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* Views expressed are those of the authors and do not necessarily reflect official positions of De Nederlandsche Bank.

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Paying in a blink of an eye: it hurts less, but you spend more*

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Abstract

Consumers have been switching from cash to electronic means of paying and have become increasingly fond of online shopping. The COVID-19 pandemic has accelerated these trends. What these trends imply for the pain of paying that consumers experience has barely been studied. As pain of paying can help prevent overspending, it is important to research this topic. We designed a detailed consumer survey to do so. Using this rich data on the Netherlands, we find that electronic payments – both online and offline – hurt less than cash payments. This holds especially for contactless payments and iDEAL payments, a frequently used online payment method in the Netherlands. Interestingly, we find this for older people in particular but not for teenagers. Furthermore, the pain of paying is positively related to the price of the product or service and slightly lower for a fun trip compared to grocery shopping. The pain of paying is relatively high for women, highly educated people, people without a partner, people who find it hard to make ends meet with their income, tightwads (i.e. frugal people), people who frequently check their payments account and people with a low level of financial literacy. On average, cash is perceived to be most helpful in preventing overspending, whereas contactless payments are the least helpful.

Keywords: D12; D91; E42

JEL codes: consumer data, payments, pain of paying, debit card, cash, contactless payment

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1. Introduction

Paying is part of everyday life. It is something we – unfortunately – all have to do. The way people pay varies. Whereas some people like to pay with banknotes and coins, others prefer cashless payments, such as contactless payments by mobile phone or debit card, or credit card payments. Consumers have been switching from cash to electronic payment methods. This trend has been accelerated by the COVID-19 pandemic. Fear of infection has induced a shift to contactless payment instruments in many countries (e.g. ECB, 2020; Jonker et al., 2022; Chen et al., 2020; Wisniewski et al. 2021). Banks and retailers have promoted these instruments. In various countries the limits for contactless payments were increased (Mastercard, 2020). What these trends imply for the pain of paying that consumers experience is a topic that has barely been studied. As pain of paying can help prevent overspending, it is important to research this topic.

Our research is among the first endeavours to research the pain of paying with a wide range of payment instruments – including contactless payments by debit card and smartphone and online payment methods – using survey data collected among a large group of consumers. Most prior studies are based on small-scale experiments. We have collected data from a representative group of Dutch consumers. We apply a discrete choice experiment. To test how the pain of paying relates to the payment instrument used, the type of expenditure and the amount paid respondents were represented with hypothetical situations ('vignettes'). We use rich information on personal characteristics to research how the pain of paying differs between people.

Foreshadowing our main results, we find that when you pay in the blink of an eye it hurts less, but you spend more. The pain of paying depends on the payment method, the type of expenditure and the amount paid. In general, electronic payments methods – both online and offline – hurt less than cash payments. This holds especially for contactless payments and iDEAL payments, a frequently used online payment method in the Netherlands. Interestingly, we find this for older people in particular but not for teenagers. Men experience lower levels of pain compared to women and there is a negative correlation between age and pain of paying, implying that older people experience less pain. Moreover, the harder people find it to make ends meet with their income, the more pain they experience while paying. The pain of paying is also relatively high for people with lower levels of financial literacy and for tightwads, i.e. those who are excessively frugal or even miserly. On average, respondents find cash most helpful to prevent overspending and to track their expenditures, whereas contactless payments – especially via a mobile phone – are least helpful.

Payments research is a multidisciplinary area that researchers from different fields tackle. These fields include economics, psychology and marketing and consumer research. For example, whereas some researchers focus on the impact of sociological or psychological factors (Khan et

al., 2015; van der Cruijsen and van der Horst 2017; van der Cruijsen and Knoben, 2021), others are particularly interested in how external shocks affect payment behaviour (Jonker et al., 2022). Many studies have shown that payment behaviour relates to personal characteristics, payment instrument characteristics, the acceptance of payment instruments and price incentives (e.g. Kosse (2010)). Our research relates most strongly to marketing and consumer research on the relationship between payment choice and spending behaviour (e.g. Soman (2001)).

The pain of paying is defined by Zellmayer (1996) as the negative emotions people experience while paying for goods or services. The level of pain is known to be affected by the payment method, transparency of the method, timing of the purchase and price of the product or service. Additionally, the pain of paying affects spending behaviour among consumers. We discuss these elements in the upcoming paragraphs.

The pain of paying is positively related to the transparency of the payment instrument (Raghubir and Srivastava, 2008; Soman 2001, 2003; Thomas et al., 2011). The transparency of cash payments is greater than that of electronic payments. In the case of cash payments people experience the pain of loss intensely as they need to check the amount, select the right bills and coins, hand these over, receive their change and check whether the amount they have received is correct (Raghubir and Srivastava 2008; Soman 2003). The pain of paying is lower when using credit cards (Raghubir and Srivastava, 2008; Soman, 2003; Thomas et al., 2011). In this case the sense of parting is temporary and when signing the receipt, consumers check the amount. The transparency of mobile payments is lower than the transparency of cash and credit card payments. It is not necessary to check the amount in the case of mobile payments. People experience a lower pain of paying because they do not necessarily sense a loss when paying with their smartphone (Falk et al., 2016). Ceravolo et al. (2019) conducted a functional magnetic resonance imaging (fMRI) experiment. Participants observed videoclips that varied for the method of payment displayed (cash, card, smartphone). Their findings suggest that cash enhances the salience and negative affective valence of parting with money as there is greater activity in brain areas processing the perceived utility of motor behaviour and individual emotional involvement.

The pain of paying also depends on the price of the product or service bought. There is a positive relationship between the price and the pain of payment (Shah et al., 2016). Shah (2015) finds an interaction effect. When the price is low, the pain of paying is low, and whether people buy the product does not depend on the payment method. However, when the price is high, it matters which payment instrument is used.

Various studies have shown that consumer spending depends on the payment instrument used. Many studies compare credit cards and cash and find that consumers spend more when they use credit cards (Feinberg, 1986). Credit cards and cash not only differ with respect to the

representation of money itself, but also because there is a temporal separation between consumption and payment in the case of credit cards (Prelec and Loewenstein, 1998). It is therefore important to research a wider range of payment instruments. Contactless payments by mobile phone or debit card and traditional debit card payments (where the debit card needs to be inserted in the payment terminal and a PIN code needs to be manually entered) are ubiquitous and immediate, making them a suitable substitute for cash. In all cases there is a tight coupling between consumption and payment. The payment instruments differ in the representation of money: physical and visible in the case of cash payments versus digital and invisible in the case of traditional debit card payments and contactless payments. This may result in differences in the pain of paying and therefore spending behaviour. Runnemark et al. (2015) use an experimental approach and find that the willingness to pay (WTP) is much higher for debit cards than cash. The average bid was 22-54% higher. Falk et al. (2016) find a higher WTP for mobile payments than for cash payments. Boden et al. (2020) show that WTP is higher for mobile payments than for credit card payments. Convenience, which is greater for mobile payments than for credit card payments, emerges as a mediator. Trütsch (2014) uses US data from the 2010 Survey of Consumer Payment Choice and finds that the adoption of contactless debit and credit cards leads to an increase of the spending ratio at the point of sale (POS) by 10% for debit cards and 8%for credit cards. Meyll and Walter (2019) find that the use of mobile payment technology is associated with increases in individuals' overall spending by credit card. Ahn and Nam (2022) show that financial knowledge has a moderating effect on the positive association between mobile payment use and overspending. Financial knowledge helps to lower the extent to which mobile payments exacerbate overspending.

The remainder of this paper is structured as follows. Section 2 describes our consumer survey. The descriptive results are in Section 3. Section 4 describes our empirical approach. Section 5 presents the regression results. We end with a discussion and conclusion in Section 6.

2. The survey

We designed a detailed consumer survey to measure: (1) payment behaviour and preferences, (2) pain of paying, and (3) spending behaviour in relation to payment instrument usage. The main survey questions are in Appendix A.

2.1 Data collection

The data was collected through the Centerpanel, which is an online panel managed by the research institute Centerdata.[1] This panel is an accurate representation of the Dutch-speaking population

[1] See Teppa and Vis (2012) for more information on the Centerpanel.

in the Netherlands, aged 16 years and older. The survey was distributed among 3,241 members of the Centerpanel between 29 October and 16 November 2021. The survey was completed by 2,497 respondents (77.0%) and partially by thirteen panel members (0.4%). In addition to the data collected in the survey, we use data of the annual DNB Household Survey (DHS) on demographic characteristics of the panel members, such as age, gender and income.

2.2 Survey design

The survey is built up in three parts: payment preferences and behaviour, the pain of paying and spending behaviour. The first part of the survey includes questions to gain insights into Dutch consumers' payment preferences and behaviour. Then, we ask questions to measure respondents' pain of paying in twelve different payment scenarios. Table 1 gives an overview of these scenarios.

Table 1. Respondents self-report their pain of paying in twelve different payment scenarios

POS or online	Type of expenditure	Payment method	Amount in euros (randomly assigned)
POS	Groceries at the supermarket	Cash Debit card traditional Contactless - debit card Contactless - mobile phone	5, 20, 50, 100, 500
POS	Fun trip	Cash Debit card – traditional Contactless - debit card Contactless - mobile phone	5, 20, 50, 100, 500
Online	Groceries at the supermarket	iDEAL Credit card	5, 20, 50, 100, 500
Online	Fun trip	iDEAL Credit card	5, 20, 50, 100, 500

The pain of paying is measured on a scale from 1 'absolutely no pain' to 7 'a lot of pain'. For each category (POS or online), there is one transaction in a supermarket, to cover the pain while paying for basic needs, and the other transaction considers paying for a fun trip, to capture the pain while paying for a non-essential service. In the case of the POS questions, respondents reported their pain of paying for four different payment methods: cash, debit card traditional, contactless by debit card and contactless by mobile phone. As regards the questions about online payments, we measure the pain of paying for an iDEAL payment[2] – a popular online payment method – and when using a credit card. For each scenario, we randomise the amount respondents had to pay, which ranges from 5 to 500 euros. Lastly, the survey includes several additional questions that help gain insight into the link between the payment method used and financial difficulties. For example, we ask questions to measure the extent to which different payment methods help prevent overspending and the degree to which they help consumers gain insight into their spending patterns.

[2] This payment method enables consumers to pay online through their own bank by using a bank app or online banking environment.

3. Survey outcomes: descriptive statistics

3.1 Payment preferences and behaviour

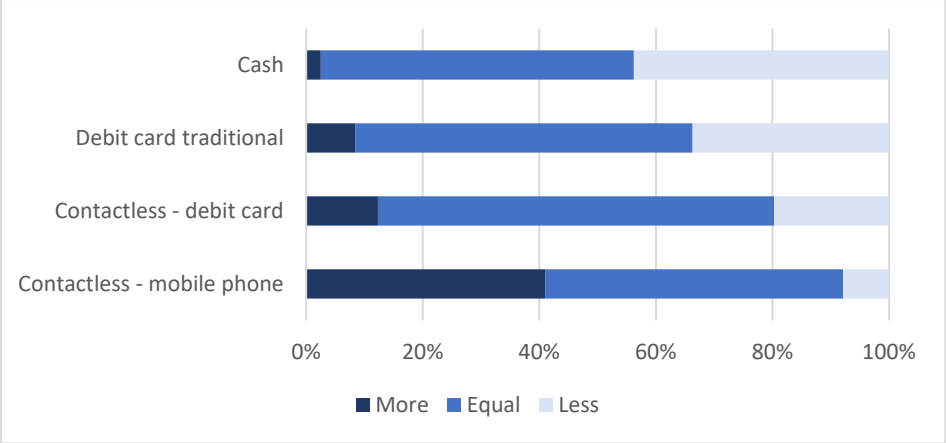
A majority of respondents prefer to pay contactless at the POS. Our survey starts by asking the respondents their payment preferences at a physical POS, for example in a restaurant or shop. As possible answers we list the most commonly used methods in the Netherlands: cash, debit card traditional, contactless by debit card, contactless via mobile phone, and include the answer option "other". 57% of the respondents have a preference for contactless payment with a debit card. An additional 11% state that contactless payment with a mobile phone is their preferred method. Cash is preferred by 14% of the respondents, and the traditional debit card payment by 17%. In addition, we specifically ask how many times they paid contactless in the month prior to the survey. 70% states that over half of their POS payments were contactless (either with a debit card or a mobile phone), while 10% never paid contactless.

The COVID-19 pandemic has drastically changed payment behaviour in the Netherlands. In Figure 1, we show the changes in how consumers paid at the end of 2021 compared to before the pandemic. Contactless payments by debit card clearly gained ground during the pandemic; 41% of the respondents report an increase in the share of POS payments with this payment method. The popularity of other payment instruments has decreased. This holds especially for cash and the traditional debit card, with respectively 44% and 34% of the respondents indicating a decline of usage. 33% of the respondents report unchanged payment behaviour.

These findings are in line with data on payment behaviour of Dutch consumers published by De Nederlandsche Bank (DNB, 2022). In the first phase of the pandemic there was a fear of infection via payment instruments as little was known about the virus. Some merchants requested card payments as this lowers the likelihood of hand contact. In addition, Dutch banks took measures to simplify contactless payments. The cumulative limit was increased from EUR 50 to EUR 100 on March 19 2020 (when consumers reach this amount after several transactions they need to enter a PIN code). The transaction limit was raised from EUR 25 to EUR 50 on March 24 2020 (a PIN code is needed for each transaction that reaches this limit). These factors have resulted in a change in payment behaviour. During the pandemic it became clear that the risk of contagion through payment instruments is very low (Tamele et al., 2021; Schijven et al., 2021; Todt et al., 2021). The Dutch public was informed by DNB and the ECB (Panetta, 2020; DNB, 2020). However, payment behaviour did not revert back to its pre-pandemic patterns. A possible explanation is that the pandemic has resulted in a better match between payment preferences and payment behaviour (Jonker et al., 2022). An earlier study on the Netherlands highlights that cash was used more frequently than one would expect based on stated payment preferences (van der Cruijsen et al., 2017). This research concludes that changing payment behaviour is a challenging

task; even when consumers' payment preferences change, they find it hard to change their payment behaviour. The pandemic might have helped expedite the alignment of people's payment behaviour to their payment preferences.

Figure 1. Contactless payments by debit card gained ground during the COVID-19 pandemic
Respondents were asked whether they used the payment method more, less or an equal number of times in the month of the survey compared to before the start of the COVID-19 pandemic.



Source: Centerpanel, 2021.

The COVID-19 pandemic has increased the popularity of online shopping. Before the pandemic 47% of the respondents shopped online less than once a month, while at the time of the survey this was only 40%. The number of respondents who shopped online over five times a month rose from 6% to 10%. A t-test shows a significant increase in the average number of times people shop online ($p < 0.001$).

Experience with different payment instruments varies between respondents. Almost all respondents (97%) have made traditional debit card payments and cash payments. The share of people that have experience with paying contactless by debit card is also high (90%), as well as the share of people that have experience with iDEAL (92%). More than half of the respondents have used a credit card (56%). Only 27% have experience with contactless payments by mobile phone. This method is relatively new in the Netherlands.

3.2 Pain of paying

The pain of paying depends on the payment instrument, the amount paid, the type of expenditure (groceries at the supermarket or a fun trip) and whether it is an POS or online payment. Figure 2 shows the average pain of paying in the different payment scenarios described in Table 1. First, we focus on the POS scenarios, where respondents were asked to rate the pain of paying they experience when using the following four payment methods: cash, traditional debit card, contactless with debit card or contactless with mobile phone. In Figure 2a we present the outcomes for grocery shopping at the supermarket, whereas Figure 2b captures the findings for

the fun trip scenario. Second, we look at the online scenarios. Respondents were asked to rate their pain of paying when paying online with iDEAL or with credit card. The results are shown in Figure 2c for the supermarket and 2d for the fun trip expenditures.

In general, cash and contactless payment with a mobile phone are the POS payment methods with the highest average pain of payment for both types of expenditures. The purchase amount determines which of the two methods is, on average, the most painful to pay with. For supermarket expenditures and the fun trip, we find that, for the lower purchase amounts (5, 20 and 50 euros), contactless payment with mobile phone is considered to be more painful compared to cash. For the purchase amounts of 100 and 500 euros the roles are reversed. There is a positive correlation between amount and level of pain: the higher the purchase amount, the higher the pain of paying.

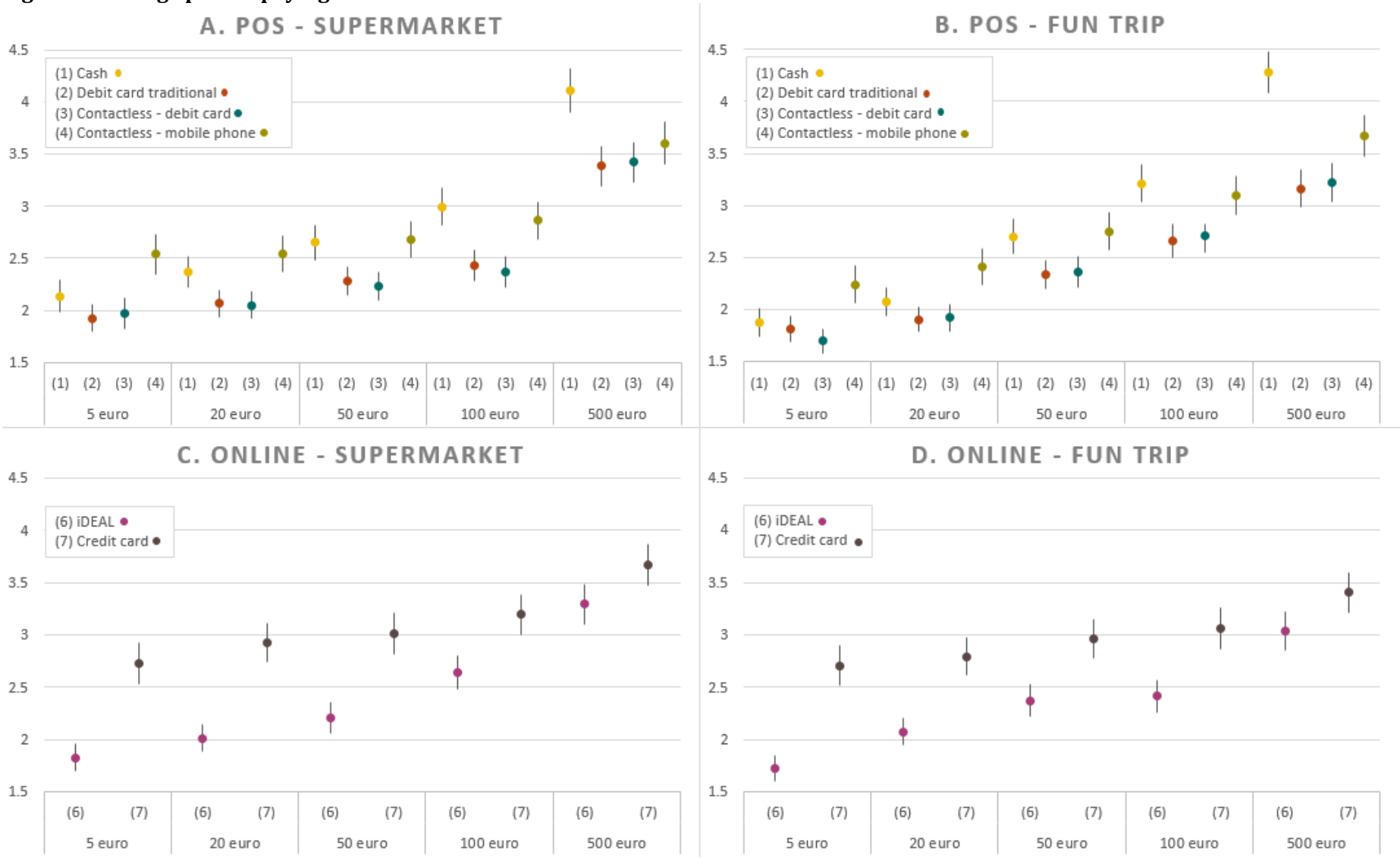
Paired t-tests confirm that debit card payments (traditional or contactless) are considered to be less painful than cash and mobile phone payments. We find significant differences in the average pain of payment for the different amounts and both types of expenditures. These differences are significant at a 5% significance level. The only exception is the 5 euro fun trip scenario, where there is no significant difference between cash and traditional debit card.

Additionally, we find no significant difference between traditional debit card and contactless debit card payments, except for the fun trip payment of 5 euros. That difference is significant at a 5% significance level, and contactless payment is on average more painful than traditional debit card payment.

Moreover, the differences between cash payments and contactless payments with a mobile phone are significant, at a 1% significance level, for 5 euros and 500 euros for both types of expenditures, and 20 euros for the fun trip only. Cash is less painful for lower amounts, while contactless with mobile phone is considered less painful for higher amounts.

It is clear that, regardless of amount or type of expenditure, credit card payments are considered to be more painful than paying with iDEAL. This difference is significant at a 1% significance level. Here we also find a positive correlation between the amount paid and level of pain.

Figure 2. Average pain of paying



Note: The figure shows the average pain of paying with 95% confidence intervals. The pain of paying is measured on a scale from 1 'absolutely no pain' to 7 'a lot of pain'.

3.3 Spending behaviour

Table 2 shows that, on average, respondents state that cash is the most useful payment method to prevent overspending and to understand their own spending behaviour. Both aspects are measured on a scale from 1 'helps not at all' to 7 'helps very well'. Cash gets a score of 4.2 for preventing overspending and a 4.4 for gaining insights into how much one spends and on what. Cash is especially in the lead when it comes to its helpfulness in preventing overspending. Overall, contactless payments by mobile phone are the least useful in preventing overspending and tracking expenditures, with scores of 2.4 and 3.1, respectively.[3]

Table 2. Cash is the most helpful payment method to prevent overspending and to gain insight into spending behaviour

Helpfulness of payment instruments is measured on a scale from 1 'does not help at all' to 7 'helps very well'

	Prevent overspending	Gain insights into how much is spent and on what
Cash	4.2	4.4
Debit card traditional	2.8	3.7
Contactless - debit card	2.6	3.5
Contactless - mobile phone	2.4	3.1

Similarly, we find that, on average, consumers tend to check the exact amount most often when paying with cash and the least when paying contactless with a mobile phone. On a scale from 1 'never' to 5 'always', for cash the average is 4.1 – close to 4 'often' – and for contactless with mobile phone 3.4, which is somewhat higher than 3 'half of the time'. These averages are 3.9 for traditional debit card payments and 3.8 for contactless payments by debit card. Note that respondents could also chose the answer 'I do not use this payment instrument'. We get a similar ranking of the payment instruments when we only consider those people who have experience with all four payment methods.

Most respondent use the bank application on their mobile phone to check the balance of their main payment account (72%), 38% use their bank's website and only 11% make use of a paper statement. For respondents who are younger than 30 this is only 3%, while among older respondents (65 and older) almost one fifth of the respondents use paper statements. Most respondents check their balance once a week to once a day (56%). Younger respondents check their balance more often than older respondents.

We asked respondents whether they consider themselves to be a tightwad or a spendthrift (i.e. an individual who spends money extravagantly) on a scale of 1 'I have trouble spending money' (tightwad) to 11 ''I have trouble limiting my expenses' (spendthrift). This question is

[3] The helpfulness of the four different payment instruments significantly differs. All the averages in the "prevent overspending" column of Table 2 are significantly different from each other at the 5% significance level according to t-tests. The same holds for the averages in the last column of Table 2.

similar to one of the questions that form the basis for the *spendthrift-tightwad scale* introduced by Rick, Cryder and Loewenstein (2008). Their *spendthrift-tightwad* measure is known to be useful in trying to explain the difference in the pain of paying between consumers. Most respondents (58%) list themselves as a 6 on the spendthrift-tightwad scale, which is the middle point of the scale. More people consider themselves on the tightwad end of the scale (1-5) (24%) compared to the spendthrift end of the scale (7-13) (18%). Moreover, we asked respondents to what extent they are able to make ends meet with their income on a scale of 1 'very hard' to 5 'very easy'. Most respondents are able to make ends meet easily or very easily (56%). About 8% has difficulties making ends meet.

4. Empirical approach

To gain insights into the factors that play a role in the pain of payment that consumers experience, we conduct several regressions. First, we estimate the following linear model:

$$pain\ of\ paying_{i,j} = f(payment\ method_{i,j},\ type\ of\ expenditure_{i,j},\ transaction\ amount_{i,j}) + u_i + e_{i,j} \qquad (1)$$

With this model we can learn about the effect on the pain of paying of the type of payment method, the type of expenditure and the amount paid, while controlling for individual fixed effects. This model is useful for a within-subject experiment, where the same respondents respond to multiple scenarios, which is the case in our survey. Our baseline regressions are linear models, as the estimates of these models are easier to interpret than the estimates of ordered logit models. As a robustness analysis, we estimate ordered logit models, which yield very similar results. The dependent variable *pain of paying* captures the pain of paying. It is measured on a scale from 1 'absolutely no pain' to 7 'a lot of pain'. The subscript *i* indicates the individual and *j* denotes the scenario. *Payment method* refers to the first set of explanatory variables, binary dummy variables capturing the payment method: debit card traditional, contactless – debit card, contactless – mobile phone, iDEAL or credit card. Cash is the reference category. *Type of expenditure* is a binary dummy that captures the type of expenditure in the scenario (0 = groceries at the supermarket, 1 = a fun trip). The last set of explanatory variables is indicated by *transaction amount.* These are binary dummy variables that capture the amount in euros: 20, 50, 100 or 500. The reference category is 5 euros. Standard errors are clustered at the individual level. The error term is composed of an idiosyncratic error $e_{i,j}$ and an individual fixed component u_i which controls for unobserved heterogeneity at the individual level. Hence, we obtain coefficients that purely show the effect of the payment method, type of expenditure and amount paid.

In our analysis, we take into account that the amount of experience of the respondents with certain payment instruments varies. In our survey we asked whether the respondent actually

had experience with each of the payment instruments. This enabled us to run the model for three different levels of experience. The first regression includes all responses. The second regression includes only the responses for the payment methods that the respondent has experience with, while the third regression only includes respondents who have experience with all six payment methods presented.

We estimate model (1) for different groups to examine whether the relationship between the variables is equal over groups. We expect that the patterns in the pain of paying may vary across groups. For example, pain of paying may be related to the age as older people grew up with cash, whereas teenagers grew up surrounded with electronic payment methods. In addition, we examine the role of gender, education and income. As we find that experience matters, this part of our empirical analysis is based on regressions with the data of the respondents who have experience with the given payment method.

Second, we run the following linear regression model to examine how the pain of paying relates to personal characteristics.[4]

$$pain\ of\ paying_{i,j} = f(payment\ method_{i,j},\ type\ of\ expenditure_{i,j},\ transaction\ amount_{i,j},\ X_i) + e_{i,j} \qquad (2)$$

This model also relates the pain of paying to the payment method, the type of expenditure and the transaction amount. Instead of the individual level fixed effects (see model (1)), we now include X_i, a vector that includes a wide range of variables capturing characteristics of individual *i*. The idiosyncratic error is denoted by $e_{i,j}$. Standard errors are clustered at the individual level.

First, we run the model with a set of variables capturing standard personal characteristics. *Male* is a binary dummy that is 1 for males and 0 for females. The age of the respondent is captured by the variable *age. Education: high* is a binary dummy that is 1 for respondents who successfully completed higher vocational or university education and 0 for lower-educated respondents. Three *income dummies* are constructed to control for differences in the net monthly household income: *income: €1,851-2,800*; *income: €2,801-3,990*; and *income: > €3,990*. These variables are 1 for respondents who have a net monthly household income that falls in the income category mentioned and 0 otherwise. Respondents in the reference category have an income of €1,850 or below. *Partner* a binary dummy variable capturing whether the head of a household lives together with a partner (1 = partner, 0 = no partner). *Homeowner* is included as a proxy for wealth. It is 1 for homeowners and 0 otherwise. The variable *urban area* captures the degree of urbanisation of the respondent's residence. It is 1 if the degree of urbanisation is high or very high, and 0 otherwise.

[4] Our baseline regressions are linear models. As a robustness analysis, we estimate ordered logit models, which yield very similar results. The results are available upon request.

Second, we add non-standard personal characteristics. *Ease of making ends meet with household income* captures the answer to "How hard or easy is it for you to make ends meet with your income?". The possible values are 1 "very hard", 2 "hard", 3 "nor hard, nor easy", 4 "easy" and 5 "very easy". *Spender* captures whether the respondent is a tightwad or spendthrift. It is the answer to "Which description suits you best?", which is measured on a scale from 1 'I have trouble spending money' (tightwad) to 11 'I have trouble limiting my expenses' (spendthrift), with 6 'About the same or neither. *Frequency of checking the balance* is an ordered variable measuring the answer to "On average, how often do you check the amount of money in your main payments account?" This variable can take five different values: 1 = once a month or less, 2 = two or three times a month, 3 = 1-6 times a week, 4 = once a day, or 5 = multiple times a day. Last, *financial literacy* is the answer to "How knowledgeable do you consider yourself with respect to financial matters?". This self-assessed financial knowledge variable can take four different values: 1 = not knowledgeable, 2 = more or less knowledgeable, 3 = knowledgeable, or 4 = very knowledgeable. Table B.1 in Appendix B summarises all variables used in the empirical analysis.

5. Regression results

5.1 The pain of paying depends on the payment method, the type of expenditure and the amount paid

The pain of paying depends on the payment method; it is higher for cash payments than electronic payments. The first column of Table 3 shows the result of the regression that uses the complete data set, where all individuals and cases are included. Recall that the pain of paying is measured on a scale from 1 'absolutely no pain' to 7 'a lot of pain'. The pain of paying with a debit card is 0.4 lower than the pain of paying with cash. This holds for both traditional and contactless debit card payments. We do not find a difference between paying contactless with a mobile phone and paying with cash. Credit card payments hurt the most; the pain of paying is 0.2 higher than when using cash. iDEAL payments hurt the least. However, the picture that arises is blurred as most respondents do not have experience with all six payment methods.

The second column of Table 3 is based on a regression that only contains cases for which it holds that the respondent has experience with that particular payment method. Now, we find that the pain of paying in cash is higher than the pain of paying with any other payment method. Based on experience, the usage of credit cards hurts less than the usage of cash. The pain of paying with a debit card in a traditional way is again 0.4 less than the pain of paying by cash. Contactless payments and iDEAL payments hurt the least 0.5 less than cash payments.

The last column of Table 3 shows the result of a regressions based only on the data of those respondents that have experience with all six different payment methods. Again, cash hurts the

most. The pain of paying online is 0.4 lower for credit card payments and 0.6 lower when using iDEAL. Contactless payments hurt the least.

The pain of paying is slightly smaller when paying for a fun trip than when paying for groceries at the supermarket. Given the circumstances – a pandemic without much fun – this finding is plausible. The effect is significant in model 1 and 3 of Table 3.

Table 3. The pain of paying depends on the payment method, the type of expenditure and the amount paid

	(1) All cases	(2) Experience-based cases	(3) Cases of respondents who have experience with all payment instruments
Payment method (reference category: cash)			
Debit card traditional	-0.44***	-0.43***	-0.49***
	(0.03)	(0.03)	(0.06)
Contactless - debit card	-0.44***	-0.53***	-0.68***
	(0.03)	(0.03)	(0.07)
Contactless - mobile phone	0.00	-0.53***	-0.65***
	(0.04)	(0.04)	(0.07)
iDEAL	-0.47***	-0.53***	-0.59***
	(0.04)	(0.03)	(0.07)
Credit card	0.21***	-0.20***	-0.35***
	(0.05)	(0.05)	(0.09)
Type of expenditure (reference category: groceries at the supermarket)			
Fun trip	-0.05**	-0.05**	-0.05
	(0.02)	(0.02)	(0.05)
Amount in euros (reference category: 5)			
20	0.22***	0.19***	0.13*
	(0.04)	(0.04)	(0.08)
50	0.47***	0.47***	0.51***
	(0.04)	(0.04)	(0.08)
100	0.70***	0.71***	0.67***
	(0.04)	(0.04)	(0.09)
500	1.43***	1.52***	1.54***
	(0.05)	(0.06)	(0.12)
Constant	2.30***	2.26***	2.40***
	(0.04)	(0.04)	(0.08)
Number of observations	30,080	22,888	5,628
Number of respondents	2,508	2,496	469
R-squared	0.08	0.10	0.10

Note: The table reports estimates of model (1). The dependent variable is *pain of paying*, which is measured on a scale from 1 'absolutely no pain' to 7 'a lot of pain'. Standard errors are clustered at the individual level and shown in parentheses. *** p<0.01, ** p<0.05, * p<0.1

The higher the transaction amount, the higher the pain of paying. Based on column 2, we find that paying 20 euros hurts 0.2 more than paying 5 euros (the reference category). In the case of 50 euros, 100 euros and 500 euros the pain of paying is 0.5, 0.7 and 1.5 higher respectively than for a transaction amount of 5 euros.

In sum, the pain of paying depends on the payment method, the type of expenditure and the amount paid. Experience clearly matters. For example, regressions based on experience

responses only reveal that paying contactless by mobile phone hurts less than paying in cash. In the rest of the paper, we use experience-based responses.

Our findings are robust to the use of a different estimation technique. As a robustness analysis, we estimate ordered logit models. The results are shown in Table C.1 of Appendix C. The results are very similar; the signs of all coefficient estimates are the same and all coefficients that are significant in Table 3 are also significant in Table C.1. There is one additional significant effect in column 1 of Table C.1, which is based on all responses. For this regression it also holds that the pain of paying contactless by mobile phone is lower than the pain of paying with cash.

5.2 Pain of payment patterns vary across age groups

The pain of paying patterns vary across age groups. Table 4 shows the regression results for the different age groups that we created. There are some noteworthy observations. For people younger than 20 we do not find that cash hurts the most. The pain of paying by debit card in a traditional way hurts 0.7 more than paying with cash. The coefficients of other electronic payment instruments are also positive. However, they are insignificant. For older people in particular we find that cash hurts more than electronic payment instruments. For example, for people aged 80 or above the pain of paying with cash is 0.9 higher than the pain of paying by debit card or iDEAL. People between 20 and 29 say they experience relatively little pain from paying by credit card.

People in the oldest age class in particular indicate that the pain of paying is smaller when paying for a fun trip than when paying for groceries at the supermarket. Although we also find negative effects on the pain of paying for other age groups, these effects are insignificant. A possible explanation is that older people are especially likely to look forward to a fun trip.

The sensitivity of the pain of paying to the transaction amount varies across age groups. The pain of paying of people aged between 20 and 29 is most sensitive to the transaction amount. The pain of paying is for this group 2.1 higher when paying 500 euros compared to a transaction of 5 euros. For people aged 80, transactions of 500 euro only hurt 1.1 more than transactions of 5 euros. The pain of paying of these people is least affected by the transaction amount. For all age groups it holds that the pain of paying is positively related to the transaction amount.

Table 4. Pain of payment patterns vary across age groups

	(1) All	(2) Age: <20	(3) Age: 20-29	(4) Age: 30-39	(5) Age: 40-49	(6) Age: 50-59	(7) Age: 60-69	(8) Age: 70-79	(9) Age: ≥80
Payment method (reference category: cash)									
Debit card traditional	-0.43***	0.69**	-0.31***	-0.44***	-0.41***	-0.38***	-0.38***	-0.53***	-0.89***
	(0.03)	(0.29)	(0.10)	(0.07)	(0.06)	(0.06)	(0.06)	(0.07)	(0.16)
Contactless - debit card	-0.53***	0.52	-0.52***	-0.57***	-0.54***	-0.51***	-0.46***	-0.57***	-0.90***
	(0.03)	(0.31)	(0.11)	(0.08)	(0.07)	(0.07)	(0.07)	(0.08)	(0.20)
Contactless - mobile phone	-0.53***	0.52	-0.51***	-0.55***	-0.59***	-0.48***	-0.48***	-0.65***	0.11
	(0.04)	(0.42)	(0.13)	(0.10)	(0.08)	(0.08)	(0.11)	(0.17)	(0.51)
iDEAL	-0.53***	0.41	-0.40***	-0.35***	-0.57***	-0.45***	-0.54***	-0.69***	-0.90***
	(0.03)	(0.42)	(0.11)	(0.09)	(0.08)	(0.07)	(0.08)	(0.09)	(0.19)
Credit card	-0.20***	0.64	-0.64***	-0.30**	-0.20*	-0.12	-0.17*	-0.12	-0.25
	(0.05)	(0.38)	(0.14)	(0.13)	(0.11)	(0.09)	(0.10)	(0.12)	(0.24)
Type of expenditure (reference category: groceries at the supermarket)									
Fun trip	-0.05**	-0.03	-0.07	-0.01	-0.03	-0.06	-0.00	-0.07	-0.14*
	(0.02)	(0.23)	(0.08)	(0.06)	(0.05)	(0.04)	(0.04)	(0.05)	(0.08)
Amount in euros (reference category: 5)									
20	0.19***	0.43	0.41***	0.36***	0.13	0.15*	0.22***	0.16*	-0.11
	(0.04)	(0.34)	(0.14)	(0.11)	(0.09)	(0.08)	(0.08)	(0.09)	(0.15)
50	0.47***	0.38	1.02***	0.76***	0.46***	0.35***	0.43***	0.35***	0.14
	(0.04)	(0.40)	(0.15)	(0.12)	(0.09)	(0.08)	(0.07)	(0.09)	(0.14)
100	0.71***	1.06***	1.18***	1.03***	0.74***	0.68***	0.60***	0.58***	0.23
	(0.04)	(0.36)	(0.16)	(0.12)	(0.12)	(0.09)	(0.08)	(0.09)	(0.16)
500	1.52***	1.55**	2.06***	1.81***	1.75***	1.27***	1.45***	1.44***	1.03***
	(0.06)	(0.63)	(0.20)	(0.17)	(0.15)	(0.11)	(0.11)	(0.14)	(0.20)
Constant	2.26***	2.65***	2.50***	2.35***	2.48***	2.20***	2.01***	2.14***	2.55***
	(0.04)	(0.41)	(0.13)	(0.11)	(0.09)	(0.08)	(0.08)	(0.08)	(0.19)
Number of observations	22,888	236	1,712	2,786	3,438	4,256	5,032	4,308	1,120
Number of respondents	2,496	27	174	280	347	453	563	508	144
R-squared	0.10	0.12	0.18	0.10	0.13	0.10	0.10	0.10	0.10

Note: The table reports estimates of model (1). The dependent variable is *pain of paying*, which is measured on a scale from 1 'absolutely no pain' to 7 'a lot of pain'. Cases with a particular payment method are only included for those respondents who have experience with that payment method. Standard errors are clustered at the individual level and shown in parentheses. *** p<0.01, ** p<0.05, * p<0.1

5.3 Pain of payment patterns vary across gender, education and income groups

Pain of payment patterns vary across gender, education and income groups. Table 5 shows the regression results for different groups of respondents. For all groups we find that electronic means of paying hurt less than cash payments. This holds especially for contactless payments and iDEAL payments. The difference in pain of payment between cash and electronic payments is lower for people with a low level of education than for people with a high level of education. This difference is also relatively low for people with a low income and high for people with a high income. For all groups we find that the pain of paying is smaller when paying for a fun trip than when paying for groceries at the supermarket. However, this effect is only significant for males and people with a low level of education. Compared to the pain of paying that males experience, the pain of paying that females experience is more strongly related to the transaction amount. For women, a transaction of 500 euros hurts 1.8 more than a transaction of 5 euros. For men this effect

is almost one third smaller. The pain of paying experienced by people with a low income is more sensitive to the transaction amount than the pain of paying experienced by people with a high income. Finally, people with a high level of education are more sensitive to the transaction amount than people with a low level of education.

Table 5. Pain of payment patterns vary across gender, education and income groups

	(1) All	(2) Female	(3) Male	(4) Low education	(5) High education	(6) Income: ≤1850 euros	(7) Income: 1851-2800 euros	(8) Income: 2801-3990 euros	(9) Income: >3990 euros
Payment method (reference category: cash)									
Debit card traditional	-0.43***	-0.42***	-0.44***	-0.39***	-0.51***	-0.22***	-0.49***	-0.52***	-0.49***
	(0.03)	(0.04)	(0.04)	(0.04)	(0.04)	(0.06)	(0.06)	(0.06)	(0.05)
Contactless - debit card	-0.53***	-0.52***	-0.54***	-0.46***	-0.63***	-0.32***	-0.53***	-0.66***	-0.60***
	(0.03)	(0.05)	(0.04)	(0.04)	(0.05)	(0.06)	(0.06)	(0.06)	(0.06)
Contactless - mobile phone	-0.53***	-0.45***	-0.58***	-0.47***	-0.61***	-0.37***	-0.53***	-0.62***	-0.57***
	(0.04)	(0.07)	(0.06)	(0.06)	(0.06)	(0.10)	(0.08)	(0.08)	(0.08)
iDEAL	-0.53***	-0.55***	-0.51***	-0.51***	-0.57***	-0.45***	-0.53***	-0.60***	-0.54***
	(0.03)	(0.05)	(0.05)	(0.05)	(0.05)	(0.07)	(0.07)	(0.07)	(0.07)
Credit card	-0.20***	-0.22***	-0.19***	-0.19***	-0.24***	-0.04	-0.19*	-0.28***	-0.28***
	(0.05)	(0.07)	(0.06)	(0.07)	(0.06)	(0.11)	(0.10)	(0.09)	(0.08)
Type of expenditure (reference category: groceries at the supermarket)									
Fun trip	-0.05**	-0.03	-0.05**	-0.06**	-0.03	-0.04	-0.06	-0.06	-0.03
	(0.02)	(0.03)	(0.03)	(0.03)	(0.03)	(0.04)	(0.04)	(0.04)	(0.04)
Amount in euros (reference category: 5)									
20	0.19***	0.24***	0.16***	0.18***	0.21***	0.27***	0.14*	0.30***	0.08
	(0.04)	(0.06)	(0.05)	(0.05)	(0.06)	(0.08)	(0.08)	(0.07)	(0.07)
50	0.47***	0.62***	0.35***	0.44***	0.51***	0.62***	0.42***	0.42***	0.44***
	(0.04)	(0.06)	(0.05)	(0.05)	(0.06)	(0.08)	(0.08)	(0.07)	(0.07)
100	0.71***	0.92***	0.53***	0.64***	0.79***	0.85***	0.62***	0.77***	0.61***
	(0.04)	(0.06)	(0.05)	(0.05)	(0.06)	(0.09)	(0.08)	(0.08)	(0.08)
500	1.52***	1.84***	1.26***	1.46***	1.62***	1.64***	1.55***	1.57***	1.37***
	(0.06)	(0.08)	(0.07)	(0.07)	(0.08)	(0.12)	(0.11)	(0.11)	(0.10)
Constant	2.26***	2.25***	2.25***	2.23***	2.30***	2.29***	2.24***	2.27***	2.24***
	(0.04)	(0.06)	(0.05)	(0.05)	(0.06)	(0.08)	(0.07)	(0.07)	(0.07)
Number of observations	22,888	10,750	12,138	13,128	9,726	5,304	5,608	5,748	6,228
Number of respondents	2,496	1,209	1,287	1,498	994	627	621	626	622
R-squared	0.10	0.13	0.08	0.09	0.12	0.09	0.11	0.11	0.10

Note: The table reports estimates of model (1). The dependent variable is *pain of paying*, which is measured on a scale from 1 'absolutely no pain' to 7 'a lot of pain'. Cases with a particular payment method are only included for those respondents who have experience with that payment method. Standard errors are clustered at the individual level and shown in parentheses. *** p<0.01, ** p<0.05, * p<0.1

5.4 The pain of paying depends on personal characteristics

The pain of paying depends on personal characteristics. We ran additional regressions to gain insight into the relationship between personal characteristics and the pain of paying, see Table 6, column 1. The pain of paying among males is 0.2 lower than the pain among females. The pain of paying decreases with age. For example, someone aged 60 has 0.8 lower pain of paying than someone aged 20. People with a high level of education experience more pain of paying than people with a low level of education. People in the lowest income category experience the highest pain of paying. For example, their pain of paying is 0.4 higher than the pain of paying among people in the highest income category. People who live together with a partner experience less pain of paying than others. A possible explanation is that one experiences less pain when the bill is being shared with other household members. The pain of paying is unrelated to homeownership (our proxy for wealth) nor to whether people live in an urban area.

The pain of paying is also related to other, non-standard, personal characteristics. The results of a regression with these variables are shown in Table 6, column 2. The easier it is for someone to make ends meet with their income, the lower the pain of paying. For example, if it is very hard to make ends meet, the pain of paying is 1.4 (0.36*4) higher than for people who find it very easy to make ends meet with their income. Spendthrifts experience lower pain of paying than tightwads. Recall that the spendthrift-tightwad scale runs from 1 'I have trouble spending money' (tightwad) to 11 ''I have trouble limiting my expenses' (spendthrift). People with a score of 11 experience 0.9 (10*0.09) lower pain of paying than people with a score of 1. The higher the frequency of checking the balance on the payments account, the higher the pain of paying. For example, the pain of paying is 0.2 higher for people who check their balance multiple times a day (*frequency of checking the balance* = 5) compared to people who do this only once a month or even less often (*frequency of checking the balance* = 1). The pain of paying is also related to financial literacy. The higher the financial literacy, the lower the pain of paying. For example, people who state that they are very knowledgeable with respect to financial matters (*financial literacy* = 4) report a pain of paying that is 0.2 (3*0.08) lower compared to the pain of paying among people who state that they are not knowledgeable (*financial literacy* = 1). When we include these non-standard variables, we no longer find significant income effects. Gender, age, education and partner effects are robust to the inclusion of these variables, the signs of the coefficients do not change and the effects remain significant. Both specifications confirm the results discussed in Section 5.1: cash payments hurt more than electronic payments, paying for a fun trip hurts less than paying for groceries, and the pain of paying is positively related to the price of the product or service.

Table 6. The pain of paying depends on personal characteristics

	(1)	(2)
Payment method (reference category: cash)		
Debit card traditional	-0.44***	-0.46***
	(0.03)	(0.03)
Contactless - debit card	-0.54***	-0.54***
	(0.03)	(0.04)
Contactless - mobile phone	-0.54***	-0.53***
	(0.06)	(0.06)
iDEAL	-0.55***	-0.57***
	(0.04)	(0.04)
Credit card	-0.25***	-0.25***
	(0.05)	(0.05)
Type of expenditure (reference category: groceries at the supermarket)		
Fun trip	-0.04**	-0.04*
	(0.02)	(0.02)
Amount in euros (reference category: 5)		
20	0.12***	0.09*
	(0.04)	(0.05)
50	0.45***	0.43***
	(0.05)	(0.05)
100	0.74***	0.70***
	(0.05)	(0.06)
500	1.52***	1.52***
	(0.06)	(0.07)
Personal characteristics		
Male	-0.16***	-0.12**
	(0.05)	(0.06)
Age	-0.02***	-0.02***
	(0.00)	(0.00)
High education	0.10*	0.15***
	(0.06)	(0.06)
Income: EUR 1,851-2,800	-0.22***	0.02
	(0.08)	(0.08)
Income: EUR 2,801-3,990	-0.15*	0.10
	(0.09)	(0.09)
Income: > EUR 3,990	-0.37***	-0.01
	(0.09)	(0.10)
Partner	-0.13*	-0.21***
	(0.07)	(0.07)
Homeowner	-0.09	0.05
	(0.06)	(0.07)
Urban area	-0.04	-0.02
	(0.05)	(0.06)
Ease of making ends meet with income		-0.36***
		(0.04)
Spender		-0.09***
		(0.02)
Frequency of checking balance		0.05*
		(0.03)
Financial literacy		-0.08**
		(0.04)
Constant	3.67***	5.31***
	(0.12)	(0.23)
Observations	22,646	19,574
R-squared	0.14	0.17

Note: The table reports estimates of model (2). The dependent variable is *pain of paying*, which is measured on a scale from 1 'absolutely no pain' to 7 'a lot of pain'. Cases with a particular payment method are only included for those respondents who have experience with that payment method. Standard errors are clustered at the individual level and shown in parentheses. *** p<0.01, ** p<0.05, * p<0.1

6. Concluding remarks

In sum, we find that when people pay in a blink of an eye it hurts less, but they spend more. Consumers' shift from cash to fast electronic payments therefore comes at a risk. There are certainly advantages to electronic payment instruments. For example, many people find it faster and easier to pay electronically compared to paying with banknotes and coins. However, our research shows that there are not only benefits. The pain of paying is higher for cash than for electronic payments. It is lowest for contactless payments and iDEAL payments, a popular online payment method used in the Netherlands. On average, respondents find cash more helpful to prevent overspending and track their expenditures than electronic, and especially contactless, payment methods. When paying with cash, respondents are more aware of the exact amount that they pay. Interestingly, people with a high level of education, a high level of income and older people are particularly likely to experience a higher pain of paying when paying electronically compared to paying with cash.

For teenagers, the picture that arises is completely different: traditional debit card payments hurt more than cash payments. This finding suggests that the pain of paying depends on experience. Whereas teenagers grew up with electronic money, older age groups were raised with banknotes and coins. Young people are intertwined with their smartphone and use their banking app extensively. A plausible explanation for our finding is that spending money causes them pain when they see a drop in their payments account balance on their device – in other words in the case of an electronic payment – or when they withdraw cash, but less so when they spend the cash in their pocket.

We also find that the pain of paying is positively related to the price of the goods or service. This is in line with prior research. Our rich data reveals that the pain of paying sensitivity to the transaction amount is largest for people between 20 and 29 and smallest for people of 80 and above. The sensitivity is also relatively large for women, people with a low income and people with a high level of education.

The pain of paying is slightly smaller when paying for a fun trip than when paying for groceries at the supermarket. This effect is significant for respondents in the oldest age category, men and low-educated respondents. A possible explanation for the lower pain of paying for the fun trip is the higher pleasure associated with it, especially during the pandemic.

Our research underscores the importance of tools that help prevent overspending when using electronic payment instruments. We encourage research on this topic. To make electronic payment methods more attractive it is key that their ability to prevent overspending improves. This will be especially helpful for those people who experience a relatively low level of pain of paying such as low-educated people and people who have trouble limiting their spending.

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Appendix A. Key survey questions

{introduction}

You can only spend money once. Therefore, we can experience pain of paying when we pay.

Next, we sketch four different situations. For each situation we ask you to estimate how much pain of paying you expect to experience.

…

v6a – v6d
Suppose you go to the supermarket for grocery shopping. At the checkout you need to pay [5 / 20 / 50 / 100 / 500][5] euro. The groceries are for yourself.

How much pain of paying would you then experience when using below payment methods?

v6a Cash (coins/banknotes)
v6b Debit card by inserting it into a payment terminal
v6c Contactless by debit card
v6d Contactless by mobile phone

1. Absolutely no pain of paying
2.
3.
4.
5.
6.
7. A lot of pain of paying

v7a – v7d
Suppose you go on a fun trip and have to pay for yourself [5 / 20 / 50 / 100 / 500] euro at the end of the fun trip.

How much pain of paying would you then experience when using below payment methods?

v7a Cash (coins/banknotes)
v7b Debit card by inserting it into a payment terminal
v7c Contactless by debit card
v7d Contactless by mobile phone

1. Absolutely no pain of paying
2.
3.
4.
5.
6.
7. A lot of pain of paying

[5] For each scenario, we randomised the amount respondents had to pay.

v8a – v8b
Suppose you order groceries of [5 / 20 / 50 / 100 / 500] euro online and have to pay for these immediately online. The groceries are for yourself.

How much pain of paying would you then experience when using below payment methods?

v8a iDEAL
v8b Credit card

1. Absolutely no pain of paying
2.
3.
4.
5.
6.
7. A lot of pain of paying

v9a – v9b
Suppose you make an online reservation for a fun trip of [5 / 20 / 50 / 100 / 500] euro and you have to pay for this fun trip immediately. The fun trip is for yourself.

How much pain of paying would you then experience when using below payment methods?

v9a iDEAL
v9b Credit card

1. Absolutely no pain of paying
2.
3.
4.
5.
6.
7. A lot of pain of paying

…

Appendix B. Summary statistics

Table B.1 Summary statistics of variables used the empirical analysis

Variable	Mean	Sd	Min	Max	N
Dependent variable					
Pain of paying	2.64	1.99	1	7	30,080
Key explanatory variables					
Payment method					
Cash (reference category)	0.17	0.37	0	1	30,080
Debit card traditional	0.17	0.37	0	1	30,080
Contactless - debit card	0.17	0.37	0	1	30,080
Contactless - mobile phone	0.17	0.37	0	1	30,080
iDEAL	0.17	0.37	0	1	30,080
Credit card	0.17	0.37	0	1	30,080
Type of expenditure					
Groceries at the supermarket (reference category)	0.50	0.50	0	1	30,080
Fun trip	0.50	0.50	0	1	30,080
Amount in euros					
5 (reference category)	0.19	0.39	0	1	30,080
20	0.21	0.41	0	1	30,080
50	0.21	0.40	0	1	30,080
100	0.20	0.40	0	1	30,080
500	0.20	0.40	0	1	30,080
Personal characteristics					
Male	0.53	0.50	0	1	22,646
Age	55.43	16.91	16	96	22,646
High education	0.42	0.49	0	1	22,646
Income: EUR 1,850 or less (reference category)	0.23	0.42	0	1	22,646
Income: EUR 1,851-2,800	0.24	0.43	0	1	22,646
Income: EUR 2,801-3,990	0.25	0.43	0	1	22,646
Income: > EUR 3,990	0.27	0.44	0	1	22,646
Partner	0.69	0.46	0	1	22,646
Homeowner	0.72	0.45	0	1	22,646
Urban area	0.42	0.49	0	1	22,646
Ease of making ends meet with income	3.66	0.84	1	5	19,574
Spender	5.90	1.64	1	11	19,574
Frequency of checking the balance	2.78	0.97	1	5	19,574
Financial literacy	2.25	0.75	1	4	19,574

Note: This table describes the variables used in the regressions reported in Table 3, 4, 5 and 6. The mean, standard deviation (sd), minimum (min), maximum (max) and number of observations (N) are reported.

Appendix C. Additional results

Table C.1 The pain of paying depends on the payment method, the type of expenditure and the amount paid: ordered logit models

	(1) All cases	(2) Experience-based cases	(3) Cases of respondents who have experience with all payment instruments
Payment method (reference category: cash)			
Debit card traditional	-0.60***	-0.72***	-0.84***
	(0.04)	(0.05)	(0.09)
Contactless - debit card	-0.64***	-0.92***	-1.20***
	(0.05)	(0.05)	(0.11)
Contactless - mobile phone	-0.13**	-0.91***	-1.19***
	(0.06)	(0.07)	(0.12)
iDEAL	-0.66***	-0.90***	-0.95***
	(0.05)	(0.06)	(0.12)
Credit card	0.20***	-0.38***	-0.70***
	(0.06)	(0.08)	(0.15)
Type of expenditure (reference category: groceries at the supermarket)			
Fun trip	-0.08***	-0.09**	-0.09
	(0.03)	(0.04)	(0.09)
Amount in euros (reference category: 5)			
20	0.47***	0.55***	0.42**
	(0.06)	(0.08)	(0.17)
50	0.91***	1.17***	1.24***
	(0.06)	(0.08)	(0.17)
100	1.28***	1.63***	1.55***
	(0.07)	(0.09)	(0.19)
500	2.27***	2.98***	3.03***
	(0.08)	(0.11)	(0.24)
Number of observations	30,080	22,888	5,628
Number of respondents	2,508	2,496	469
Wald $\chi 2$	1752.4***	1352.9***	374.0***

Note: Regression results of ordered logit models. The dependent variable is *pain of paying*, which is measured on a scale from 1 'absolutely no pain' to 7 'a lot of pain'. Standard errors are clustered at the individual level and shown in parentheses. *** p<0.01, ** p<0.05, * p<0.1

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