population’s demand for cash significantly. In this regard, *Rusu – Stix (2017)* pointed out that indirectly, the population’s subjective perception may also play a role: when consumers are not sure whether they will be able to make their future payments electronically, they are likely to hold a larger amount of cash which they are expected to spend sooner or later. At the same time, in comparing Dutch and Austrian data *Bagnall et al. (2017)* pointed out that strikingly, while the number of POS terminals relative to the population is only slightly higher in the Netherlands than in Austria, the share of cash transactions is far lower. This means that cash preference cannot be explained by this factor alone. The conclusions of this survey and statistical data both confirm that:

- on the one hand, based on the 2016 data of Hungarian online cash registers, even in shops where electronic payments are available, 84 per cent of the total number of transactions were cash payments (*MNB, 2018*)
- on the other hand, the survey underlying our study found that even those in the group of *situational payers* did not agree at an above-average rate with the statement that cash is an indispensable necessity in payment transactions; consequently, this is not the primary reason behind their use of cash.

II. “If I use cash I have better control over my spendings.”

A third of the respondents fully agreed with this statement and in total more than 60 per cent expressed agreement to some extent. Less educated, unemployed, student and retired respondents and members of lower-income households agreed with the statement at a significantly higher rate. On the whole, it is a reasonable assumption that being able to track expenditures is a motive for cash use in the case of persons with low-income and lower financial literacy. The answers of *situational payers* do not deviate significantly from the average in this case. For the sake of comparison, 87 per cent of the German population tended to agree with the equivalent statement in the German questionnaire (*Deutsche Bundesbank, 2018*).

We would like to note that numerous articles have been published in recent years on the topic with the primary purpose of analysing the impact of electronic payment instruments (mainly debit and credit cards) on consumers’ purchasing and spending habits. For example, an experiment by *Chatterjee – Rose (2012)* found that in the case of card transactions, consumers tend to focus less on the negative feeling associated with the amount paid and more on the joy associated with the product purchased. Also conducting experiments, *Runnemark et al. (2016)* demonstrated that people are willing to pay more for identical products with debit cards than with cash.

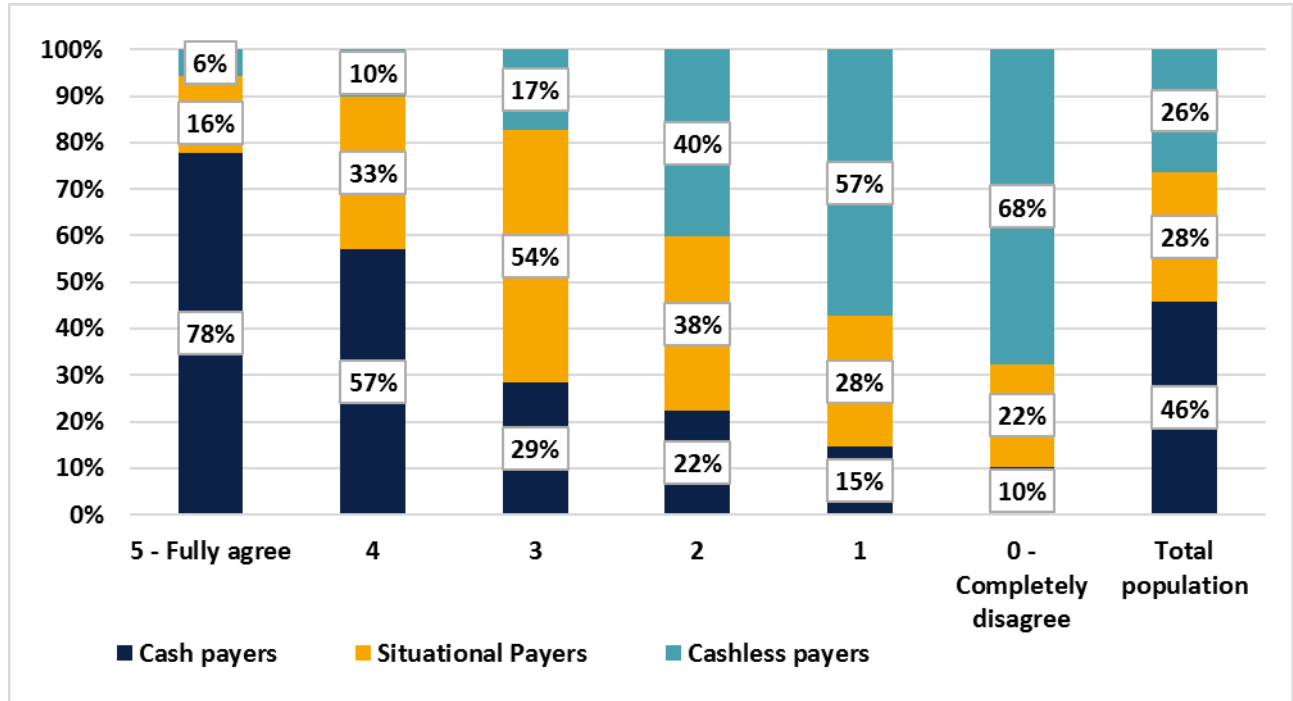
III. “I personally prefer cash over electronic payment methods.”

Two thirds of the participants tended to agree with this statement, while 40 per cent clearly preferred cash payments. However, the controversial nature of the statement is demonstrated by the fact that the share of those completely disagreeing with it is slightly above 20 per cent. Members of the 30–39 age group, Budapest and county seat residents, active employees, people with a higher education level and members of higher-income households have a significantly lower preference for cash payment.

As expected, consumers who prefer cash typically use cash for everyday purchases indeed, and the same goes for card payments. However, the share of those who predominantly pay contrary to their subjective preferences is 6 per cent even among respondents who have a clear preference for cash and 10 per cent among those who disagree with the use of cash the most, while the share of *situational payers* is 16 and 22 per cent of the given

groups, respectively (Figure 5). Almost 80 per cent of the respondents who prefer card payment but use both cards and cash regardless, agreed with *Statement I* above. Therefore, we may conclude that they resort to the use of cash primarily because of insufficient POS terminal coverage. Around 10 per cent of the respondents fall into this group.

Figure 5: A parallel illustration of subjective preferences (“I prefer using cash”) and actual payment habits



Using the data of the questionnaire-based survey it is not possible to precisely identify the motives of consumers who prefer cash yet pay with cards or use both cash and cards in everyday transactions, but the responses given to *Statement IV* below provide some guidance for the understanding of this phenomenon. We assume that their decisions may be shaped both by security considerations and public opinion, which typically views electronic payment solutions more up-to-date and and favourable for the economy.

IV. “If I had the choice, I would perform all my transactions electronically.”

In the course of the survey this statement proved to be the most divisive: the share of those who fully agreed with it was roughly the same as the share of those who completely disagreed (27 and 28 per cent, respectively). Among the less extreme responses, respondents who tended to agree were in a slight majority. In examining the differences across individual socio-demographic groups we observed that groups comprising people with higher education, members of more affluent households, ages 30–39 and active employees agreed with the statement at a significantly higher rate.

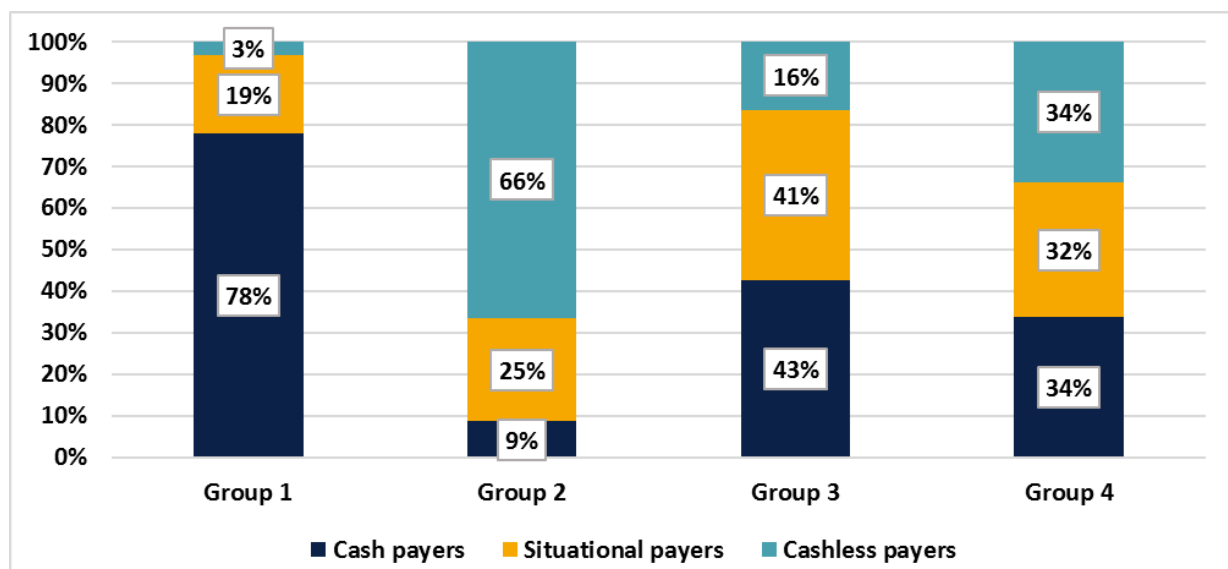
The German central bank also assessed similar opinions in the context of its survey on payment habits (*Deutsche Bundesbank, 2018*), and found that 88 per cent of the German population would like to continue to be able to pay in cash in the future and reject possible restrictions of the use of cash. In this regard, an overwhelming majority agreed that cash is an important way of familiarising children with money, and that older generations would face unnecessary difficulties if a complete changeover to electronic payment was pushed through. Similarly, 81 per cent reported that the abolition of cash would have major repercussions for them personally. By comparison, Hungarian respondents tended to be more open to the gaining ground of cashless solutions.

Comparing the answers with the responses to *Statement III* yields a number of useful findings: We found that respondents can be classified into 4 groups:

- 1) Pro-cash consumers, who do not wish to give up the use of cash even in the future and are willing to use electronic solutions only partly. This group comprises 36.6 per cent of the respondents in total, and ages above 60, pensioners, respondents with primary education, the unemployed and members of the two lowest income groups are overrepresented
- 2) Anti-cash consumers, who would be willing to pay only electronically if they had the choice. This group comprises 27.0 per cent of the respondents in total, and ages 30–39, respondents with high education, residents of Budapest and county seats, active employees and members of the highest income groups are overrepresented
- 3) Pro-cash consumers, who are nevertheless open to the use of electronic payment instruments and do not rule out the possibility of a complete switchover to cashless methods. This group comprises 29.8 per cent of the respondents in total, and ages 50–59, respondents with secondary education, those whose labour status is “other” (typically homemakers) and members of the lowest income groups are overrepresented
- 4) Anti-cash consumers, who nevertheless regard cash a necessity and do not consider the exclusive use of electronic payments to be desirable. This group comprises 6.6 per cent of the respondents in total, and ages 16–29 are overrepresented

The use of electronic solutions is probably easiest to promote further among members of Group 2 and Group 3 – currently *cash payers* and *situational payers* – whose current payment habits are clearly predominated by cash use (especially in the latter group), but surprisingly, even among respondents who prefer cards and also among those who do not insist on the use of cash, the share of those who actually use a bank card predominantly for day-to-day transactions is only 66 per cent; in other words, the extent of cash use out of necessity is remarkably high in their case (Figure 6).

Figure 6: Distribution of the groups created on the basis of subjective payment preferences and openness to electronic payment methods by payment method used for regular purchases



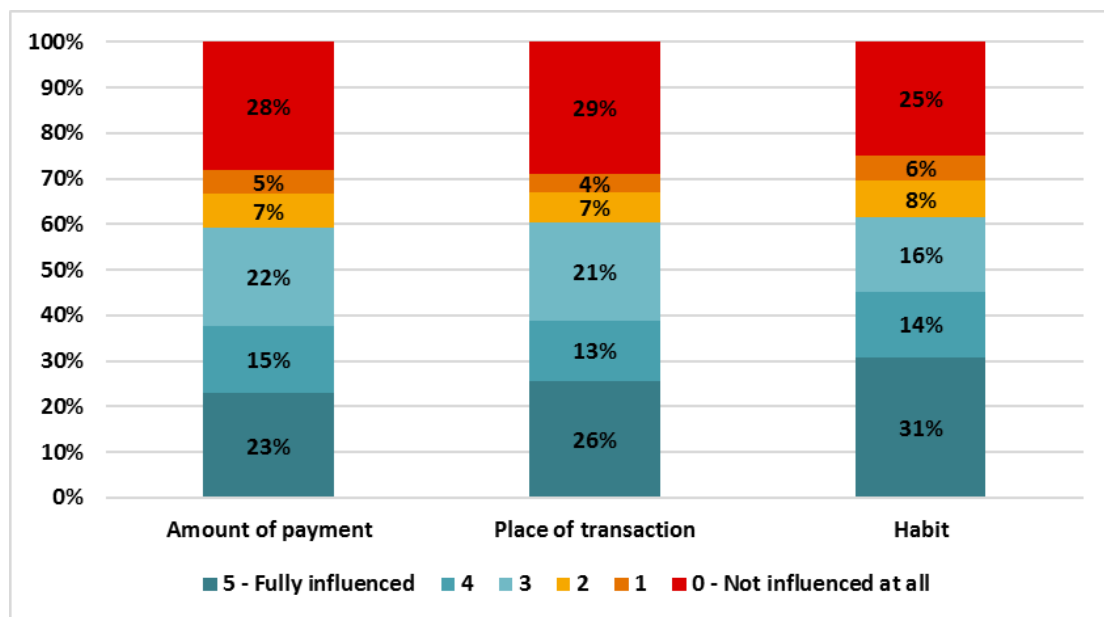
5.4. What determines how we pay?

In order to have a better understanding of the population’s payment habits and cash use, it is important to understand what determines the choice between bank card or cash in everyday purchase situations. Accordingly, the MNB survey underlying our study also contained some questions designed to explore this issue.

Respondents were asked to assess the importance of 3 criteria – amount to be paid, place of transaction and habit – on a scale of 6, and they were also invited to add any other determinants of their choice. Data on *Figure 7* indicate that *amount to be paid* and *point of sale* influence respondents’ choices between cash or card to a nearly identical extent (28–29 per cent of the respondents are not influenced at all, 11–12 per cent of them are slightly and 34–37 per cent are largely influenced, while 23–26 per cent of them are fully influenced by these two factors). *Habit* proved to be a somewhat stronger motive than the previous two. 30 per cent of the survey participants reported to use cash exclusively out of habit, and another 30 per cent of the respondents reported that their choice is largely influenced by this factor. We observed, however, that respondents with a higher education level and members of higher-income households are significantly less likely to use cash out of habit. The other determinants added by the respondents included the product purchased, the need to track expenditures, the amount of cash being carried by the respondent, safety considerations, and a conscious effort to avoid bank transactions and the associated charges.

We also attempted to identify the strongest determinant for the group of *situational payers* as presumably, they are the ones who most frequently make a decision on the spot with regard to the payment method to use in the given situation; however, there were no significant differences in their opinion about the three possible options. Nevertheless, It was true in all cases that a slightly higher percentage of the respondents were influenced either largely or fully by them compared to the total population. We also found that habit was a less important factor among the respondents in this group.

Figure 7: Determinants of payment choices



A similar question was included in the survey conducted for the euro area (*Esselink – Hernández, 2017*). In that survey the amount to be paid was chosen as a determinant of payment choices by 56 per cent of the respondents on average, which roughly corresponds to the Hungarian data. The share of those selecting the amount of cash they have in their wallets as an influencing factor was also 56 per cent, while 15 per cent reported to be influenced by the current costs (i.e. bank charges) and benefits (e.g. bonus points) associated with the use of cards or cash. The given vendor’s preferred payment method influenced consumers’ payment choices to a similar degree.

Although its wording was slightly different, the survey conducted by the Swiss central bank (*Schweizerische Nationalbank, 2017*) also attempted to define the circumstances which may shape consumers’ choice between cash or card, especially among *situational payers*. As opposed to the surveys of the MNB and the European

Central Bank, respondents were allowed to choose only one option. According to the Swiss results, 40 per cent of the respondents reported to decide based on the availability of cash, 31 per cent are mainly influenced by the payment amount, while 11 per cent indicated that their decision is purely spontaneous.

The MNB's questionnaire-based survey did not examine how respondents are influenced by each criterion exactly. In the case of *payment amount* we may assume that, in line with European trends, the Hungarian population also tends to pay larger amounts with bank cards or via credit transfers and smaller amounts in cash. Based on *Esselink – Hernández (2017)*, consumers tend to draw the line at the amount of EUR 45: cash is the instrument of choice for purchases under EUR 45, and electronic payment solutions were used most frequently for purchases above this amount. By contrast, according to the data of the Swiss central bank (*Schweizerische Nationalbank, 2017*), the dominance of cash payments was only observed in Switzerland for purchases under 20 francs, while in the clearly pro-cash countries of Germany and Austria the preference for banknotes and coins shifts to electronic payment instruments only above EUR 67 (*Deutsche Bundesbank, 2018*) and EUR 100 on average (*Rusu – Stix, 2017*), respectively. Moreover, it is an interesting finding of the Austrian surveys, that the primary difference between *cash payer* and *cashless payer* groups was the amount limit at which they shift to electronic solutions from cash. For example, it is also true for *cashless payers* that they prefer cash for small-amount purchases, but above EUR 37 card use is more frequent even among them.

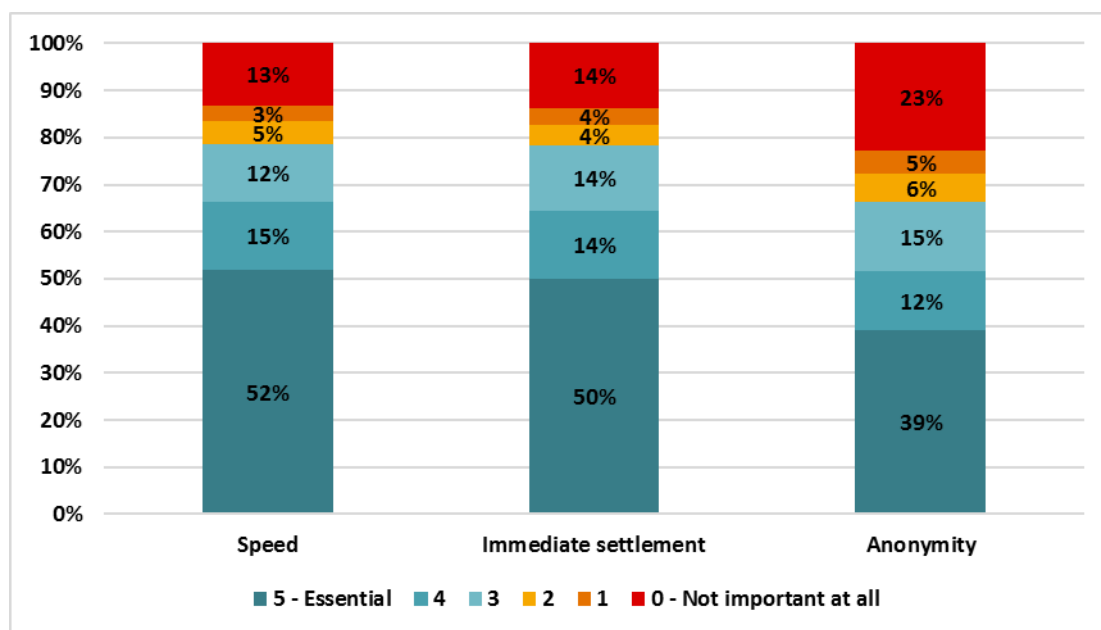
It should also be mentioned with respect to *point of sale* as a criterion that the share of cash usage is clearly high in restaurants, bars, bakeries and similar catering locations in the euro area [*Esselink – Hernández (2017)*], and the value of such cash transactions is also relatively high. In this regard, several participants of the focus-group interviews conducted as part of the MNB survey mentioned that there is clearly room for the further expansion of card acceptance in such locations. The research by the Swiss central bank (*Schweizerische Nationalbank, 2017*) also confirms that the use of cash at catering locations, at vending machines and in case of person-to-person transactions is above average. Their data showed, however, that cash use was less prevalent at petrol stations or when purchasing durable goods.

The Hungarian questionnaire-based survey also sought to find out which characteristics and benefits of cash payment were perceived as the most important by the population (*Figure 8*). Again, respondents were asked to select the subjective importance of 3 pre-determined features – *speed, immediate settlement, anonymity* – on a scale of 6, and were also invited to list other features of their choice that they considered important.

Respondents attached key significance to both of the first two options – *speed and immediate settlement*: roughly a half of the respondents considered these two very important, and more than a quarter of all respondents tended to consider them important. The *anonymity* provided by cash payments was not a negligible factor either: 39 per cent of the respondents also perceived this factor as extremely important; however, in comparison to the previous features, the share of those who did not consider it important at all is higher (23 per cent).

People with a higher education level and members of higher-income households, i.e. those who have less preference for cash anyway, were significantly less likely to consider important any of the three criteria mentioned above. We can also state that immediate settlement and anonymity have less significance for those living in Budapest. Moreover, *cash payers* attached more significance to speed, immediacy and anonymity alike compared to their *cashless payer* peers – in fact, in the case of the first two criteria, the difference between the share of those who consider them very important is almost double. Accordingly, with respect to speed we can assume that regular cash users clearly consider their preferred payment method faster, whereas the responses of *cashless payers* were less likely to emphasise the speed of cash payment as an advantage. Other important features of cash cited by the respondents include, for example, simplicity, unlimited access and convenience, but similar to the previous questions, the role of safety (i.e. a fear of card fraud), the avoidance of bank charges and better control over the expenditures also appeared as motives.

Figure 8: The population's perception of the features of cash payment



In the ECB's survey (*Esselink – Hernández, 2017*) respondents were asked to select the two most important advantages of their preferred payment method. In the case of cash, respondents most frequently selected the following answers: cash helps in having a clear overview of one's expenses, it is widely accepted and it is fast. Other reasons mentioned included safety, anonymity and immediacy. It is indicative of the subjective perception of individual payment methods that very similar features were perceived as the most important advantages of card payments as well: simplicity and speed were mentioned in the first place (in this order), and the third most frequent answer was "you don't have to check whether you carry enough cash". Other considerations also largely overlapped with the perceived advantages of cash, such as safety and a better control of one's expenses.

The surveys of both the Austrian (*Rusu – Stix, 2017*) and the Swiss (*Schweizerische Nationalbank, 2017*) central banks asked respondents which payment methods they prefer to use when they are in a particular hurry. Interestingly, according to *cash payers*, cash is the fastest solution in such cases, while *cashless payers* say the same about cards. These results underline the subjective perception of the speed of individual payment methods and, in a broader sense, the important role of subjectivity in payment choices.

In the Swiss survey there were no separate questions about respondents' perception of the advantages of the individual payment methods and the determinants of their choice between them: they were merely asked to select the main reason for choosing their preferred payment instrument. The most important reasons for cash users were a better control over expenditures (31 per cent) and simplicity (19 per cent), but 15 per cent of the respondents reported to use their preferred payment method simply out of habit. Once again, the importance of subjectivity is demonstrated by the fact that simplicity was also a main consideration for *cashless payers* (46 per cent of them opt for card payment for this reason), while the most important reason for choosing card payment over cash was to avoid the hassle involved in cash withdrawals for 14 per cent and speed for another 9 per cent.

5.5. Socio-demographic determinants of cash usage

There is a possibility that the different findings presented earlier regarding cash usage and payment habits can be attributed to the same underlying reasons. It is conceivable that the apparent impact of educational attainment on cash usage is in fact an indirect consequence of income level, and by the same logic, there may

be correlations, for example, between income level and age or labour market status, or type of residence and age as well.

We applied logistic regression in order to determine the direct effect of various socio-demographic factors on payment habits. The value of the dependent variable of the first regression examined is 1 if the respondent pays for day-to-day purchases primarily in cash and 0 if the payment is made on a situational basis or electronically. Explanatory variables are dummy variables of the groups created on the basis of age, educational attainment, place of residence and labour market status, the dummy variable expressing a subjective preference for cash⁴, and – as a continuous variable – household income in groups constructed from the increments of HUF 50,000. We also examined the determinants of cash use in bill payments along the same lines. The explanatory variables of the second regression are the same as the ones listed above, and the value of the regression's dependent variable is 1 if the respondent regularly uses cash to pay his utility bills⁵ and 0 if this condition is not fulfilled.

The estimated coefficients of the two logistic regressions are presented in *Table 1*. The coefficients show the number of times the odds ratio of the use of cash payment in regular purchases or utility bill payment is increased by being a member of the given socio-demographic group (or, in the case of incomes, by a HUF 50,000 increment in it) or (in the case of a coefficient smaller than 1) reduced by the same. Accordingly, we found that the strongest determinant in both cases is clearly the subjective preference for cash payment. Age plays a significant role in using cash only in the case of regular purchases; in this case, however, all age groups other than ages 16–29 are less inclined to use cash, especially ages 40–60. Higher education levels reduce willingness to use cash both in the case of everyday purchases and utility bill payments, and the same is true for households' higher income; we can establish, therefore, that these two factors have a significant explanatory power even irrespective of one another. One of the previously presented assumptions, namely, that the rate of cash use is positively correlated with the pensioner or student status irrespective of age, can be refuted; however, it still holds true for the unemployed that they are more likely to use cash than active employees. It has been also confirmed that county seat residents use cash for day-to-day purchases to a slightly lesser extent than their Budapest peers.

In addition to examining cash payments, we also attempted to determine the extent to which the socio-demographic factors impact the preference for electronic payment methods or the openness to a complete switchover to electronic payments. To this end, we estimated two additional logistic regressions. The value of the dependent variable of the first regression is 1 if the respondent predominantly uses cash for everyday purchases and 0 in all other cases, and the value of the dependent variable of the second regression is 1 if the respondent tends to agree with the statement *"If I had the choice, I would perform all my transactions electronically."*, and 0 otherwise. The explanatory variables are identical with those used for the two previous regression estimates.

⁴ Its value is 1 if the respondent tends to agree with the statement "I prefer using cash rather than paying electronically"; otherwise it is 0.

⁵ In practice this typically means yellow cheque bill payments.

Table 1: Determinants of cash use in everyday purchases and utility bill payments

	Preference for cash in day-to-day purchases	Use of cash in utility bill payments
Age (16–29)		
30–39	0.53*	0.98
40–49	0.28*	1.07
50–59	0.28*	1.34
60+	0.43*	0.64
Education (primary)		
Secondary, without A-levels	0.48*	0.79
Secondary, with A-levels	0.66*	0.61*
College degree or higher	0.16*	0.52*
Employment status (employed)		
Unemployed	2.03*	0.79
Student	1.27	0.58
Retired	1.43	1.08
Other	1.20	1.11
Place of residence (Budapest)		
County seat	0.60*	1.07
Other city	0.66	1.19
Town/village	0.70	1.28
Household income (HUF 50 000)	0.83*	0.94*
Subjective preference for cash	8.74*	3.62*
Constant	3.17*	1.97
R²	0.29	0.11
N	1,338	1,338

*: coefficients significant at a 95 per cent confidence level

In accordance with the above, the coefficients shown in *Table 2* express the impact of belonging to the specific group on the relevant odds rate. As expected, we found that the subjective preference for cash significantly reduces both the share of card payments and openness to this payment instrument. We can observe the exact opposite in the case of higher education levels and higher household income, which is consistent with the previous findings of *Ilyés – Varga (2015)*. It is also true – perhaps somewhat surprisingly – that higher age is associated with a higher rate of electronic payments in regular purchases (possibly because, as *Figure 1* also indicates, older people are less likely to describe themselves as *situational payers*). Regarding openness to electronic payments we found evidence that pensioners were less willing to fully commit themselves to cashless solutions, whereas the openness of county seat residents to the exclusive use of electronic methods exceeded that of their Budapest peers.

Table 2: Determinants of openness and use of electronic payment methods

	Preference for electronic payment methods in day-to-day purchases	Openness to the use of electronic payment methods
Age (16–29)		
30–39	1.79*	1.31
40–49	2.08*	1.17
50–59	2.12*	1.50
60+	2.86*	1.36
Education (primary)		
Secondary, without A-levels	2.49*	1.70*
Secondary, with A-levels	3.89*	1.49*
College degree or higher	6.19*	2.23*
Employment status (employed)		
Unemployed	0.70	0.55
Student	0.59	0.82
Retired	0.62	0.58*
Other	0.55	1.19
Place of residence (Budapest)		
County seat	0.99	1.57*
Other city	0.93	1.14
Town/village	0.76	1.18
Household income (HUF 50 000)	1.12*	1.07*
Subjective preference for cash	0.09*	0.26*
Constant	0.14*	1.30
R²	0.33	0.12
N	1,338	1,338

*: coefficients significant at a 95 per cent confidence level

6. Summary

Based on the analysis of data extracted from the MNB's 2017 survey we found, in summary, that the Hungarian population is still highly cash-oriented, and this is especially true for the age groups of 16–29 and above 60, for members of low-income households and people with lower educational attainment. The fact that the share of people receiving regular cash incomes is higher in Hungary than in other European Union Member States increases the role of cash payments even further.

The choice between various payment methods is highly influenced by subjective preferences, deep-rooted beliefs (e.g. paying in cash is faster) as well as habits. Bigger control over spendings is also frequently cited as a justification. A non-negligible percentage of the population, however, opt for cash due to the insufficient POS terminal coverage; moreover, nearly a quarter of the respondents indicated that even though they prefer using cash on a subjective basis and currently consider themselves *cash payers* or *situational payers*, they do not rule out the possibility of completely switching over to cashless solutions in the future. There is reason to believe, therefore, that both the share of electronic payments and the number of those who use electronic payments as a primary payment method will continue to increase dynamically in the following years.

The presence of cash is particularly prevalent in case of expenditures related to utility bills, partly out of habit and partly as an attempt to control household expenditures. In this regard, Hungary's lag in the use of electronic

payment methods is particularly significant in comparison to European Union Member States of similar development. Moreover, cash withdrawal and payment habits are also influenced, to a non-negligible degree, by the Hungarian respondents' general distrust of banks and their attempt to avoid bank charges (including cash withdrawal and transaction fees) which can be considered high by international standards.

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Annex

A brief overview of the relevant questions of the questionnaire underlying this research

- 1. Socio-demographic questions:** The respondent's sex, birth year, highest education level, labour market status and type of residence. The number of persons living in the respondent's household and the total income of the household.
- 2. Acquiring cash and cash holding** Does the respondent have a regular income and if yes, in what form is it received? Where does the respondent typically acquire cash, how many times a month and in what value per occasion? Does the respondent have any savings in cash?
- 3. Payment habits:** What is the respondent's preferred payment method for regular purchases and what payment method does he use to pay his utility bills?
- 4. Motives for cash usage, attitude to cash:** To what extent is the respondent influenced by the following when using cash: *point of sale, amount to be paid, habit*. How important are the following features of cash payment for the respondent: *speed, prompt execution, anonymity*. To what extent does the respondent agree with the following statements: *"I need cash because in many places, this is the only option available for day-to-day payments"; "I prefer using cash rather than paying electronically"; "It is more easy to track my spending if I pay in cash"; "If it was up to me I would only choose cashless/electronic payment methods"*.