

# Show me how you pay and I will tell you who you are – Socio-demographic determinants of payment habits\*

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*This study is intended to assist in understanding the current payment habits of Hungarian households and examine the extent to which these habits are affected by age, education, activity, income or residence. Our research analysed a representative household survey with a sample of 1,000 respondents using various statistical tools. The percentage of households holding bank accounts and bank cards is high and has not changed since 2010, while households' use of cash has moderately declined in recent years. The socio-demographic variables under review have a limited impact on the use of cash-based payment methods. Accordingly, in terms of both number and value, a similar proportion of households pay their bills via postal cash payments, irrespective of age and income. The preference for the use of electronic payment methods is largely driven by education level. While the use of electronic payment methods generally increases in line with income, cash usage is still strongly over-represented among one fourth of households with higher-than-average income levels. Age, activity and residence also exert a significant impact on the adoption of electronic payment methods, but the payment habits of users of different electronic payment instruments do not generally show differences on the basis of these features.*

**Journal of Economic Literature (JEL) Classification:** C38, D12, D14, E42

**Keywords:** retail payments, payment habits, household behaviour, electronic payment methods, financial integration

## 1. Introduction

International and Hungarian literature have unanimously found that the increased use of electronic payment methods benefits the functioning of the economy. In particular, it supports economic growth and may save significant social costs (*Turján et al. 2011*). It is far less clear, however, what it is that determines the rate at

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which electronic payment methods are used in an economy and hence, it is difficult to decide how to encourage the use of non-cash payment methods. The latter question is particularly pressing in the case of households, given that this sector is typically characterised by a high rate of cash usage. Therefore, in order to identify possible policy measures for improving the efficiency of payment transactions, it is important to grasp and properly understand households' payment habits and their determinants. This study is meant to contribute to shedding light on and gaining an insight into this topic.

In laying the groundwork for our research, we conducted a broad-based representative survey among Hungarian households. The detailed analysis of the survey results in this article is intended to answer the following questions: To what extent do Hungarian households use electronic payment methods? What are the characteristics of households with no bank accounts or bank cards? How does the use of certain payment methods correlate to specific socio-demographic features of households? How do these factors influence the choice of a specific payment method in a payment situation? How can we divide Hungarian households into segments based on payment habits?

In recent years, a number of analyses and surveys in Hungary have focused on the payment habits of households. The most recent studies reflect data pertaining to 2011–2012 (*Takács 2011; Turján et al. 2011; Divéki–Listár 2012*); however, several significant changes have since been adopted in regulations affecting payment transactions and the costs of payment services (for instance, the introduction of the financial transaction duty and the option of free cash withdrawal twice a month). Moreover, numerous news items have been published in the media recently envisaging a possible change in households' payments habits based on certain shifts in the data of official payment statistics<sup>1</sup> (for example, changes in the number of bank accounts or payment cards). However, official payment statistics do not necessarily provide a suitable basis for drawing such conclusions. For example, they do not contain data about whether the cancellation of certain bank accounts affected the primary payment accounts of the household concerned (in which case the cancellation eliminated the household's access to electronic payment transactions altogether), or the decline in the number of bank accounts mostly affected special or supplementary accounts that had been scarcely – or never – used for the execution of payment transactions. The results of our survey, by comparing them to similar data collections from the past, enable us to answer these questions as well. Consequently, our analysis may offer some conclusions about how households' payment habits have changed – if at all – since the adoption of the new regulations.

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<sup>1</sup> <http://www.mnb.hu/Statisztika/statisztikai-adatok-informaciok/adatok-idosorok/xiii-penzforgalmi-adatok/penzforgalmi-adatok/penzforgalmi-tablakeszlet>

Our article is structured as follows: In the second chapter we present the survey underlying the research. In the third chapter we describe the current payment habits of Hungarian households, while the fourth chapter is dedicated to a detailed analysis of the motives behind the observed payment habits, and the socio-demographic reasons and other correlations identified. At the end of the article we sum up the most important findings of our research.

## **2. Research methodology**

This analysis is based on data gained from an anonymous questionnaire-based survey covering a sample of 1,000 persons. The questionnaire-based survey on payment habits is a generally accepted methodology in the international literature. Several recent publications rely on questionnaire-based surveys to analyse payment habits (*Crujisen–Plooij 2015; Goczek–Witkowski 2015*).

The Magyar Nemzeti Bank (MNB) conducted its own questionnaire-based survey in the summer of 2014. The survey covers ages above 18 of the Hungarian population, including representative samples by gender, age group, region, settlement type and education. The questionnaire was designed to gather both quantitative and qualitative information. Each questionnaire provides data on the basic socio-demographic characteristics of respondents (age, education, labour market status, income, residence), their access to the electronic payment infrastructure (number of bank accounts and payment cards), number and value of daily and monthly payment transactions by main transaction type (cash withdrawal, cash payment, card payment, credit transfer, direct debit, bill payment with postal cheques (yellow and white cheques),<sup>2</sup> payment with vouchers and other instruments). Where appropriate, respondents were also asked about the reasons for not having a bank account or payment card.

The number and value of payment transactions are based on self-assessment; however, we verified the reliability of monthly transaction data – the core information serving as a basis for our analysis – with various methods. We compared the aggregate monthly transaction data of the questionnaire to the comprehensive, national payment data collected by the MNB on the one hand, and, on the other hand, to the transaction data of the respondents on the specific day (i.e. the day on which the questionnaire was completed). Same-day data are also based on self-assessment; yet, we can assume that respondents recalled the number and value of the payment transactions they performed on the day of the questionnaire with a reasonable degree of certainty. The deviations in numbers or proportions

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<sup>2</sup> For the sake of simplicity, in this study the two most frequently used cash- and paper-based postal bill payment instruments – postal inpayment money orders (commonly known in Hungary as “yellow cheques”) and postal deposit payment orders (commonly known in Hungary as “white cheques”) – are both referred to as postal cheques.

identified on the basis of the comparisons were not significant; thus we may agree with the assumption that the monthly payment transaction data reported by the respondents are sufficiently accurate.

In order to obtain answers to the research questions listed in the introduction, we examined monthly payment transaction data in various breakdowns (aggregated, broken down by groups derived from socio-demographic characteristics, based on indicators measuring the choices between different payment methods) and using different statistical methods (comparison of group means, estimation of linear regressions and cluster analysis).

### 3. Descriptive statistics of household payment habits

First, by presenting the consolidated data from the replies to the questionnaire, we provide a view of the general payment habits of the entire sector of Hungarian households. Comparing this information to the similar results of previous studies we can also determine whether the payment habits of households have changed in recent years, and more specifically, since the adoption of new regulations affecting payment transactions and the pricing of payment services, such as the introduction of the payment transaction duty in 2013 or the bimonthly free cash withdrawals in 2014.

According to our survey, 75.7% of Hungarian adults hold at least one bank account, and 71.7% of the adult population own at least one payment card. The percentage of those having a bank account without owning a payment card is 4.3%, while the proportion of cardholders without a bank account (e.g. owners of partner cards linked to another person's bank account) is negligible (0.3%). The percentage of respondents having more than one bank accounts or payment cards is 5% and 40%, respectively. The percentage of bank account and payment card ownership is even higher at the level of households. 82.7% of Hungarian households have at least one bank account, and 80.1% of them own at least one payment card. The ratio of households with a bank account, but no payment card is also lower, at 2.9%.

These ratios have not changed compared to the results of previous survey results. Calculated for the corresponding age groups, for instance, households' access to the electronic payment infrastructures has not changed at all since 2010 compared to data shown in *Takács (2011)*.<sup>3</sup> This suggests that the negligible decline<sup>4</sup> observed in the number of household bank accounts and payment cards in recent years is primarily linked to the elimination of some of the presumably less frequently

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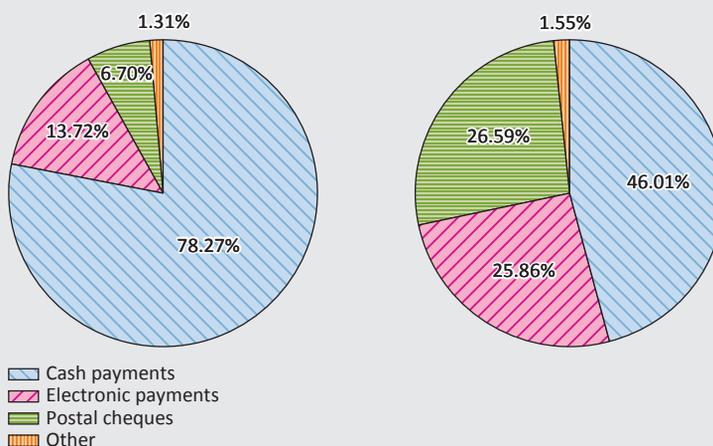
<sup>3</sup> Although the age distribution of the survey used by *Takács (2011)* is somewhat different from our sample, practically the same bank account coverage of 90% can be calculated from both samples for ages 18–60.

<sup>4</sup> <http://www.mnb.hu/Statiztika/statiztikai-adatok-informaciok/adatok-idosorok/xiii-penzforgalmi-adatok/penzforgalmi-adatok/penzforgalmi-tablakeszlet>

used second or third accounts and cards, i.e. the rationalisation of household bank relationships, and as such, it is not detrimental to the electronic payment options of Hungarian households.

Respondents without a bank account or a payment card were also asked about the subjective reasons for not having such instruments. The distribution of the answers was nearly identical in both cases. Of the reasons cited, one stood out: nearly 90% of residents without a bank account or payment card did not think these instruments were necessary. A smaller, but still relatively high percentage of respondents – 25% in relation to bank accounts and 19% in relation to payment cards – explained their reasons with the high maintenance costs. On a positive note, only a relatively small number of respondents indicated a lack of confidence in banks (10–11%) or perceived security risks (3–4%) as a reason. Although due to the different methodologies applied these values are not fully comparable with those of *Divéki–Listár (2012)*, the distribution of the responses is extremely close. Costs and a lack of need for bank accounts or payment cards were cited by slightly more respondents compared to 2012, while the lack of confidence in banks was mentioned slightly less often.

**Figure 1.**  
Distribution of household payment transactions by payment method



Source: MNB Survey 2014 edited

In summarising the responses to the questions pertaining to monthly payment transactions, we identified four payment categories: cash, electronic payment, payment by postal cheques, and other payment methods (*Figure 1*). Among electronic payment methods, we took into account card payments (debit and credit cards), credit transfers and direct debits, while the category of “other” included

payments by pre-paid vouchers (SZÉP card, Erzsébet voucher, etc.) and loyalty cards, where the points earned go towards future purchases.

The data reveal that, based on the number of households' monthly payment transactions, cash payment accounts for a significant part of the transactions: 78% of the respondents chose this option, compared to 14% opting for electronic payment methods. The share of payments by postal cheque is nearly 7%. As regards the value of payment transactions, however, the preference for cash is far less pronounced: 46% of households' payments were executed in cash, while electronic payment methods and postal cheques represented 26% and 27%, respectively. Since postal payment methods always involved cash at the time of the survey, we can conclude overall that cash-based payments account for 85% of the total monthly payment transactions of Hungarian households by number, and 73% in terms of value. Comparison of the distribution of transaction numbers and values reveals that Hungarian households use cash payments more often than any other payment method; at the same time, they tend to pay smaller amounts in cash on average. By contrast, they initiate electronic transactions (or use postal cheques) less frequently, but these transactions involve larger amounts on average.

**Table 1.**  
**Statistics of the monthly payment transactions of households**

	Proportion of users	Average number/month	Average value/month (Ft)	Average value/transaction (Ft)
Cash withdrawal (conf. int. 95%)	0.81 (0.78 – 0.84)	1.6 (1.5 – 1.7)	67 365 (63 687 – 71 043)	50 001 (46 632 – 53 369)
Cash payment (conf. int. 95%)	0.99 (0.98 – 0.99)	27.2 (25.8 – 28.5)	50 375 (47 136 – 53 615)	2 457 (2 264 – 2 651)
Debit and credit card payment (conf. int. 95%)	0.58 (0.55 – 0.61)	8.3 (7.5 – 9)	34 947 (32 036 – 37 858)	6 223 (5 494 – 6 952)
Credit transfer (conf. int. 95%)	0.24 (0.22 – 0.27)	2.6 (2.3 – 3)	33 083 (29 111 – 37 055)	17 700 (14 777 – 20 622)
Direct debit (conf. int. 95%)	0.27 (0.24 – 0.3)	3.1 (2.8 – 3.4)	38 207 (33 575 – 42 838)	16 131 (12 658 – 19 605)
Postal cheques (conf. int. 95%)	0.69 (0.66 – 0.72)	3.1 (3 – 3.2)	38 451 (36 274 – 40 628)	14 249 (13 229 – 15 268)

Source: MNB Survey 2014 edited

We compared the data above with the results of *Takács (2011)*. We found that the distribution of payment methods by number and value has not changed significantly since 2010, but a slight decline can be observed in cash usage. This is extremely

apparent in the case of payment values: since 2010, the ratio of cash usage has dropped to 46% from 50%. By number, electronic payments rose from 12% to 14%, while based on the amounts paid, they increased to 26% from 20%. Meanwhile, the gap between the number and value of cash payments widened further; in other words, the average value of a single cash transaction continued to decline. These shifts indicate that the payment habits of households did not change substantially in response to the adoption of the regulations affecting payments and the pricing of payment services after 2010, and the proportion of cash-based payments did not increase. This reconfirms the analysis performed by *Ilyés et al. (2014)* on the 2013 data.

Looking at the average characteristics of households' individual payment transactions in more detail, we find that practically all households (99% of users) use cash payments (*Table 1*). In this context, a high percentage of the adult population used cash withdrawals, but at around 80%, their share is far lower than that of those paying in cash. Incomes received in cash may account for some of this difference, while another part of it may be attributed to cash withdrawals by a family member other than the respondent. A relatively high ratio, 70% of the adult population, pay with postal cheques on a regular basis. Of all electronic payment options, card purchases are the most frequently used form of payment; nearly 60% of cardholders regularly make payments with their payment cards. By comparison, the share of credit transfer (24%) and direct debit (27%) in electronic payments is far lower.

In addition to the usage ratio, *Table 1* also indicates the average number of transactions initiated by the users of individual payment transactions, as well as the average monthly amount paid by using the specific payment method, and the average value of individual transactions.<sup>5</sup> It is clear that the average monthly number of cash payments far exceeds the average monthly number of any other payment methods, while cash payments involve the smallest average value in a single transaction. This is followed by card payments: households pay with cards 8 times per month on average, in the average amount of slightly more than HUF 6,000 per transaction. Households pay via credit transfer, direct debit and postal cheques less often, but these transactions involve higher average values.

#### **4. Socio-demographic factors influencing payment habits**

In this chapter we classify households into groups on the basis of various aspects, in particular the socio-demographic characteristics surveyed in the questionnaire. We then proceed to examine the differences observed – and verified by statistical methods – in the monthly payment transactions of individual groups to draw

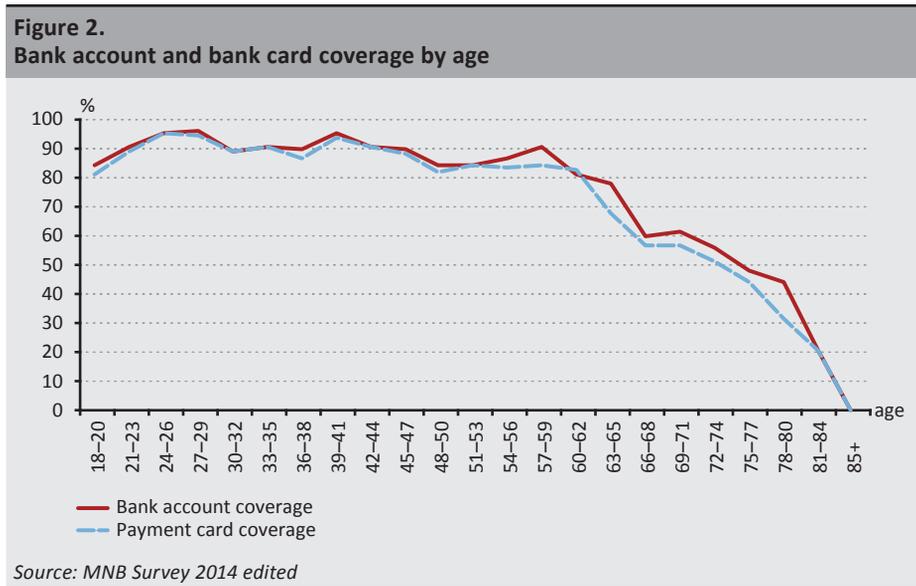
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<sup>5</sup> The latter value does not necessarily equal the quotient of the monthly average transaction value and the monthly average transaction number shown in the table, because our calculation of the average value per transaction reflect only those responses where respondents provided data both for the number and for the value of the transactions made via the specific payment method.

conclusions about the factors influencing the payment habits of households and their impact. First of all, we examine access to the electronic payment infrastructure; in other words, the reasons for having a bank account or a payment card. We analyse the factors influencing the use of individual payment methods, with special regard to electronic payment transactions. We also examine the rationale behind the selection of a particular payment method in specific payment situations, and explore whether households can be divided into segments based on their payment habits and the characteristics of their transactions.

#### 4.1. Access to the electronic payment infrastructure

For the purposes of the further analyses, we divide households into groups based on five socio-demographic characteristics. These characteristics are the following: age, education, labour market status, per capita monthly household income, and residence. First, we examine bank account and payment card ownership within each group. In this context, our goal was to determine whether the household had at least one bank account or bank card; the exact number of the accounts and cards was irrelevant, since a household can be connected to the electronic flow of payments with a single account and a single card.

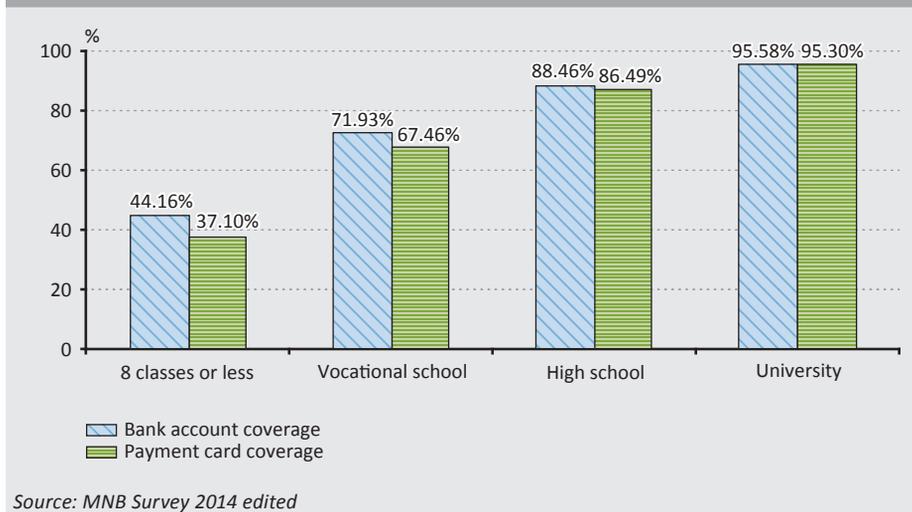


It is clear that account and card ownership is closely correlated with age. Coverage ratios are extremely high, around 90%, until age 50 in all age categories; they are slightly lower between the ages of 50 and 60, fluctuating between 80% and 90%, while a steep decline is observed above age 60 (Figure 2). It is also evident that the

ratio of bank account and payment card ownership move together closely below age 55, whereas payment card coverage lags behind bank account coverage in the higher age categories. Consequently, bank account holders who do not own a card are typically older than 55. In relation to the latter segment we can also establish that respondents tend to withdraw the income credited to their accounts practically in full, while this ratio is below 50% among those who have both a bank account and a card. This means that members of this segment hold an account for the sole purpose of receiving their income and exchanging it into cash, practically without performing any electronic payment transactions.

Since there is a discernible causal relationship between age and bank account and payment card ownership, we can assume that the bank account and the payment card coverage of higher age groups may increase in line with the gradual ageing of currently active age groups with higher penetration. Assuming that the currently employed account holders and cardholders will keep and use their accounts and cards above age 60 as well, while the coverage of new, young age groups will remain equally high, the penetration of the household sector will increase over time. According to our estimate prepared on the basis of the population statistics released by the CSO, as a result of this process and assuming that no other factor will change Hungarian households' willingness to own a bank account and a payment card, the ratio of bank account coverage to the total population may reach 80% by 2030 and 82% by 2040, compared to the current ratio of 76%.

**Figure 3.**  
**Bank account and payment card coverage by education level**



Whether a person has a bank account or a payment card is strongly influenced by the person's level of education as well: we measured higher and higher levels of average coverage among those with higher education levels (*Figure 3*). As regards access to the electronic payment infrastructure, the marginalisation of the segment with primary school education or less is extremely significant, and even those with vocational education fall behind the national averages of 76% and 72%. These two groups include a relatively high number of respondents who have a bank account, but do not own a card. As we mentioned above, this segment is hard to involve in electronic payments, despite the existence of a bank account. Among respondents with high school education the ratios exceeded the national average by 10 percentage points, while those with university degrees exhibit nearly full coverage. Indeed, practically everyone in the latter group who has a bank account also has a payment card.

We also calculated the ratio of bank account and bank card ownership according to labour market status, per capita monthly household income and residence. The results are shown in the figures of Point 1 of the Annex. The ratio of account and card ownership in higher per capita income groups is unmistakably higher; in other words, access to the electronic payment infrastructure improves in line with the increase in income. While this result was highly predictable, it is noteworthy that the level of the positive correlation is not extremely high. Although coverage is particularly high (nearly 90% or above) in the per capita income categories above HUF 100,000, the ratio of bank account and bank card ownership is only slightly below the estimated national average even in the lowest per capita income category (below HUF 50,000). It is also evident that the coverage of respondents living in settlements is clearly lower than that of their urban peers, with the highest values measured in Budapest and at county seats. With respect to labour market status, as expected, active employees have the highest coverage. While it is a positive result that the average of students slightly exceeds the national average, the values of pensioners and the unemployed are far worse than that. The ratio of account and card ownership barely reaches 50% in the latter groups. Based on the results, besides the group of persons with the lowest education level, pensioners living in settlements are overrepresented among those who have a bank account, but do not own a card.

These results, however, are likely to be interrelated, or attributable to the same reasons. For example, the effect of age and education may conceal the indirect effect of income (the average income of pensioners is lower than that of the active age groups, and higher education levels are associated with higher average incomes), or vice versa. Similarly, differences by labour market status are clearly related to the differences observed in relation to age or education, while age may also play a role in the effect of residence (the average age of settlement dwellers

is higher), and so on. In order to identify the most influential factors of those examined on bank account and payment card coverage and the exact magnitude of the effects, we estimated logistic regressions. The value of the dependent variable of the regressions is 1 or 0 depending on whether the respondent has a bank account or a bank card or not. The explanatory variables of the regressions are the dummy variables of the categories defined according to per capita net monthly income, age, education, labour market status and residence. We also set up groups based on the age of respondents because, as *Figure 2* demonstrates, the relationship between age and coverage is not linear: in fact, there is an apparent break in the highest age groups, which can be best captured by a dummy variable.

**Table 2.**  
**Estimated coefficients of the regressions explaining bank account and payment card coverage**

	Bank account	Payment card
Age (18-29)		
(30-39)	0.57	0.78
(40-49)	0.51	0.72
(50-59)	0.67	0.66
(60-)	0.30*	0.25*
<b>Per capita income (in 10 thousand HUF)</b>	1.04*	1.05
<b>School qualification (8 elementary classes or less)</b>		
Vocational school	2.02*	2.12*
High school	5.00*	5.60*
University	12.05*	14.04*
<b>Labour market activity (Employee)</b>		
Pensioner	0.51	0.50
Unemployed	0.28*	0.31*
Student	0.55	4.14
Other	0.53*	0.71
<b>Type of settlement (Capital)</b>		
County towns	0.72	1.10
Other towns	0.52*	0.84
Villages	0.49*	0.60
<b>Constant</b>	4.01*	4.14*
N	982	982
R <sup>2</sup>	0.2069	0.2433
AUC	0.8017	0.8315

\* Significant odds ratios with a 95% confidence interval

Source: MNB Survey 2014 edited

According to the results of the regression estimate, similar reasons as those seen above account for the difference in coverage observed between bank accounts and payment cards, given the negligible number of respondents who own only one of these two instruments. In the logistic regression the estimated odds ratio parameters quantify how strongly the presence of the given property increases – in the case of a multiplier above 1 – or reduces the odds ratio of card or account ownership compared to the benchmark group.<sup>6</sup> Based on the estimated coefficients of the logistic regression, each of the main variable groups has a significant impact on coverage and has an additional explanatory power besides covariance (*Table 2*). The group of pensioners has significantly less coverage compared to the other age groups, while according to labour market status, the category of the unemployed shows significantly lower values. Based on settlement type, the ratio of bank account owners is far lower among respondents residing in other towns and settlements than among their peers living in Budapest, at county seats and in towns with county rank. The latter result may suggest that access to the payment infrastructure may also depend on the quality of the financial infrastructure located at the place of residence (e.g. number and accessibility of branches, number of merchants with POS terminals). Although we are unable to clearly determine the direction of the causal relationship from these results, this assumption is supported by the fact that smaller settlements have a demonstrably negative impact on bank account coverage, even beyond the effects of income, age, education and labour market status. Having said that, education level has the strongest explanatory power: even a high school diploma improves the odds ratio of coverage significantly, while the effect of a degree is exceptionally strong.

#### **4.2. Use of payment methods**

The next step is to examine the payment transactions of households to identify the effect of the aforementioned socio-demographic characteristics on the use of specific payment methods. To that end, based on the data from the questionnaire-based survey, we calculated the average usage ratio of six different payment transaction types, and the average monthly number and value of the transactions executed by the users of the given transaction type, calculated separately for 23 groups into which respondents were classified based on age, education, labour market status, per capita net monthly income and residence. The six payment transaction types comprise cash withdrawals from the account holder's bank account on the one hand, and the following five payment methods: cash payment, card payment, credit transfer, direct debit and payment by postal cheque.

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<sup>6</sup> As regards the bank account coverage, the odds ratio is 0.8:1 for those with a primary school education compared to 21.6:1 for graduates, as the ratio of bank account owners in these two groups is 44.16 per cent and 95.58 per cent, respectively. Thus, without the exclusion of other variables, the effect would be 27-fold between these two education levels, while, filtering the effect for the cross-correlation based on the regression, yields a result of 12.05.

The result of our calculations is shown in the tables included in Point 2 of the Annex. Under each value presented in the tables we indicated the confidence interval associated with the given estimated average, which is helpful in determining whether there is a statistically significant difference between the mean of a group and the mean of another group. For the sake of clarity, the means highlighted in bold in the individual rows of the tables mark the means, the deviation of which from another mean or more means in the same row holds the greatest significance for the purposes of our analysis.

Based on the results pertaining to the effect of *age*, we found that members of the youngest age group (ages 18–29) tend to withdraw cash in smaller amounts than the rest of the age groups; however, the value of their cash purchases is not demonstrably different from the values of other age groups. Members of this age group use their cards for purchases in the same proportions (60–70%) as any other age groups, but respondents in this group tend to use their bank cards less frequently (5–8 times a month) and spend less money compared to the other groups, which might be indicative of their smaller disposable income. They are less inclined to use direct debit: only 10–20% of the age group used direct debit, compared to approximately 30% recorded for the other groups. Only about 40% of the age group above 60 use payment cards for purchases, which is below the average. Those using payment cards tend to use them somewhat less frequently, but the value of their purchases does not significantly deviate from the average. In this age group, the ratio of respondents using credit transfer is below the average, amounting to merely 10–20% of account holders, compared to the average values of 20–30%. It is an interesting development that, while up until ages 40–49 respondents pay via postal cheques in larger and larger ratios, above this age the usage ratio does not increase demonstrably, and average monthly transaction numbers and values show no difference between the age groups. By contrast, older generations pay by direct debit in similar proportions as the rest of the age groups (except the youngest group, which lags behind in this regard), and the transactions performed correspond both in number and value. It is another important result that the statistics of cash payments show no difference whatsoever among the different age groups.

Although the average number of monthly cash withdrawals increases somewhat in line with *education levels*, the value of the transactions remains the same, and there is also no difference between the monthly values of cash purchases either. That notwithstanding, higher education levels have a clearly positive effect on the use of electronic payment methods. As regards card purchases and direct debit transactions, both the usage ratio and the average monthly transaction number and value show a high correlation with education levels, while in the case of credit transfers the usage ratio and the monthly number of transactions

increase significantly in accordance with higher education levels. While only 30% of the respondents with primary school education use their cards for purchases on 2–3 occasions per month on average, at a value of around HUF 20,000, the corresponding values for those with a high school degree are close to 70%, 7–8 occasions and HUF 33,000, and for those with a university degree are 80%, 10–15 occasions and nearly HUF 50,000. As the education level increases, the percentage of those paying via postal cheques declines continuously. Nevertheless, nearly one half of those with a university degree use this payment method, and the average monthly amount paid by the users does not differ significantly on the basis of education level.

As regards *labour market status*, the average monthly value of cash withdrawals and cash purchases by the unemployed and students is lower than that of active workers and pensioners (the values of the latter two do not differ from each other). Presumably, this is not mainly indicative of the lower ratio of cash usage in these groups, but rather reflects their lower level of disposable income. Average bank card usage ratios are clearly more favourable for active workers than for the other groups (a usage ratio of 70% and 8–10 purchases per month at a value of HUF 40,000). The same is true for the ratio of those paying via credit transfer and direct debit (both 30%). As regards average monthly values, pensioners use credit transfers about as intensively as active workers (more than HUF 30,000) and, in line with our previous results, the group of account holder pensioners does not lag behind in respect of the usage ratio of direct debit either. It is noteworthy that students practically do not use direct debit at all. This may be related to the fact that this group does not typically pay regular monthly bills, as reflected by their very low use of postal cheques (12%) compared to the other groups.

Looking at the groups defined based on *per capita net monthly income*, the differences found resemble those seen in relation to education level. In this case, the monthly value of both cash withdrawals and cash purchases increases in line with income, which is a predictable result. The increase in income correlates positively with card use: both the usage ratio and the number and value of monthly payments are higher in the group of higher-income respondents. While 40–50% of those belonging to groups where per capita net monthly income is less than HUF 100,000 (these groups have the highest number of elements) use their bank cards for purchases on 6 occasions per month on average, at a value ranging between HUF 15,000 and HUF 25,000, the corresponding values in the groups with per capita net monthly income above HUF 150,000 are 70–85%, 10–16 occasions and HUF 50,000–65,000, respectively. The percentage of respondents paying with credit transfer, the value of credit transfers, and the percentage of those using direct debit all increase with higher income levels. Among those using direct debit and postal cheques, however, only respondents in the highest income category paid higher-

than-average monthly amounts. It is also interesting that the statistics of postal cheque payments do not increase with income either in respect of user ratios or number of monthly payments.

In examining the payment statistics of groups created on the basis of *residence*, we only found a number of values significantly different from the average among residents living in Budapest. However, according to these values, Budapest residents use both cash-related and electronic transactions more intensively than the national average. The capital city has the highest percentage of residents withdrawing cash (90%), the highest average number of monthly cash purchases (34), and the highest average monthly value paid via postal cheque (HUF 46,000). In addition, the ratio of respondents making purchases with payment cards (73%), the average number of monthly card purchases (10) and the average monthly number (4) and value (HUF 52,000) of direct debit are also extremely high in Budapest. Regarding the rest of the values, there is no perceivable difference between the settlement types under review.

Based on the results described above, we found overall that the socio-demographic factors under review have a limited impact on cash-related payment transactions, i.e. cash withdrawals, cash purchases and the use of postal cheque payments, and a stronger impact on the use of electronic payment methods. Practically everyone pays with cash; thus the ratio of respondents using cash withdrawals is relatively stable in the groups under review, and the average monthly value of cash withdrawals and cash purchases only increases in line with an increase in income. The rest of the socio-demographic characteristics have no significant impact on the average monthly value of cash payments, which remains stable at around HUF 50,000 in the vast majority of the groups reviewed. The average number and value of postal cheque payments are even more stable at 3 monthly transactions and a value of HUF 35,000–45,000, irrespective of any increases in income.

By contrast, the diversity of the statistics measuring the intensity of the use of electronic payment methods is far more significant as a function of the socio-demographic characteristics under review: the difference between the means of the lowest and highest groups, in many cases, is three or four-fold. Education and per capita net monthly income have the largest degree of positive impact on the use of payment card purchases, credit transfers, and direct debit. Based on labour market status, clear deviations can be observed primarily to the benefit of active workers. By contrast, age and residence appear to have a smaller impact, restricted to certain areas or groups at most. Ages above 60 with bank accounts or payment cards tend to pay via credit transfer and payment card to a smaller degree compared to the average, but they are extremely active users of direct debit. By contrast, the payment habits of those using card purchases and credit transfers do not differ significantly from the average values of the other age groups either in terms of

the monthly number or the monthly value of the transactions. It is also evident that, for the most part, there is a clear positive correlation between the uses of different electronic payment methods; in other words, if a group defined on the basis of socio-demographic characteristics has higher statistics measuring the use of card payments, then the average usage ratios of credit transfer or direct debit will be typically higher as well.

<b>Table 3.</b>				
<b>Estimated coefficients of the regressions explaining the use of payment card purchases and direct debit</b>				
	<b>Card payment</b>		<b>Direct debit</b>	
	<b>Usage</b>	<b>Number of transactions/month</b>	<b>Usage</b>	<b>Number of transactions/month</b>
<b>Age (18-29)</b>				
(30-39)	0.41*	-0.37	1.50	-0.06
(40-49)	0.60	1.95	1.87*	0.33
(50-59)	0.38*	0.75	2.37*	0.05
(60-)	0.19*	-0.02	3.07*	0.48
<b>Per capita income (in 10 thousand HUF)</b>	1.05*	0.3680*	1.03*	0.00995
<b>School qualification (8 elementary classes or less)</b>				
Vocational school	1.81*	3.91*	1.84	0.19
High school	3.99*	3.78*	3.08*	-0.01
University	6.26*	7.91*	5.04*	1.24
<b>Labour market activity (Employee)</b>				
Pensioner	0.88	-1.87	0.89	0.29
Unemployed	0.64	-0.44	0.47	0.44
Student	0.37*	0.93	0.00	0.44
Other	0.68	-0.33	0.90	-0.54
<b>Type of settlement (Capital)</b>				
County towns	0.54*	-1.63	2.59*	-0.04
Other towns	0.52*	-1.80	1.57	-0.04
Villages	0.83	1.13	2.42*	-0.04
<b>Constant</b>	1.26	-0.34	0.03*	0.00*
<b>N</b>	782	466	811	210
<b>R<sup>2</sup></b>	0.1356	0.2164	0.1097	0.2224
<b>AUC</b>	0.7382		0.7189	

\* Significant odds ratios and coefficients with a 95% confidence interval  
 Source: MNB Survey 2014 edited

However, there may also be correlations between some of our results relating to the different socio-demographic factors that influence the use of payment methods, or they may have the same underlying reasons, as was the case with the results shown in the previous chapter in relation to bank account or payment card ownership. Therefore, in this case also, we estimated regressions in order to identify the factors which have the most significant effect on the extent to which households use electronic payment methods, and the exact magnitude of their effect. We estimated logistic regressions for the explanation of the usage ratio of the six payment transaction types under review, where the dependent variable may be 1 or 0 depending on whether the respondent uses the specific transaction type or not. We estimated linear regressions to explain average monthly transaction numbers and values. The explanatory variables of the regressions are the dummy variables of the categories defined according to per capita net monthly income, age, education, labour market status, and residence.

In Table 3 we present the estimates for the coefficients of the regression explaining the usage ratio and monthly number of card purchases and direct debits because, based on the results detailed above, the usage of these electronic payment methods is relatively significantly influenced by the socio-demographic characteristics under review. However, we also estimated the above regressions for the rest of the payment transactions and monthly values (the estimated values of the coefficients are presented in Point 3 of the Annex), and, where relevant, we briefly touched upon their results. The use of cards for payment transactions is also affected by the combination of several variables; in addition, these variables have a significant explanatory power for monthly transaction numbers. Higher age categories reduce the odds ratio of usage, but not the monthly transaction numbers. This confirms our previous finding. The same is true for the student category. By contrast, education level and per capita income increases both the odds ratio of usage and the frequency of usage. A high school education, for example, almost doubles the average monthly number of card purchases (increases it by four), while the number of transactions executed by respondents with a university degree exceeds the average by four transactions. A HUF 25,000–30,000 increase in per capita income raises the monthly number of card purchases by one on average.

As regards the payment transactions considered as relevant alternatives to card payments, in the case of cash withdrawals we found that the odds ratio of usage tends to be worsened by certain labour market positions (typically those associated with a lack of independent income) – unemployed, student – and slightly improved by education, while none of the listed variables accounts for the unique differences in the extremely high ratios of cash payments. Owing to its nominal nature, income always has a strong explanatory power in respect of transaction numbers and values,

while categories related to employment – working age person in employment – tend to explain the differences in value, but not the intensity of monthly frequency.

The characteristics of direct debit were different from those of card usage. While age and education still have a strong explanatory power, education plays a role only in the odds ratio of usage, without having an effect on monthly intensity (similar to age, which exhibited the same behaviour in the case of card purchases as well). Again, we can draw the conclusion that higher education levels increase the odds of usage, while younger age decreases the odds of usage. Even so, once someone uses the service, these variables will not capture any further differences. The only significant relationship we observed was between per capita income and the monthly value of direct debits (see Point 3 of the Annex), which can be clearly perceived even on an intuitive basis. We found similar results in the case of payments via postal cheques. The odds ratio of usage decreases among members of the younger generation, and it is reduced even further by higher education levels. Pensioner status, however, increases the odds significantly. In this case, the nominal effect of per capita income is even stronger. Interestingly, in the case of postal cheques, less frequent monthly usage continues to characterise smaller settlement types; in other words, although respondents do not pay less with postal cheques, they pay with cheques less frequently.

### 4.3. Choice between payment methods

In the foregoing we analysed the factors influencing the use of individual payment methods separately. However, in several cases (e.g. within the groups of different per capita incomes) we found that the use of electronic payment methods and cash usage exhibit a kind of co-movement (increase or decrease in tandem) in the payments of households. Consequently, based on the results so far, sometimes we cannot determine with certainty the impact of the socio-demographic characteristics under review on households' choices between the available cash-based and electronic payment options. In order to decide this question, we derived a number of ratios from the responses to the questionnaire that can capture the strength of the choices between the available electronic payment methods in certain payment situations.

<b>Table 4.</b>	
<b>Ratios measuring the choices of electronic payment methods</b>	
<b>Index</b>	<b>Calculation</b>
Proportion of electronic payments	$(\text{Monthly value of card payments} + \text{credit transfers} + \text{direct debits}) / \text{monthly value of all payment transactions}$
Proportion of card payments	$\text{Monthly value of card payments} / (\text{monthly value of card payments} + \text{cash payments})$
Proportion of credit transfers	$\text{Monthly value of credit transfers} / \text{monthly value of all payment transactions}$
Proportion of direct debits	$\text{Monthly value of direct debits} / (\text{monthly value of direct debits} + \text{postal cheques})$

Of the ratios presented in *Table 4*, the first one captures, in general terms, the portion of an individual's monthly payment transactions that is executed via electronic means. The rest of the ratios, in a sense, break down this value according to different payment situations. The ratio of card purchases primarily measures the ratio of electronic transactions in such commercial, service provider, hospitality industry, etc. payment situations, where card payment is an alternative to cash payment. The ratio of credit transfers measures the share of credit transfers in total monthly payment transactions, while the ratio of direct debit primarily measures the share of direct debits in the payment of permanent, regularly charged (monthly, quarterly, etc.) bills (utility, telecommunications, insurance, etc.). We calculated the mean of the ratios thus defined for the groups created on the basis of the aforementioned socio-demographic characteristics.

<b>Table 5.</b>					
<b>Ratios measuring the choices of electronic payment methods by per capita net monthly income (HUF)</b>					
	<b>0–50 000</b>	<b>50 001–100 000</b>	<b>100 001–150 000</b>	<b>150 001–200 000</b>	<b>200 001–</b>
Proportion of electronic payments (conf. int. 95%)	0.14 (0.09 – 0.18)	0.16 (0.14 – 0.19)	0.27 (0.24 – 0.31)	0.39 (0.32 – 0.45)	0.49 (0.38 – 0.6)
Proportion of card payments (conf. int. 95%)	0.12 (0.07 – 0.16)	0.20 (0.17 – 0.23)	0.28 (0.24 – 0.32)	0.38 (0.32 – 0.44)	0.40 (0.3 – 0.49)
Proportion of credit transfers (conf. int. 95%)	0.02 (0.01 – 0.04)	0.04 (0.03 – 0.05)	0.05 (0.04 – 0.06)	0.06 (0.04 – 0.09)	0.17 (0.11 – 0.23)
Proportion of direct debits (conf. int. 95%)	0.22 (0.12 – 0.32)	0.19 (0.14 – 0.23)	0.27 (0.21 – 0.33)	0.35 (0.25 – 0.45)	0.52 (0.35 – 0.7)
<i>Source: MNB Survey 2014 edited</i>					

According to our results, as households' incomes increase they tend to increase their use of electronic payment methods in different payment situations to ever larger degrees (*Table 5*). In all cases – whether it is the share of card purchases, credit transfers or direct debit – the means of the highest income categories are significantly higher than the means of lower income categories. Accordingly, although we previously found that an increase in income will raise the monthly average value of both cash-based and electronic payment transactions, we can establish that the effect on electronic payment transactions is stronger.

**Table 6.**  
**Ratios measuring the choices of electronic payment methods by education level**

	8 classes or less	Vocational school	High school	University
Proportion of electronic payments (conf. int. 95%)	0.05 (0.03 – 0.08)	0.16 (0.13 – 0.19)	0.28 (0.24 – 0.31)	0.49 (0.44 – 0.54)
Proportion of card payments (conf. int. 95%)	0.09 (0.05 – 0.12)	0.18 (0.15 – 0.21)	0.27 (0.24 – 0.31)	0.40 (0.34 – 0.45)
Proportion of credit transfers (conf. int. 95%)	0.02 (0.01 – 0.04)	0.03 (0.02 – 0.04)	0.05 (0.03 – 0.06)	0.11 (0.08 – 0.14)
Proportion of direct debits (conf. int. 95%)	0.09 (0.04 – 0.15)	0.16 (0.11 – 0.21)	0.25 (0.2 – 0.3)	0.50 (0.41 – 0.59)

Source: MNB Survey 2014 edited

The impact of education level on the choices between payment methods is similar, or perhaps, even stronger (*Table 6*). The group means of electronic payment methods, in particular, the group means of the ratios measuring the choice of card payments, significantly – and often considerably – exceed the mean of the category one level lower. It is also true for the ratios of credit transfers and direct debits that the means of the highest education categories exceed the means of the lower categories considerably and significantly. This result confirms the conclusion of our previous analyses; i.e. that the increase in education level has an extremely strong positive impact on choosing electronic payment methods.

The results for the categories defined according to age, labour market status, and residence are included in Point 4 of the Annex. While they do not add any important new information to the conclusions we have drawn so far, they confirm them in several cases. Typically, a higher percentage of active workers choose electronic payment methods compared to the average, while a significantly lower percentage of unemployed persons tend to opt for this choice. In the case of ages above 60 (in a different breakdown: pensioners), the ratio of card purchases and credit transfers lags behind the values of other age groups, while the ratio of direct debits does not. Based on residence, Budapest stands out somewhat in terms of choosing electronic payment methods, but the differences observed here are not pronounced, and are seldom significant from a statistical perspective. Similar to Budapest, county seats and towns with county rank show high values in respect of the share of electronic payments and direct debits. However, there is no perceivable difference between the residents of other towns and settlements.

We found that the ratio in which electronic payment methods are chosen is influenced, to a greater or lesser extent, by several socio-demographic factors. As was the case in the previous chapters, we estimated regressions in order to see which of these factors have the strongest influence and to identify the exact magnitude of their effect. The dependent variables of the linear regressions estimated here are the ratios explained above, while the explanatory variables, once again, are the dummy variables of the categories defined according to per capita net monthly income, age, education, labour market status, and residence.

<b>Table 7.</b>				
<b>Estimated coefficients of the regressions explaining the ratios measuring the choice of electronic payment methods</b>				
	<b>Proportion of</b>			
	<b>electronic payments</b>	<b>card payments</b>	<b>credit transfers</b>	<b>direct debits</b>
<b>Age (18-29)</b>				
(30-39)	-0.05	-0.02	0	0.06
(40-49)	-0.03	0.01	-0.01	0.06
(50-59)	-0.03	-0.02	-0.02	0.05
(60-)	-0.10*	-0.10*	-0.04*	0.08
<b>Per capita income (in 10 thousand HUF)</b>	0.00825*	0.00999*	0.00325*	0.00772*
<b>School qualification (8 elementary classes or less)</b>				
Vocational school	0.05*	0.06	0	0.03
High school	0.16*	0.14*	0.01	0.12*
University	0.35*	0.23*	0.07*	0.34*
<b>Labour market activity (Employee)</b>				
Pensioner	-0.03	-0.03	0.01	-0.01
Unemployed	-0.10*	-0.09	0	-0.07
Student	-0.08	-0.07	-0.02	-0.17
Other	-0.05	-0.07*	0.02	-0.05
<b>Type of settlement (Capital)</b>				
County towns	0.01	-0.03	0	0.09
Other towns	-0.03	-0.06*	0.01	-0.01
Villages	0.02	0.03	0.02	0.03
<b>Constant</b>	0.09*	0.09*	0	-0.02
<b>N</b>	862	703	701	601
<b>R<sup>2</sup></b>	0.3033	0.2033	0.1221	0.144

\* Significant coefficients with a 95% confidence interval  
 Source: MNB Survey 2014 edited

The estimated coefficients of the linear regressions confirm our previous finding, according to which high retirement-age values of the age parameter's dummy variable significantly reduce the ratios under review (by 4–10 percentage points). The only exception is the ratio of direct debits, which does not show a significant difference between the age groups (*Table 7*). That notwithstanding, we can also conclude that the non-linear negative effect of age on the choice of electronic payment methods (which is only observed in the highest categories) is also present at most variables under review, even when the effect of the rest of the variables is excluded. Per capita income has a clear positive effect. Projected to a net monthly amount of HUF 10,000, the value of the estimated coefficient may appear low, but in case of the roughly HUF 50,000 difference between the means of the per capita income categories, it can improve the ratios explained by as much as 3–5 percentage points. It is important to stress that education level remains a strong, significant variable for all four ratios (the ratios of people with university degrees is 7–35 percentage point higher than the ratio of people with primary school education or less), while the results of the regression also confirm that residence and labour market status do not exert a significant impact.

#### **4.4. Segmentation of Hungarian households based on payment habits**

In the previous chapters we demonstrated that socio-demographic characteristics often have a strong impact on the use of payment methods, on their intensity, and on the choices between payment methods. We must also add, however, that the variables under review were mainly suitable for explaining covariance, whereas a significant part of the deviation does not depend on them primarily. For example, higher income calls for higher electronic payment turnover on average, but nevertheless a non-negligible percentage of high-income households still only execute a limited number of electronic payment transactions.

For this reason, in this chapter we reversed the course of our analysis: we created clusters based on the payment habits of the households observed and examined the characteristics of these clusters on the basis of the available socio-demographic variables. We performed the cluster analysis using K-centre clustering on the standardised versions of turnover and usage variables. We performed the analysis for 4–7 clusters, and found that the optimal cluster number is 5. We present the results of this analysis below. The substance of our results does not change for higher cluster numbers; only the edges of the groups shift or groups are divided into two.

Built on five clusters, the K-centre cluster analysis divides the group of the 802 households observed – each with a full set of data – into five stable and clearly distinguishable clusters. In addition to two clusters each comprising 100 persons and two clusters of more than 270 persons, there is a clearly separable, unique,

extremely stable group composed of 30 persons. This group becomes separate even with a smaller number of clusters.

The small, unique cluster (5) is approximately average from a demographic perspective, and while retired, low educated persons are partly overrepresented, they are not the sole components of the group. The main characteristic of the small group is that its members perform their finances nearly exclusively by cash transactions, and spend more than 95% of their income through cash purchases. Accordingly, the use and intensity of the rest of the payment methods is extremely low among them.

Serial number of cluster	Number of items	Per capita income (HUF)	Monthly value of cash payments (HUF)	Monthly value of card payments (HUF)
1	120	96 897	66 274	7 910
2	104	126 506	68 503	16 774
3	279	77 793	26 457	6 108
4	271	119 104	39 714	28 585
5	28	101 238	231 592	9 943

*Source: MNB Survey 2014 edited*

The four remaining groups are distinguished from one another mainly on the basis of income, consisting of a below-average (3), an average (1), and two above-average (2, 4) groups (*Table 8*).

Cluster 3, which includes below-average earners, is composed mainly of students, unemployed persons and a part of the pensioners. The majority of its members do not live in Budapest and have a lower education level. From a payment perspective, they are characterised by low turnover and low value in respect of all payment methods. It should be noted, however, that their electronically processed payments represent nearly the same percentage of their total turnover, as is the case in the high-income, intensive group.

The average group (1) is average even from a demographic perspective and does not have a clearly discernible character. Low-income non-urban members are slightly overrepresented in this cluster as well. As regards their payment habits, their payment transactions typically involve small amounts. Their payment card and credit transfer usage is low, but their postal cheque payments are frequent and involve large amounts.

The two groups comprising members with above-average income are clearly separated along the lines of their payments, which proves that income explains intensive use only with substantial dispersion. Controlled with other socio-demographic variables, they tend to move extremely similarly. Still, the positive impact of education is apparent in this case as well, and indeed, nearly all persons with a university degree belong to the group that is characterised by intensive use of electronic payment transactions. It is a favourable result, that in terms of size the proportion of the two groups benefits intensive users of electronic payment methods at a ratio of nearly 1 to 3. Importantly, however, cash-based payment methods are still strongly overrepresented in the payment transactions of one fourth of the households with above-average income.

The two high-income groups are mirror images of each other from the perspective of payments: in the smaller group (2) the value of cash withdrawals is nearly double, while the frequency of card purchases is nearly one half of the corresponding values recorded for the group composed of more intensive users of electronic payment methods. The use of direct debit is negligible, but postal cheques are extremely popular in group (2). By contrast, the larger group (4) is intensive in card-based and other electronic transactions, and its use of postal cheques is as limited as in the low-income group.

Based on the clustering exercise, we concluded that although demographic characteristics are good indicators of households' electronic payment habits, they fail to explain numerous factors and the substantial dispersion we found. This is particularly true for the per capita income of households, while education, even on the basis of the cluster analysis, can be considered a good indicator and a robust explanatory variable. In respect of all other variables under review, we found that Hungarian households could be divided into clusters that have similar socio-demographic characteristics, but different payment habits.

#### **4.5. International comparison of our findings**

Two international surveys have recently been performed on households' payment habits with results comparable to ours. The comparison is all the more interesting, as one of the international analyses is based on Polish data, while the other one relies on Dutch data. Therefore, we can simultaneously compare our results to another Central and Eastern European country and to a Western European country with an extremely advanced electronic payment system. Similar to our own survey, the surveys of both *Goczek–Witkowski (2015)* and *Crujisen–Plooi (2015)* are questionnaire-based surveys, and the dates of their data recording (2013 and 2014) are very close to our own date. Although the questions posed by the two studies are somewhat different from ours – in examining the choice between payment card and cash, they primarily focus on retail payments – they analyse the impact of several socio-demographic factors used by us.

In the framework of a logistic regression similar to the one presented in this study, *Goczek–Witkowski (2015)* examines the determinants of payment card ownership and the magnitude of their effect. Consistent with our findings, the authors found a positive correlation between card ownership and education level, income and size of residence. Although the impact of education is not as striking as in our case, it can still be considered strong. An important difference between the two surveys is the fact that, based on the Polish data, the odds ratio of card ownership for younger generations (ages 18–29) is significantly lower than that of the middle-aged population, while the odds do not decline perceptibly above age 60. In this regard, however, we must bear in mind that, as the Polish authors pointed out, the card possession ratio of the entire Polish population is 59%; i.e. far lower than the corresponding value of Hungary.

Although practically everyone owns a card in the Netherlands, by using Dutch data, *Crujisen–Plooiij (2015)* successfully demonstrated the negative effect of an increase in age and the positive effect of an increase in education level on payment card ownership. Debit card ownership declines slightly above age 45 and decreases a bit further above age 55, while a high degree of education moderately increases the odds of card ownership. As regards the determinants of the intensity of debit card payments, the authors found that the negative impact on card payments increases in line with the advancement of age, which is consistent with our findings. As opposed to our results, education, income and the size of residence do not affect the use of debit cards in the Netherlands, but the intensity of cash payments declines slightly in the highest categories. It appears therefore, that the socio-demographic variables reviewed by us have a less marked impact on card usage in the Netherlands. This, however, can be probably attributed to the high usage ratio of card payments in general, and in this regard the groups defined on the basis of socio-demographic characteristics do not differ significantly from one another.

#### **4. Conclusions**

Our study was intended to gain an insight into and improve the understanding of the payment habits of Hungarian households. Our research was based on a representative household survey, in the framework of which we collected a broad range of socio-demographic information in addition to detailed payment transaction data.

A high percentage of Hungarian households have a bank account (83%) and a payment card (80%), and these ratios have not changed since 2010. This suggests that the small decline observed in the number of household bank accounts and payment cards in recent years is primarily linked to the elimination of some of the presumably less frequently used second or third accounts and cards, i.e. the rationalisation of household bank relationships, and as such, it is not detrimental

to the electronic payment options of Hungarian households. A low degree of education, higher age and the lack of a regular income constitute the most important explanations in the case of those who do not hold a bank account or a payment card. Account ownership also lags behind in smaller settlements, which generally have a less developed financial infrastructure (accessibility of branches, availability of POS terminals).

The distribution of payment methods by number and value has not changed significantly since 2010 either, but a slight decline can be observed in cash usage. This is mainly apparent in the case of payment values: since 2010, the ratio of cash usage has dropped to 46% from 50%. By number, electronic payments rose from 12% to 14%, while based on the amounts paid, they increased to 26% from 20%. Meanwhile, the gap between the number and value of cash payments widened further; in other words, the average value of a single cash transaction continued to decline. These shifts indicate that the payment habits of households did not change substantially in response to the adoption of the regulations affecting payments and the pricing of payment services after 2010 (financial transaction duty, the option of bimonthly free cash withdrawals), and the proportion of cash-based payments did not increase.

The socio-demographic factors under review have a limited impact on cash-related payment transactions – i.e. cash withdrawals, cash purchases and the use of postal cheque payments – and a stronger impact on the use of electronic payment methods. Practically everyone pays with cash. Accordingly, the ratio of respondents using cash withdrawals is relatively stable in the groups under review, and the average monthly value of cash withdrawals and cash purchases only increases in line with an increase in income. The rest of the socio-demographic characteristics have no significant impact on the average monthly value of cash payments, which remains stable at around HUF 50,000 in the vast majority of the groups reviewed. The average number and value of postal cheque payments are even more stable at 3 monthly transactions and a value of HUF 35,000–45,000, and they are not influenced significantly by any other factor, even an increase in income. Whether it is habits or some other reasons that are behind this apparent stability, this result suggests that a more broad-based electronisation of regular bill payments can be only achieved over the short or the medium term if the electronic payment of postal cheques becomes widely available.

By contrast, the diversity of the statistics measuring the intensity of the use of electronic payment methods is far more significant as a function of the socio-demographic characteristics under review: the difference between the means of the lowest and highest groups, in many cases, is three or four-fold. Education has the largest degree of positive impact on the use of payment card purchases, credit transfers, and direct debit, and the use of these instruments is also influenced

positively by higher per capita net monthly incomes. Based on labour market status, clear deviations can be observed primarily to the benefit of active workers. By contrast, age and residence appear to have a smaller impact, restricted to certain areas or groups at most. People older than 60 with bank accounts or payment cards tend to pay via credit transfer and payment card to a smaller degree compared to the average, but they are active users of direct debit. In contrast to this, the payment habits of those using card purchases and credit transfers do not differ significantly from the average values of the other age groups either in terms of the monthly number, or the monthly value of the transactions. Most frequently, there is a clear positive correlation between the uses of different electronic payment methods; in other words, if a group defined on the basis of socio-demographic characteristics has higher statistics measuring the use of card payments, then the average usage ratios of credit transfer or direct debit will be typically higher as well.

Similarly, in examining the choices between payment methods in certain payment situations (e.g. retail purchases, payment of monthly or quarterly bills, etc.), we found that the odds of choosing electronic payment options increase with education primarily, but they are positively influenced by income as well.

On the whole, we can conclude that demographic characteristics are good indicators of households' electronic payment habits, but we found that, in their own right, they fail to explain all determinants and a substantial part of the variation. As the cluster analysis of Hungarian households based on payment habits demonstrated, this is particularly true for the per capita income of households: even among people in high income categories there is a non-negligible group that relies heavily on cash usage. At the same time, the cluster analysis confirmed that education is a good indicator and a robust explanatory variable from the perspective of payment transactions.

In accordance with the above, we can conclude that it is the payer's level of education that is most positively correlated with the intensity of the use of electronic payment transactions and the odds ratio of electronic payment choices in different payment situations. In addition, there is an extremely large difference between those with a low degree of education and those with a higher degree of education, and the values measured improve significantly at each level compared to the previous level. In view of the results of financial literacy surveys, this relationship is probably even more relevant in the area of financial knowledge and education, the measurement of which was beyond the scope of this study.<sup>7</sup> This result clearly demonstrates that the enhancement of financial literacy could strongly facilitate the widespread use of electronic payment instruments. And in order to reduce

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<sup>7</sup> In this regard, see for example the summary article of Kovács (2015), and the research conducted by Kovács (2014) and Németh et al. (2013) referenced in the article.

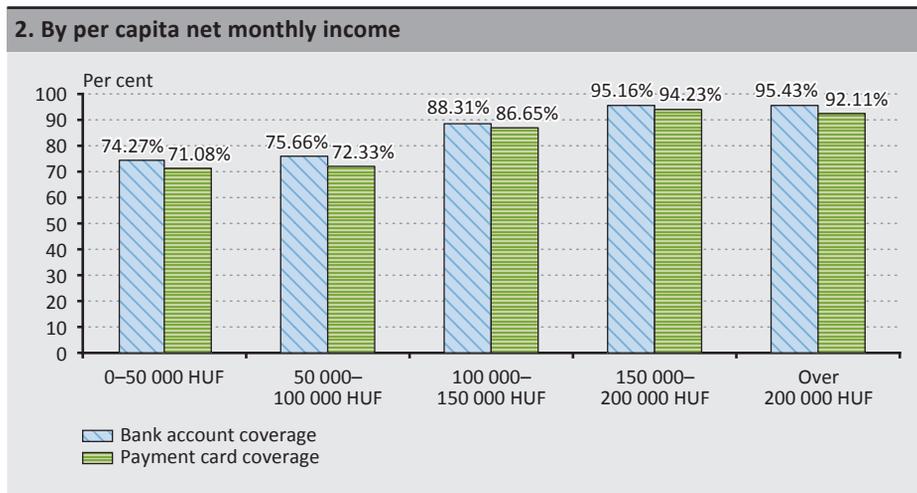
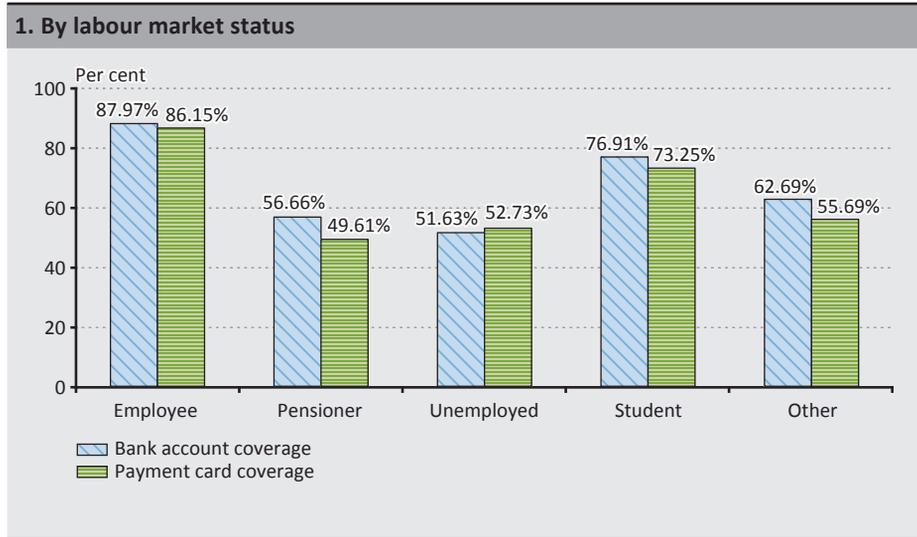
the current gap between different education categories as much as possible, the training of practical financial skills should be started at school as early as possible.

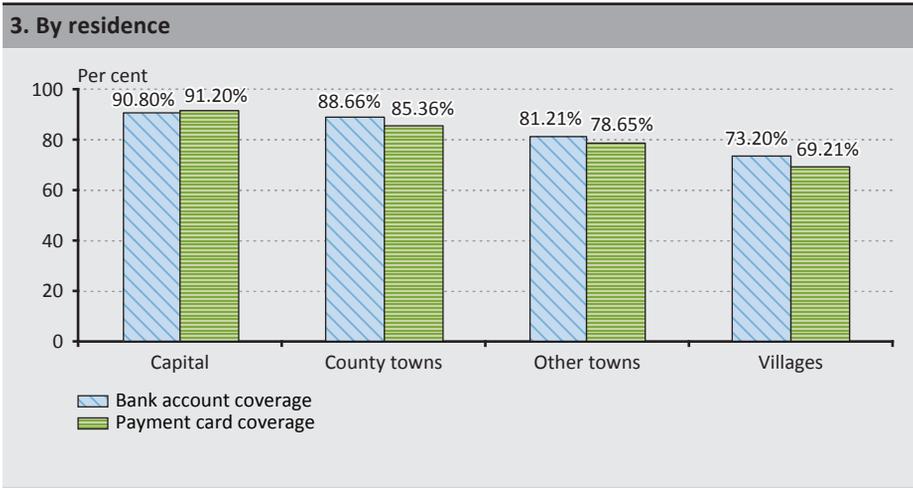
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## Annex

### 1. Bank account and payment card ownership by groups defined on the basis of socio-demographic characteristics





## 2. Statistics of monthly payment transactions by groups defined on the basis of socio-demographic characteristics<sup>8</sup>

1. By age (years)		18–29	30–39	40–49	50–59	60–
Cash withdrawal	proportion of users (conf. int. 95%)	0.80 (0.74–0.86)	0.81 (0.75–0.87)	0.80 (0.73–0.86)	0.82 (0.76–0.88)	0.82 (0.76–0.88)
	average number of transactions per month (conf. int. 95%)	1.5 (1.4–1.7)	1.7 (1.5–1.8)	1.7 (1.5–1.8)	1.7 (1.5–1.9)	1.5 (1.4–1.6)
	average value of transactions per month (HUF) (conf. int. 95%)	<b>49 943</b> (43 337–56 550)	73 730 (63 206–84 255)	77 201 (68 388–86 013)	65 804 (58 338–73 269)	70 711 (64 437–76 985)
Cash payment	proportion of users (conf. int. 95%)	1.00 (0.99–1.01)	0.99 (0.97–1)	0.99 (0.97–1)	0.98 (0.96–1)	0.98 (0.97–1)
	average number of transactions per month (conf. int. 95%)	29.8 (25.8–33.9)	29.0 (25.9–32.1)	27.5 (24.2–30.8)	27.6 (24.2–31)	23.8 (21.7–25.9)
	average value of transactions per month (HUF) (conf. int. 95%)	43 575 (34 413–52 737)	52 460 (46 350–58 570)	53 547 (47 180–59 913)	55 767 (46 344–65 189)	47 953 (42 469–53 436)
Card payment	proportion of users (conf. int. 95%)	0.67 (0.6–0.74)	0.63 (0.56–0.71)	0.64 (0.56–0.72)	0.58 (0.5–0.66)	<b>0.38</b> (0.31–0.46)
	average number of transactions per month (conf. int. 95%)	<b>6.6</b> (5.4–7.8)	8.8 (7.1–10.6)	10.0 (8–12)	8.9 (7.1–10.7)	<b>6.6</b> (5.2–7.9)
	average value of transactions per month (HUF) (conf. int. 95%)	<b>24 541</b> (20 612–28 471)	39 682 (32 716–46 648)	43 259 (35 510–51 009)	37 054 (30 246–43 862)	29 783 (24 076–35 491)
Credit transfer	proportion of users (conf. int. 95%)	0.21 (0.15–0.28)	0.34 (0.27–0.41)	0.29 (0.22–0.37)	0.24 (0.17–0.31)	<b>0.14</b> (0.09–0.19)
	average number of transactions per month (conf. int. 95%)	2.3 (1.7–2.9)	2.7 (1.8–3.5)	2.7 (2.2–3.3)	2.5 (1.7–3.3)	3.0 (1.8–4.2)
	average value of transactions per month (HUF) (conf. int. 95%)	25 210 (17 946–32 474)	35 687 (27 376–43 998)	36 954 (26 926–46 982)	30 604 (23 113–38 095)	34 825 (23 901–45 750)
Direct debit	proportion of users (conf. int. 95%)	<b>0.13</b> (0.08–0.18)	0.28 (0.21–0.35)	0.30 (0.23–0.37)	0.31 (0.24–0.38)	0.35 (0.28–0.42)
	average number of transactions per month (conf. int. 95%)	2.6 (1.8–3.4)	3.0 (2.4–3.6)	3.2 (2.6–3.8)	2.5 (1.9–3.1)	3.6 (2.9–4.3)
	average value of transactions per month (HUF) (conf. int. 95%)	31 987 (21 419–42 554)	41 735 (33 378–50 092)	41 459 (29 880–53 037)	38 290 (24 453–52 127)	34 606 (28 793–40 419)
Postal cheques	proportion of users (conf. int. 95%)	<b>0.44</b> (0.37–0.51)	<b>0.64</b> (0.58–0.71)	<b>0.74</b> (0.68–0.81)	0.76 (0.69–0.82)	0.82 (0.77–0.86)
	average number of transactions per month (conf. int. 95%)	2.7 (2.3–3)	3.0 (2.7–3.3)	3.2 (2.9–3.4)	3.0 (2.7–3.3)	3.2 (3–3.4)
	average value of transactions per month (HUF) (conf. int. 95%)	37 742 (28 941–46 543)	39 008 (34 594–43 421)	45 839 (40 710–50 967)	35 653 (31 792–39 514)	36 143 (32 215–40 072)

<sup>8</sup> In the tables means highlighted in bold mark the means the deviation of which from another mean or more means in the specific row holds the greatest significance for the purposes of our analysis

<b>2. By education level</b>		8 classes or less	Vocational school	High school	University
Cash withdrawal	proportion of users (conf. int. 95%)	0.7 (0.62–0.79)	0.76 (0.71–0.82)	<b>0.85</b> (0.81–0.89)	<b>0.89</b> (0.84–0.94)
	average number of transactions per month (conf. int. 95%)	<b>1.3</b> (1.2–1.5)	<b>1.5</b> (1.4–1.6)	<b>1.7</b> (1.5–1.8)	<b>1.9</b> (1.7–2.1)
	average value of transactions per month (HUF) (conf. int. 95%)	64 160 (55 504–72 815)	76 330 (67 653–85 007)	61 823 (56 906–66 740)	66 314 (58 648–73 980)
Cash payment	proportion of users (conf. int. 95%)	0.98 (0.97–1)	0.99 (0.98–1)	0.98 (0.97–1)	0.99 (0.98–1.01)
	average number of transactions per month (conf. int. 95%)	22.5 (20.5–24.6)	28.7 (26.1–31.2)	28.6 (25.9–31.4)	27.4 (23.9–30.9)
	average value of transactions per month (HUF) (conf. int. 95%)	48 726 (40 510–56 942)	52 737 (47 445–58 028)	49 493 (44 401–54 586)	49 685 (40 311–59 059)
Card payment	proportion of users (conf. int. 95%)	<b>0.29</b> (0.2–0.37)	<b>0.47</b> (0.41–0.54)	<b>0.67</b> (0.62–0.72)	<b>0.79</b> (0.72–0.86)
	average number of transactions per month (conf. int. 95%)	<b>2.5</b> (1.8–3.2)	<b>6.8</b> (5.7–8)	<b>7.3</b> (6.4–8.1)	<b>12.6</b> (10.4–14.8)
	average value of transactions per month (HUF) (conf. int. 95%)	<b>19 234</b> (9 993–28 475)	<b>29 810</b> (25 651–33 969)	<b>32 660</b> (28 530–36 790)	<b>47 834</b> (40 482–55 186)
Credit transfer	proportion of users (conf. int. 95%)	0.09 (0.03–0.14)	0.15 (0.1–0.19)	<b>0.25</b> (0.2–0.3)	<b>0.50</b> (0.42–0.58)
	average number of transactions per month (conf. int. 95%)	1.3 (1–1.7)	1.8 (1.3–2.3)	<b>2.2</b> (1.8–2.6)	<b>3.5</b> (2.8–4.3)
	average value of transactions per month (HUF) (conf. int. 95%)	30 496 (15 865–45 127)	31 327 (22 395–40 259)	27 604 (22 493–32 714)	38 613 (30 838–46 387)
Direct debit	proportion of users (conf. int. 95%)	<b>0.13</b> (0.07–0.19)	<b>0.21</b> (0.16–0.26)	<b>0.27</b> (0.22–0.32)	<b>0.49</b> (0.4–0.57)
	average number of transactions per month (conf. int. 95%)	1.9 (1.2–2.6)	2.6 (2–3.1)	2.6 (2.2–3)	<b>4.1</b> (3.5–4.7)
	average value of transactions per month (HUF) (conf. int. 95%)	39 761 (–7 840–87 362)	30 190 (23 653–36 727)	33 405 (27 128–39 682)	<b>48 053</b> (41 282–54 825)
Postal cheques	proportion of users (conf. int. 95%)	0.81 (0.76–0.87)	0.77 (0.72–0.82)	<b>0.65</b> (0.61–0.7)	<b>0.47</b> (0.39–0.55)
	average number of transactions per month (conf. int. 95%)	2.8 (2.6–3)	3.2 (3–3.4)	3.2 (3–3.4)	3.1 (2.7–3.4)
	average value of transactions per month (HUF) (conf. int. 95%)	32 532 (28 380–36 684)	41 865 (37 912–45 817)	38 384 (34 952–41 817)	42 353 (34 176–50 530)

<b>3. By labour market status</b>		Employee	Pensioner	Unemployed	Student	Other*
Cash withdrawal	proportion of users (conf. int. 95%)	<b>0.86</b> (0.83–0.89)	<b>0.82</b> (0.76–0.88)	0.55 (0.38–0.73)	0.61 (0.47–0.75)	0.69 (0.59–0.8)
	average number of transactions per month (conf. int. 95%)	1.7 (1.6–1.8)	1.5 (1.3–1.6)	1.7 (1.2–2.1)	1.4 (1–1.8)	1.4 (1.2–1.6)
	average value of transactions per month (HUF) (conf. int. 95%)	71 193 (66 429–75 958)	69 955 (62 978–76 933)	<b>43 235</b> (25 740–60 730)	<b>18 167</b> (13 070–23 264)	62 978 (51 151–74 806)
Cash payment	proportion of users (conf. int. 95%)	0.99 (0.98–1)	0.99 (0.97–1)	0.98 (0.95–1.02)	1.00 –	0.97 (0.93–1)
	average number of transactions per month (conf. int. 95%)	29.8 (27.8–31.9)	23.6 (21.5–25.6)	24.3 (19.4–29.3)	21.9 (18.4–25.4)	26.1 (20.8–31.4)
	average value of transactions per month (HUF) (conf. int. 95%)	54 841 (50 132–59 550)	48 195 (42 304–54 085)	<b>35 932</b> (27 835–44 029)	<b>27 422</b> (13 577–41 267)	49 251 (40 291–58 211)
Card payment	proportion of users (conf. int. 95%)	<b>0.68</b> (0.64–0.72)	0.39 (0.31–0.46)	0.35 (0.19–0.52)	0.47 (0.33–0.62)	0.44 (0.33–0.56)
	average number of transactions per month (conf. int. 95%)	<b>9.1</b> (8.2–10.1)	5.8 (4.4–7.1)	5.2 (2.1–8.2)	5.8 (3.7–7.8)	6.0 (3.8–8.2)
	average value of transactions per month (HUF) (conf. int. 95%)	<b>39 401</b> (35 741–43 062)	28 231 (21 900–34 563)	17 739 (10 526–24 952)	13 213 (8 267–18 159)	19 887 (14 285–25 489)
Credit transfer	proportion of users (conf. int. 95%)	<b>0.30</b> (0.26–0.34)	0.14 (0.09–0.19)	0.13 (0.01–0.25)	0.12 (0.02–0.21)	0.22 (0.12–0.31)
	average number of transactions per month (conf. int. 95%)	2.8 (2.4–3.2)	2.7 (1.6–3.7)	1.3 (0.9–1.8)	1.9 (0.5–3.3)	1.4 (1–1.8)
	average value of transactions per month (HUF) (conf. int. 95%)	<b>35 517</b> (30 616–40 418)	<b>31 213</b> (21 577–40 849)	12 533 (5 775–19 292)	10 280 (5 774–14 786)	23 629 (14 136–33 123)
Direct debit	proportion of users (conf. int. 95%)	<b>0.30</b> (0.26–0.34)	<b>0.33</b> (0.26–0.41)	0.09 (–0.01–0.18)	<b>0.00</b> –	0.20 (0.11–0.3)
	average number of transactions per month (conf. int. 95%)	3.0 (2.7–3.3)	3.6 (2.8–4.4)	2.7 (–1.9–7.3)	–	1.7 (1–2.4)
	average value of transactions per month (HUF) (conf. int. 95%)	39 196 (34 214–44 179)	34 928 (28 610–41 246)	24 090 (–15 010–63 189)	–	42 068 (–2 273–86 409)
Postal cheques	proportion of users (conf. int. 95%)	0.66 (0.62–0.7)	<b>0.83</b> (0.79–0.88)	0.58 (0.44–0.72)	<b>0.12</b> (0.02–0.21)	<b>0.79</b> (0.71–0.88)
	average number of transactions per month (conf. int. 95%)	3.0 (2.9–3.2)	<b>3.3</b> (3.1–3.5)	2.5 (1.8–3.2)	<b>2.1</b> (1.6–2.7)	2.9 (2.5–3.2)
	average value of transactions per month (HUF) (conf. int. 95%)	41 204 (38 243–44 164)	35 912 (31 775–40 049)	31 680 (22 930–40 429)	20 376 (6 545–34 207)	36 226 (30 428–42 024)
* Childcare allowance, childcare benefit, disability pensioner, homemaker, other inactive, other dependant						

4. By per capita net monthly income (HUF)		0–50 000	50 001–100 000	100 001–150 000	150 001–200 000	200 001–
Cash withdrawal	proportion of users (conf. int. 95%)	0.75 (0.67–0.84)	0.79 (0.74–0.83)	0.85 (0.81–0.9)	0.90 (0.85–0.96)	0.83 (0.71–0.94)
	average number of transactions per month (conf. int. 95%)	<b>1.3</b> (1.2–1.5)	<b>1.5</b> (1.4–1.6)	<b>1.6</b> (1.5–1.7)	<b>1.9</b> (1.7–2.1)	<b>2.1</b> (1.5–2.7)
	average value of transactions per month (HUF) (conf. int. 95%)	<b>44 650</b> (37 836–51 463)	<b>59 573</b> (54 985–64 162)	<b>74 337</b> (68 459–80 216)	<b>83 280</b> (67 888–98 673)	<b>86 051</b> (67 242–104 861)
Cash payment	proportion of users (conf. int. 95%)	0.98 (0.95–1)	0.98 (0.97–1)	1.00 (0.99–1)	0.99 (0.96–1.01)	1.00 –
	average number of transactions per month (conf. int. 95%)	26.3 (22.4–30.2)	26.4 (24.3–28.5)	27.6 (25–30.1)	33.3 (28.3–38.3)	20.5 (17–24)
	average value of transactions per month (HUF) (conf. int. 95%)	<b>39 381</b> (33 107–45 655)	<b>49 450</b> (44 247–54 653)	<b>53 462</b> (47 566–59 357)	<b>53 909</b> (42 518–65 299)	<b>73 523</b> (56 370–90 676)
Card payment	proportion of users (conf. int. 95%)	<b>0.41</b> (0.31–0.51)	<b>0.53</b> (0.47–0.59)	<b>0.64</b> (0.58–0.7)	<b>0.72</b> (0.63–0.81)	<b>0.84</b> (0.73–0.96)
	average number of transactions per month (conf. int. 95%)	<b>5.9</b> (3.2–8.7)	<b>6.0</b> (5–7)	<b>8.6</b> (7.4–9.8)	<b>10.4</b> (8.7–12.1)	<b>16.3</b> (11.9–20.7)
	average value of transactions per month (HUF) (conf. int. 95%)	<b>15 841</b> (12 029–19 652)	<b>26 987</b> (23 431–30 543)	<b>35 267</b> (30 638–39 896)	<b>50 077</b> (42 491–57 664)	<b>64 276</b> (43 608–84 944)
Credit transfer	proportion of users (conf. int. 95%)	<b>0.13</b> (0.06–0.19)	<b>0.20</b> (0.16–0.25)	<b>0.29</b> (0.24–0.35)	<b>0.26</b> (0.17–0.35)	<b>0.62</b> (0.47–0.77)
	average number of transactions per month (conf. int. 95%)	2.6 (1.7–3.4)	2.0 (1.6–2.4)	2.2 (1.7–2.6)	3.0 (2–4)	<b>5.2</b> (3.3–7)
	average value of transactions per month (HUF) (conf. int. 95%)	26 567 (15 303–37 831)	31 023 (24 871–37 175)	25 851 (19 985–31 716)	<b>47 979</b> (33 045–62 912)	<b>46 515</b> (34 463–58 567)
Direct debit	proportion of users (conf. int. 95%)	0.19 (0.11–0.26)	0.23 (0.19–0.28)	<b>0.32</b> (0.26–0.37)	<b>0.36</b> (0.27–0.46)	<b>0.44</b> (0.29–0.6)
	average number of transactions per month (conf. int. 95%)	4.6 (2.7–6.5)	2.2 (1.8–2.6)	3.1 (2.6–3.6)	3.6 (3–4.3)	3.5 (2.5–4.5)
	average value of transactions per month (HUF) (conf. int. 95%)	39 794 (26 596–52 992)	28 386 (23 253–33 518)	39 307 (31 401–47 212)	40 740 (32 344–49 137)	<b>66 045</b> (33 805–98 285)
Postal cheques	proportion of users (conf. int. 95%)	0.60 (0.52–0.68)	0.76 (0.72–0.8)	0.72 (0.66–0.77)	0.60 (0.51–0.7)	0.52 (0.37–0.67)
	average number of transactions per month (conf. int. 95%)	2.7 (2.3–3)	3.0 (2.9–3.2)	3.3 (3–3.6)	3.1 (2.7–3.5)	3.5 (2.8–4.1)
	average value of transactions per month (HUF) (conf. int. 95%)	32 978 (27 742–38 214)	35 668 (33 070–38 266)	40 628 (36 546–44 711)	44 643 (37 249–52 038)	<b>70 342</b> (38 577–102 107)

5. By residence		Capital	County towns	Other towns	Villages
Cash withdrawal	proportion of users (conf. int. 95%)	<b>0.89</b> (0.84–0.94)	0.81 (0.75–0.87)	0.79 (0.74–0.84)	0.78 (0.73–0.83)
	average number of transactions per month (conf. int. 95%)	1.8 (1.6–2)	1.6 (1.5–1.7)	1.6 (1.5–1.8)	1.5 (1.4–1.6)
	average value of transactions per month (HUF) (conf. int. 95%)	70 611 (63 570–77 652)	64 727 (57 091–72 363)	67 176 (61 354–72 998)	67 205 (58 363–76 046)
Cash payment	proportion of users (conf. int. 95%)	1.00 (0.99–1.01)	1.00 –	0.98 (0.97–1)	0.98 (0.96–0.99)
	average number of transactions per month (conf. int. 95%)	<b>33.6</b> (29.6–37.5)	26.6 (23.4–29.8)	25.4 (23.1–27.7)	25.7 (23.5–27.9)
	average value of transactions per month (HUF) (conf. int. 95%)	53 088 (46 105–60 072)	51 878 (42 247–61 509)	47 805 (43 409–52 202)	50 519 (44 685–56 353)
Card payment	proportion of users (conf. int. 95%)	<b>0.73</b> (0.66–0.8)	0.54 (0.47–0.62)	0.52 (0.46–0.59)	0.56 (0.5–0.63)
	average number of transactions per month (conf. int. 95%)	<b>10.0</b> (8.4–11.6)	7.7 (6.1–9.4)	6.7 (5.4–7.9)	8.8 (7.2–10.3)
	average value of transactions per month (HUF) (conf. int. 95%)	39 757 (33 938–45 577)	36 218 (29 649–42 787)	30 887 (25 242–36 533)	34 108 (28 794–39 422)
Credit transfer	proportion of users (conf. int. 95%)	0.29 (0.22–0.36)	0.21 (0.15–0.27)	0.26 (0.21–0.31)	0.22 (0.17–0.28)
	average number of transactions per month (conf. int. 95%)	2.9 (1.7–4)	3.1 (2.5–3.7)	2.3 (1.7–2.9)	2.5 (1.9–3.1)
	average value of transactions per month (HUF) (conf. int. 95%)	33 329 (22 921–43 738)	35 371 (27 318–43 424)	30 929 (24 480–37 379)	34 187 (26 191–42 183)
Direct debit	proportion of users (conf. int. 95%)	0.26 (0.19–0.33)	0.36 (0.29–0.43)	0.23 (0.18–0.28)	0.26 (0.2–0.32)
	average number of transactions per month (conf. int. 95%)	<b>4.2</b> (3.5–4.8)	<b>3.7</b> (3–4.4)	2.3 (1.9–2.7)	2.3 (1.8–2.8)
	average value of transactions per month (HUF) (conf. int. 95%)	<b>52 256</b> (43 320–61 192)	37 734 (31 593–43 875)	32 634 (24 674–40 593)	33 870 (21 795–45 945)
Postal cheques	proportion of users (conf. int. 95%)	0.66 (0.59–0.73)	0.61 (0.54–0.67)	0.70 (0.65–0.75)	<b>0.76</b> (0.71–0.81)
	average number of transactions per month (conf. int. 95%)	3.5 (3.2–3.8)	3.2 (2.9–3.6)	3.0 (2.8–3.2)	2.8 (2.7–3)
	average value of transactions per month (HUF) (conf. int. 95%)	46 230 (39 427–53 034)	39 311 (34 897–43 725)	38 450 (34 593–42 306)	34 303 (30 972–37 634)

<b>3. Estimated coefficients of the regressions explaining the use of electronic payment methods</b>								
	Card payment	Direct debit	Cash payment			Postal cheques		
	Value of transactions per month	Value of transactions per month	Usage	Number of transactions per month	Value of transactions per month	Usage	Number of transactions per month	Value of transactions per month
<b>Age (18-29)</b>								
(30-39)	4 911	2 511	0.37	-3.07	509	2.22*	0.31	184
(40-49)	11 047*	5 236	0.46	-4.91	2 724	2.61*	0.51*	8 035
(50-59)	3 950	4 751	0.35	-4.20	4 284	2.30*	0.31	-2 963
(60-)	118	-8 410	0.26	-6.48	-3 539	1.96	0.30	-1 052
<b>Per capita income (in 10 thousand HUF)</b>	2 117.03*	997.42*	1.06	-0.124	1 163.58*	0.99	0.01	1 175.68*
<b>School qualification (8 elementary classes or less)</b>								
Vocational school	1 523	-11 183	1.02	4.04	-2 730	0.68	0.39*	4 648
High school	2 757	-9 311	0.42	3.55	-5 950	0.55*	0.42*	-1 075
University	10 234	1 265	0.99	1.51	-11 989	0.21*	0.17	-57
<b>Labour market activity (Employee)</b>								
Pensioner	-5 167	11 504	1.46	-2.17	-3 148	2.03*	0.42	-1 434
Unemployed	-6 728	-7 439	0.62	-4.26	-12 609	0.57	-0.37	-926
Student	-7 498			-11.95*	-22 263*	0.10*	-0.48	-11 882
Other	-10 375	9 130	0.53	-1.84	-3 249	1.34	0.11	1 627
<b>Type of settlement (Capital)</b>								
County towns	-3 173	-7 522		-6.12*	2 370	0.70	-0.25	-4 660
Other towns	-4 504	-10 981	0.35	-7.74*	-3 631	0.86	-0.40*	-5 351
Villages	1 883	-9 786	0.25	-7.15*	548	0.98	-0.55*	-7 937*
<b>Constant</b>	5 272	34 902*	349.44*	37.20*	46 404*	2.78*	2.62*	30 685*
N	435	203	955	942	911	984	695	661
R <sup>2</sup>	0.2578	0.1143	0.1045	0.0464	0.0325	0.1302	0.0515	0.0857
AUC			0.7961			0.7286		

\* Significant coefficients and odds ratios with a 95% confidence interval

#### 4. Ratios measuring the choices of electronic payment methods by groups defined on the basis of socio-demographic characteristics

1. By age (years)					
	18–29	30–39	40–49	50–59	60–
Proportion of electronic payments (conf. int. 95%)	0.24 (0.2–0.28)	0.27 (0.22–0.32)	0.27 (0.22–0.32)	0.26 (0.21–0.3)	0.14 (0.11–0.17)
Proportion of card payments (conf. int. 95%)	0.24 (0.2–0.28)	0.27 (0.23–0.32)	0.29 (0.24–0.34)	0.26 (0.21–0.31)	0.16 (0.12–0.2)
Proportion of credit transfers (conf. int. 95%)	0.05 (0.03–0.06)	0.07 (0.05–0.09)	0.05 (0.03–0.07)	0.05 (0.03–0.07)	0.03 (0.02–0.04)
Proportion of direct debits (conf. int. 95%)	0.17 (0.09–0.25)	0.26 (0.19–0.33)	0.27 (0.19–0.34)	0.25 (0.18–0.31)	0.28 (0.21–0.34)

2. By labour market status					
	Employee	Pensioner	Unemployed	Student	Other*
Proportion of electronic payments (conf. int. 95%)	0.30 (0.27–0.33)	0.14 (0.11–0.17)	0.08 (0.03–0.13)	0.16 (0.09–0.23)	0.14 (0.09–0.19)
Proportion of card payments (conf. int. 95%)	0.30 (0.27–0.32)	0.16 (0.12–0.21)	0.10 (0.04–0.16)	0.16 (0.09–0.24)	0.15 (0.09–0.2)
Proportion of credit transfers (conf. int. 95%)	0.06 (0.05–0.07)	0.03 (0.02–0.05)	0.03 (–0.01–0.06)	0.02 (0–0.04)	0.05 (0.02–0.09)
Proportion of direct debits (conf. int. 95%)	0.28 (0.23–0.32)	0.27 (0.2–0.33)	0.08 (–0.04–0.21)	0.00 –	0.13 (0.05–0.21)

\* Childcare allowance, childcare benefit, disability pensioner, homemaker, other inactive, other dependant

3. By residence				
	Capital	County towns	Other towns	Villages
Proportion of electronic payments (conf. int. 95%)	0.29 (0.24–0.34)	0.27 (0.22–0.31)	0.19 (0.16–0.22)	0.19 (0.16–0.22)
Proportion of card payments (conf. int. 95%)	0.30 (0.25–0.34)	0.25 (0.2–0.3)	0.20 (0.17–0.23)	0.25 (0.21–0.29)
Proportion of credit transfers (conf. int. 95%)	0.05 (0.03–0.07)	0.04 (0.03–0.06)	0.05 (0.04–0.06)	0.05 (0.03–0.07)
Proportion of direct debits (conf. int. 95%)	0.29 (0.21–0.37)	0.35 (0.27–0.42)	0.21 (0.16–0.26)	0.20 (0.15–0.25)