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

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Payments data: do consumers want to keep them in a safe or turn them into gold?*

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Abstract

For policymakers seeking to protect consumer data or financial stability and financial institutions that wish to keep their customers satisfied it is key to know consumers' attitudes towards payments data usage. This paper provides detailed insight into these attitudes based on unique surveys held among Dutch consumers. Privacy is considered an important payment instrument attribute, especially by low-educated, low-income, and elderly consumers and consumers who have little trust in other people or in their bank. Attitudes towards payments data usage depend on the context. For example, most people support the use of payments data to improve security or services but find sharing payments data with other companies unacceptable. Moreover, the latter practice would result in a significant decline of trust in banks. Depending on the purpose of the data use, attitudes relate to socio-demographic factors, online behaviour, satisfaction with the bank and perceptions of current data usage practices. Lastly, many consumers are unwilling to share their payments data with non-banks to use a payment app or get a financial overview. This holds especially for consumers with low trust in other people and in banks.

Keywords: privacy, payments data, consumer attitudes, consumer survey, banks, trust.

JEL classifications: D14, D12.

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1. Introduction

Consumers' privacy is a highly debated topic, and policymakers try to prohibit the misuse and disclosure of information in several ways, because privacy is a fundamental human right.¹ Cannataci et al. (2016) show that comprehensive data protection legislation is in place in over 100 countries, and various other countries are in the process of passing such legislation or have sectorial privacy laws, like the United States. Furthermore, they highlight that there are several other mechanisms in place to protect data, for example other legal instruments, self-regulation, nudging mechanisms and professional ethics.

Illustrating the increased interest in privacy, the European Union recently took important steps to strengthen and unify data protection. For example, the General Data Protection Regulation (GDPR, Regulation (EU) 2016/679) will apply from May 2018 onwards. One of its goals is to give citizens back control over their personal data. These data can only be gathered legally under strict conditions and only if the purpose of data collection is legitimate and if misuse is prevented.²

Companies need to constantly rethink their privacy and data protection policies owing to new rules and innovations. They also need to take into account the effects of their policies on the behaviour of their customers. Ziegeldorf et al. (2014) emphasise that ignorance of privacy issues can have detrimental effects such as reputation damage and lawsuits. They also note that privacy issues will be aggravated and that there will be threats to privacy because of the Internet of Things; the expected boom in terms of the interconnection and cooperation of *smart things*. These are everyday things augmented with information and communication technology such that they are able to collect, process and communicate information. These developments have made it easier to compile detailed consumer profiles based on data from disparate sources.

For commercial parties it is especially interesting to obtain payments data as these entail accurate and detailed information on purchasing behaviour. Financial transaction data also provide access to valuable other information, such as income, wealth and creditworthiness. For banks, payment initiation service providers and account information service providers it is key to know consumers' willingness to share their, sometimes sensitive, transactions. This is also important information for policymakers seeking to protect consumers or financial stability. Trust in banks is not only key for banks themselves but also for financial stability. As unwanted use of information can trigger a decline in trust and possibly a bank run it is important to understand consumers' attitudes towards the use of their payments data.

¹ See the 1948 Universal Declaration of Human Rights at www.un.org/en/universal-declaration-human-rights/. URL last accessed on May 31, 2017.

² Another objective is to simplify the regulatory environment for companies and to enable the European Digital Single Market. The agreement on the EU-US Privacy Shield and the review of the e-privacy directive are also important steps to achieve these objectives.

However, little is known about consumers' attitudes towards sharing their payments data. Research has mainly focused on consumers' attitudes towards sharing data on social network sites and with commercial companies (Kokolakis, 2017). Since attitudes depend on the type of information and the context (see e.g. Acquisti et al., 2015) further detailed research on payments data is needed. There is only some general indication on consumers' attitudes. For example, the European Commission (2011, p. 12) shows that the share of EU27 citizens that regard a particular type of information as personal is the highest for financial data. 75% find this information personal. For the United States, the Pew Research Center (2014, p. 7) reports Americans sensitivities toward various kinds of information and shows that although on average "your basic purchasing habits" is regarded the least sensitive information, only 14% find this information not sensitive at all.³ A recent report by Accenture, which is based on a global survey, shows that the share of respondents who would share more data with banks in return for new benefits is on average 67% (Accenture, 2017). It ranges from 54% in Japan to 87% in Indonesia.

Current developments increase the need for research on consumers' attitudes with respect to the use of their payments data. For example, within the European Union the new EU-wide regulatory measures in retail payments such as the Payment Service Directive 2 (PSD2) affect the functioning of the retail payments market. The PSD2 aims to foster competition and innovation in the payments landscape and to lower the entry barriers for new players without a banking license. With the consent of customers these companies can get access to payments data. The new regulation is likely to stimulate innovative data usage.

This research uses unique data on the Netherlands to address the following research questions: (1) "To what extent is privacy considered an important payment instrument attribute, and which consumers find it especially important?", (2) "Depending on the context, how acceptable do consumers find the use of their payments data by their bank and by other companies, and how do attitudes vary across consumers?", and (3) "To what extent would a bank's intention to sell payments data to commercial parties result in a decline of trust in the bank?". Although this paper uses data on the Netherlands, the questions apply broadly to all countries. As Acquisti et al. (2015, p.8) put it so eloquently: *"If privacy behaviors are cultural and context dependent, however, the dilemma of what to share and what to keep private is universal across societies and over human history."*

This paper provides detailed insights into consumers' attitudes towards payments data usage. First, it finds that privacy is considered an important payment instrument attribute, especially by low-educated, low-income, and elderly consumers and consumers who have little trust in others or in their bank. In addition, it reveals that consumers' attitudes towards the use

³ The social security number, medical information and the content of telephone conversations are seen as the most sensitive.

of payments data depend on the context.⁴ Therefore, attitude in one type of situation is unlikely to predict attitude in other types of situations. This is important information for banks that want to make more use of payments data. For example, most people do not mind if their payments data are being used to enhance security but do not want this data to be shared with a restaurant. Moreover, this paper shows that the selling of customer data to other companies can result in a significant decline of trust in banks. Depending on the purpose of the data use, attitudes relate to socio-demographic factors, online behaviour, satisfaction with the bank and perceptions of current practices. Lastly, this research finds that a substantial share of people are unwilling to share their payments data with non-banks to use a payment app or get a financial overview. The willingness to share data to use these products is positively related to trust in other people and in banks and to the perceived ethical behaviour and knowledge of bank managers.

2. Related literature

2.1 Privacy literature

This research contributes to research on *informational privacy* (Rosenberg, 1992). This type of privacy concerns the collecting, storing, processing and disseminating of personal data. This has become an increasingly important research area because of the proliferation of the internet and mobile technologies and the increasingly dense, and invisible data collection and use.

Acquisti et al. (2015) review the empirical research on privacy behaviour. First, they show that people often do not know whether they should care about privacy, and if so to what extent. The uncertainty arises from incomplete and asymmetric information - people are often unaware of what data they are sharing and how it can be used - and can be exacerbated by intangible privacy breaches and the fact that privacy often involves trade-offs. Many studies show a privacy paradox; while people say they care about privacy, their behaviour tells a different story.⁵ Decision-making is often context-dependent and not a purely rational decision. It turns out to be difficult to put a price on privacy. For example, privacy is valued more when people have it than when they need to pay for it (Acquisti et al., 2013). The desire to be public and share information is a strong countervailing motivation that complicates the consistency of privacy preferences.

Second, Acquisti et al. (2015) demonstrate that privacy attitudes depend on the context. The same person can be indifferent about privacy in one situation and extremely concerned in another case. The boundaries between what is private and what is public are often difficult to distinguish, and attitudes depend on past experiences and behaviour of others. The context-

⁴ See Section 5.1 for the definition of payments data.

⁵ Kokolakis (2017) reviews the literature on the informational privacy paradox and shows that there are studies that provide evidence of this paradox and studies that challenge its existence.

dependency is also highlighted by other researchers that review the literature, such as Kokolakis (2017) and Morando et al. (2014). In addition, it is emphasised that attitudes depend on the type of data involved.

Third, Acquisti et al. (2015) show that privacy research has revealed that privacy preferences are malleable. Several factors can activate or suppress concerns. For example, consumers are likely to follow default privacy settings, and websites can be designed in such a way that people are likely to share their data (Johnson et al., 2002). Posting a privacy policy results in less privacy concern (Hoofnagle and Urban, 2014).

There are several other thorough reviews of the privacy literature that provide additional insights. Smith et al. (2011) show that there are relatively few studies on the sharing of financial data. Acquisti et al. (2016) highlight that it is hard to come up with a single unifying economic theory of privacy because there are diverse settings in which privacy issues are relevant from an economic viewpoint. They also show that, depending on the context, the sharing or protection of privacy can be harmful or beneficial for welfare for individuals and society.

In-depth research on consumers' attitudes towards sharing payments data, the related factors and the context-dependence is lacking. Previous research shows that the willingness to share financial data is low compared with the willingness to share other types of data, see e.g. European Commission (2011) for Europeans. For Americans, Phelps et al. (2000) find that consumers' willingness to share data is lowest for personal identifier and financial information. The latter, however, only includes annual income. Also based on research among Americans, Milne et al. (2017) confirm that the willingness to share personal identifier and financial data is lower than the willingness to share other types of data. Milne et al. (2017) use a longer list of 52 types of information and build information clusters. The financial information cluster includes a wider set of information such as the credit card number, credit score, financial account numbers and the digital signature.

This research also links to studies that show that trust is an important driver of consumers' privacy attitudes. Consumers' willingness to provide information depends on trust in organisations (Schoenbachler and Gordon, 2002), web vendors (McKnight et al., 2002), mobile applications (Zafeiropoulou et al., 2013), online communities (Posey et al., 2010) and websites (e.g. Metzger, 2004 and Wakefield, 2013). This line of research is mainly focused on non-financial information. Bansal et al. (2016) forms an exception. They show that the extent to which an individual wants to reveal financial information to a finance website is positively related to the degree of trust in the website. Privacy concerns have a negative effect on trust in the website in the context of finance but no significant effect in the ecommerce context. Bansal et al. (2016) conclude that it is important that more context-related research is conducted.

2.2 Research on payment behaviour

This research also relates to the payments literature. Research on payment behaviour has shown that perceived payment instrument attributes matter in terms of adoption and intensity of use of payment instruments (see Kosse 2014 for an overview of the literature). Several papers dig deeper into the safety aspect. The research on the United States by Schuh and Stavins (2016) is particularly interesting. They show that it is important to distinguish between financial security and privacy. They break down privacy into “security of personally identifiable information” and “security of information about payment transactions”. With respect to the former, respondents were asked to rate the security of payment methods against unwarranted disclosure of personally identifiable information. Regarding the latter, they were asked to judge the security of the confidentiality of each payment mode against others obtaining information about payment transactions. Whereas financial security is regarded more important than privacy, privacy is considered more important than speed. Schuh and Stavins (2016) reveal that the adoption and use of some payment instruments depend significantly positively on the perceived security of personal information. In contrast, they do not find significant positive effects of the perceived security of payment transaction information on payment behaviour.

2.3 Trust in banks

This research also contributes to research on trust in banks. It is important to know which factors trigger a decline of trust in banks, as such a decline may increase the likelihood of bank runs (Sapienza and Zingales, 2012; Guiso, 2010), hamper financial intermediation and affect financial markets for a long period of time (Guiso et al. 2004, 2008). Using survey data from ten Central, Eastern and South-eastern European countries, Stix (2013) shows that people who distrust banks have stronger liquidity preferences and are less likely to hold a savings account than people who trust banks.

Trust in banks is related to various factors. For example, Knell and Stix (2015) show that trust is positively related to the level of income and lower for unemployed people than for employed people. Trust in banks also depends on fraud (Guiso, 2010) and macroeconomic variables such as the unemployment rate (Stevenson and Wolfers, 2011). Personal adverse financial crisis experiences negatively affect trust in banks (Van der Crujisen et al. 2016; Knell and Stix, 2015). Using survey evidence on Spain, Carbo-Valverde et al. (2013) find that trust in banks is significantly related to consumers’ perceptions of performance characteristics and attributes of banks. For trust it helps if individuals value their bank’s sensitivity to customers’ problems and the effectiveness in solving customer problems. Jansen et al. (2015) use the results of surveys in 2010 and 2012 to research when the Dutch public lose trust in banks. Using responses to a list of hypothetical scenarios included in both years, they find that the public are

highly concerned about executive compensation. Also, negative media reports, falling stock prices, and opaque product information harm trust in banks.

2.4 Trust in other people

Lastly, this research also contributes to research on generalised trust – trust in other people with whom one has no direct relationship – by examining its effect on consumers’ privacy attitudes. Previous research has shown that generalised trust is a prerequisite for well-functioning market economies (e.g. Arrow, 1972; Fukuyama, 1995; and Alesina and La Ferrara, 2002). Various studies report a positive relationship between trust in other people and economic performance (e.g. Knack and Keefer, 1997; Dincer and Uslaner, 2010) and show that trust matters for households’ financial decisions (Jiang and Lim, 2016) and the depth in the financial markets and results in lower overhead costs and interest margins (Calderon et al., 2002). Generalised trust is not only important from an economic point of view but also from other points of view, e.g. it matters for general well-being (Helliwell et al., 2014).

3. Description of data

3.1 Three consumer surveys

To map out consumers’ attitudes towards sharing their payments data in detail, this research uses three different consumer surveys. Two of these surveys are held among the CentERpanel, a representative internet panel of the Dutch-speaking population in the Netherlands.⁶ This panel is managed by CentERdata, a research institute affiliated to Tilburg University. The CentERpanel is frequently used by policymakers and researchers to investigate a broad range of topics. The first survey among this panel that this research uses, the “payments survey”, was held in September 2015 (in the weekends of weeks 38 and 39) by Van der Crujisen and Van der Horst (2016) to gain insight into payment behaviour. One element of this survey is useful for this project; the question on perceived payment attributes and the importance of privacy/paying anonymously. Van der Crujisen and Van der Horst (2016) report the outcomes. This paper digs deeper than their study by researching the related factors. The payments survey was sent out to 3,028 members of the CentERpanel. The question of interest was filled in by 2,338 respondents (response rate: 77.2%).

The second CentERpanel survey, the “trust survey” was held in the weekend of the first week of January 2016 and includes questions to measure trust in financial institutions and what factors would lead consumers to no longer trust their bank. The latter question is an adjusted version of the main survey question in the research of Jansen et al. (2015). The trust survey also

⁶ For more information on the CentERpanel, see Teppa and Vis (2012).

includes two questions that give useful insights into consumers' willingness to share payments data with non-banks to use a payment app or get a financial overview. The survey was completely filled in by 2,104 of the 2,571 panel members, resulting in a response rate of 81.3%.⁷

Third, this paper uses survey data collected by the research agency Motivaction under the authority of the National Forum on the Payment System (NFPS). This data set is rich; it contains information on consumers' attitudes towards use of their payments data within different contexts. The aim of the NFPS survey was to obtain detailed insight into consumers' attitudes towards use of their payments data. The main results have been published as a report in Dutch (NFPS, 2015). However, the data set has not been used yet to perform formal in-depth regression analyses to explain different attitudes in different contexts. The data were collected from Wednesday 16 September to Tuesday 22 September 2015. An email inviting recipients to participate in the survey was sent during this period to 4,870 members of the *StemPunt panel* of Motivaction. After obtaining the desired number of responses, the access to the questionnaire was closed. 1,257 panel members answered the attitude questions.

3.2 The situation in the Netherlands

Dutch consumers are at the forefront in terms of using electronic payment methods and online banking and shopping, which makes their transaction data very informative and thereby valuable. In 2016 55% of the point-of-sale (POS) transactions were made electronically, mainly by debit card (DNB and Dutch Payment Association, 2017). In value terms only 27.4% of POS payments were made in cash.

However, the fact that most payments can be tracked may also result in consumers who worry a lot about the use of payments data. Compared with citizens of other EU countries, the Dutch are more likely to regard their financial data as personal. The European Commission (2011, p. 14) reports that the share of Dutch citizens that perceive this type of information as personal is 90%. Remember the figure is 75% for the average EU27 citizen.

The past few years, the use of payments data has been a matter that exercised many Dutch minds. The fact that the Dutch care about their payments data and that the use of this data is a sensitive subject can be illustrated by the ING case. In March 2014, ING, the largest bank in the Netherlands, announced that it would start with a trial of using consumers' transaction data for commercial purposes. This created commotion. Tempers were calmed when ING emphasised that payments data would be used only with consumers' consent, that the goal was to set up profiles and help companies sell products to the right audience and that the underlying data would not be shared with commercial parties.

⁷ For some questions the response rate is slightly higher (up to 82.4%).

The Banking Confidence Monitor 2016 shows that on average Dutch consumers have confidence in the banking sector.⁸ The fact that trust leaves on horseback was observed in the Netherlands during the financial crisis. Trust in banks and generalised trust declined especially among consumers with personal adverse crisis experiences (Van der Crujisen et al., 2016). Trust in banks has not yet returned to its pre-crisis level.

4. Explaining the importance of privacy as a payment instrument attribute

4.1 Privacy is an important payment instrument attribute

Van der Crujisen and Van der Horst (2016) report that on average consumers find privacy an important payment instrument attribute. They find that in response to the question “How important do you find these attributes? Privacy/paying anonymously”, 1% of the respondents answered “Not important at all”, 7% indicated “Unimportant”, 32% opted for “Neutral”, 40% selected “Important” and 20% chose “Very important”.⁹

4.2 Method

To analyse the factors related to the importance that consumers attach to privacy as a payment attribute, this research constructs two dependent variables that capture the importance attached to privacy/paying anonymously, one absolute and one relative measure. This way the different methods used in the payments literature are taken into account. The first dependent variable is *importance of privacy*. It ranges from 1 (not important at all) to 5 (very important). By subtracting the average importance attached to six other attributes (speed, safety, ease of use, costs, control of expenses, acceptance) *relative importance of privacy* is constructed. Ordered logit regressions with *importance of privacy* as dependent variable and ordinary least square regressions to explain *relative importance of privacy* are estimated. The prior variable is on average 3.7 and the latter is on average -0.3.

The regressions include a broad range of socio-demographic variables. *Male* is a dummy variable that is 1 for males and 0 for females. Five binary dummies capture the age of the respondent: *24 and below*, *between 25 and 34*, *between 45 and 54*, *between 55 and 64*, and *65 and over*. The reference category includes respondents between 35 and 44. Furthermore, the binary variable *education: bachelor degree or higher* is constructed. This variable is 1 for respondents

⁸ The Banking Confidence Monitor is available at www.nvb.nl/english/2281/banking-confidence-monitor-2016-vertrouwensmonitor.html. URL last accessed on May 31, 2017.

⁹ The importance attached to privacy is lower than the importance attached to safety, ease of use, control of expenses, and costs. However, in line with the research of Schuh and Stavins (2016) for the United States, the average Dutch consumer attaches more importance to privacy than to speed. Van der Crujisen and Van der Horst (2016) also find that 58% of the respondents associate the payment attribute privacy/anonymity with paying cash, whereas only 18% associate it with paying electronically. The rest of the respondents are indifferent.

who have a graduate diploma and 0 else. Three binary dummies capture the income of the respondent: *income: middle*, *income: high*, *income: unknown*. To research the effect of the place of residence, the variable *degree of urbanisation* and three region dummies are included. In addition, the regressions include variables that capture: (1) whether one is responsible for household finances, (2) whether one has a partner, (3) and the number of children living at home. Lastly, it is controlled for the job status by including the binary dummy *paid job*.

In addition to these variables, five trust variables are included in the regression with *importance of privacy* as dependent variable.¹⁰ *Trust in other people* is a binary dummy that is 1 for respondents who think that in general other people can be trusted and 0 for respondents who believe that one cannot be careful enough in dealing with people. *Trust in own bank* and *trust in banks in general* are general measures of trust in banks. These are the answers to “At the moment, do you trust that the bank(s) at which you have deposits is (are) able to repay these deposits at all times?” and “In general, do you trust that banks in the Netherlands are able to repay deposits at all times?”, which are both measured on a 1 (no, not at all) to 5 (yes, completely) scale. *Managers: knowledgeable* captures respondents’ agreement with “In general, the managers of financial institutions are knowledgeable.” and ranges from 1 (completely disagree) to 5 (completely agree). In a similar fashion *managers: ethical* is constructed.^{11, 12}

4.3 Results

The importance attached to privacy/paying anonymously is significantly related to socio-demographic factors as well as to trust in other people and the general level of trust in the respondent’s own bank. Table 1 shows the results of four regressions, two with *importance of privacy* as dependent variable (column 1 and 2) and two with *relative importance of privacy* as dependent variable (column 3 and 4). The results in column 2 and 4 are based on regressions including the trust variables. Based on a comparison of the Akaike’s Information Criterion (AIC, Akaike, 1974) values it is concluded that the models including the trust variables outperform the models without these variables.

Males care more about privacy than females. This effect is significant when the relative measure is used as dependent variable. There is a positive relationship between the importance attached to privacy and age. People who are older than 44 find privacy more important than people between 35 and 44. For example, based on the findings in column 2, people of 65 and over

¹⁰ The value of each trust variable is the average of the answers given to the March/April 2015 and January 2016 trust surveys, except for respondents who only participated in one of these surveys.

¹¹ Note that for all regressions it holds that multicollinearity is not a problem. The mean Variance Inflation Factor (VIF) is in all cases far below 10.

¹² A table with all variables and summary statistics is available upon request. This holds for all the regressions presented in this paper.

are 8.7 percentage points more likely to opt for “very important” than respondents in the reference category. Higher educated people are less worried about privacy than people with a low level of education. The importance attached to privacy also decreases with the level of income. Consumers who are responsible for household finances find privacy a less important payment attribute compared with other attributes than consumers without this responsibility.

Table 1. Importance of privacy as a payment instrument attribute: regression results

	(1) <i>Importance of privacy</i>	(2) <i>Importance of privacy</i>	(3) <i>Relative importance of privacy</i>	(4) <i>Relative importance of privacy</i>
<i>Male</i>	0.08 (0.10)	0.06 (0.10)	0.09** (0.04)	0.07* (0.04)
<i>24 and below</i>	-0.76*** (0.28)	-0.77*** (0.28)	-0.20 (0.13)	-0.18 (0.13)
<i>Between 25 and 34</i>	0.02 (0.20)	0.03 (0.20)	0.05 (0.10)	0.07 (0.10)
<i>Between 45 and 54</i>	0.44*** (0.15)	0.48*** (0.15)	0.21*** (0.07)	0.22*** (0.06)
<i>Between 55 and 64</i>	0.45*** (0.15)	0.46*** (0.14)	0.25*** (0.07)	0.26*** (0.07)
<i>65 and over</i>	0.52*** (0.17)	0.55*** (0.17)	0.28*** (0.08)	0.30*** (0.08)
<i>Education: bachelor degree or higher</i>	-0.30*** (0.09)	-0.24** (0.10)	-0.12*** (0.04)	-0.09** (0.04)
<i>Income: middle</i>	-0.26** (0.11)	-0.24** (0.11)	-0.16*** (0.05)	-0.15*** (0.05)
<i>Income: high</i>	-0.27* (0.15)	-0.19 (0.15)	-0.22*** (0.06)	-0.18*** (0.06)
<i>Degree of urbanisation</i>	-0.02 (0.03)	-0.03 (0.03)	-0.02 (0.02)	-0.02* (0.01)
<i>Responsible for finances</i>	-0.19** (0.09)	-0.15 (0.10)	-0.11** (0.04)	-0.09** (0.04)
<i>Trust in other people</i>		-0.35*** (0.10)		-0.15*** (0.04)
<i>Trust in own bank</i>		-0.18* (0.09)		-0.12*** (0.04)
<i>Trust in banks in general</i>		-0.00 (0.09)		0.02 (0.04)
<i>Managers: knowledgeable</i>		-0.06 (0.08)		-0.06 (0.04)
<i>Managers: ethical</i>		-0.00 (0.07)		0.05 (0.03)
Constant			-0.18* (0.10)	0.28* (0.15)
Wald χ^2 (Prob > χ^2)	71.33 (0.00)	105.45 (0.00)		
F (Prob > F)			5.53 (0.00)	6.29 (0.00)
Akaike's Information Criterion	5,438.93	5,411.21	5,262.00	5,228.17

Note: The number of observations is 2,100. This table reports parameter estimates for ordered logit regressions in columns 1 and 2 with *importance of privacy* as dependent variable. This variable ranges from 1 (not important at all) to 5 (very important). Columns 3 and 4 report the outcomes of ordinary least squares estimates with *importance of privacy relative* as dependent variable. This variable is constructed by subtracting the average importance attached to six other attributes (speed, safety, ease of use, costs, control of expenses, acceptance) from *importance of privacy*. This table shows only a selection of explanatory variables. Available upon request are the coefficients of *income: unknown*, *region: North*, *region: East*, *region: South*, *partner*, *number of children*, and *paid job*. These are all insignificant. Robust standard errors are in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Trust matters for the importance attached to privacy: the coefficients on *trust in other people* and *trust in own bank* are negative and significant. For example, based on the findings of column 2, compared with a person who thinks that one cannot be careful enough in dealing with people, someone who trusts others is 2.5 percentage point less likely to find privacy important and 5.5 percentage points less likely to find it very important. To illustrate the effect of trust in one's own bank based on the results of the same regression, a one point higher *trust in own bank* results in a 2.8 percentage point lower likelihood of finding privacy very important.

5. Context-dependent consumers' attitudes towards payments data usage

5.1 Attitudes are context-dependent

To measure consumers' attitudes towards usage of their payments data, nine different situations were described in the NFPS survey. For each situation respondents were asked to what extent the use of payments data is acceptable. Table 2 shows the response shares in each case. Before answering this question panellists were given the following definition of payments data: "*Payments data are: -the amount of the payment, -the name of the recipient and/or payer, -the account numbers, -the type of payment (transfer, iDEAL or debit card), -the description (only based on the description your bank observes which products or services you paid for), -the date, place and time of your payment, -the balance of your account)*".

The key take-away from Table 2 is that privacy attitudes clearly depend on the situation. The last column shows the ranking of situations, based on average answers. In some contexts, support is large. 81.5% of the respondents find it acceptable if the bank analyses payments data to search for suspicious transactions and contacts them in case of dubious transactions made abroad. The use of payments data to improve services is also appreciated by many respondents. 69.7% find it acceptable if their payments data are tracked to improve the filling of ATMs.

The other contexts of data usage do not enjoy the support from a majority of the respondents. 14.4% of the respondents do not want their payments to be analysed to improve acceptance of contactless payments if needed. 1 in 5 respondents find it unacceptable if their bank were to track their payment behaviour to decide on a loan grant. Substantially more respondents (41.6%) would find it unacceptable if their bank were to track their payments pattern to give them budget advice.

Table 2. Consumers' attitude towards sharing payments data*Response shares to "To what extent do you judge the use of payment information acceptable in this situation?"*

Situation	1 = Very unacceptable	2 = Unacceptable	3 = Not acceptable, not unacceptable	4 = Acceptable	5 = Very acceptable	Ranking (average answer)
1 You are in the Netherlands. Your bank has noticed that your debit card was used today for a EUR 1,500 transaction in Columbia and contacts you to ask whether this transaction is correct.	2.8%	3.8%	11.9%	44.0%	37.5%	1 (4.1)
2 You want to take out a loan from your bank. Your payments data entail information showing whether you always pay your bills on time. Based on your payments data your bank decides whether to grant the loan and, if so, what interest rate you will have to pay.	5.4%	14.6%	31.7%	40.8%	7.5%	4 (3.3)
3 The bank has noticed from the payments data that you (and others) are increasingly making contactless payments and makes sure that contactless payment is increasingly possible.	4.1%	10.3%	37.9%	41.0%	6.8%	3 (3.4)
4 The bank has noticed from the payments data that relatively many withdrawals are made from the ATM in the shopping centre on Saturdays, and it makes sure that the ATM is refilled more often.	2.7%	5.2%	22.4%	49.6%	20.0%	2 (3.8)
5 The bank has noticed that you have little or no money left at the end of each month and sends you savings tips.	16.3%	25.3%	32.5%	23.4%	2.5%	5 (2.7)
6 You are at Schiphol Airport because you are going on a holiday trip. Before you leave, you withdraw some money at the airport. A few minutes later you receive a text message from your bank asking if you wish to take out travel insurance.	32.9%	34.2%	22.4%	9.6%	0.9%	6 (2.1)
7 The bank has noticed from your payments data that you go out for dinner a lot. <u>The bank sends you special offers</u> from a specific restaurant. Your payments data remain at the bank.	40.7%	30.6%	18.9%	9.0%	0.7%	7 (2.0)
8 The bank has noticed from your payments data that you go out for dinner a lot. The banks informs a specific restaurant, <u>allowing it to send you special offers</u> . Your payments data remain at the bank.	59.6%	25.4%	9.9%	4.8%	0.3%	8 (1.6)
9 The bank <u>sells your payments data</u> to the restaurant. The restaurant now has access to your payments data.	84.4%	8.4%	5.0%	2.0%	0.2%	9 (1.3)

Source: NFPS-survey, September 2015.*Note:* 1,257 observations.

Situations in which payments data are used for commercial ends get the least support. 67.1% find it unacceptable if their withdrawal behaviour is tracked to sell travel insurance. Support for the use of payments data is the lowest in the case of payments data being sold to commercial parties. 92.8% of the respondents would not accept it if their bank were to share their payments data with a restaurant to allow it to send a special offer. The share of respondents opting for “*very unacceptable*” is much lower in the case of payments data remaining at the bank. However, the share of respondents that support payments data usage remains low.

It is also noteworthy that there are customers who do not worry about privacy at all. Based on additional analyses it is found that 1 in 20 respondents find all nine different cases of data usage acceptable or has a neutral standpoint.

A few follow-up questions were asked to gain further insights. In several situations the commonest mentioned reason for finding data usage acceptable is trust that the bank uses the information properly. For 8 in 9 situations, the most often chosen reason for answering unacceptable is that there is no consent given. The violation of privacy is also a frequently mentioned reason, especially in case of the loan decision and situations in which data is used commercially. A popular response is contacting the bank to inform it about one’s disapproval. The share of respondents who find the data usage unacceptable and would switch away to another bank, ranges from 14% in situation 4 to 45% in situation 9. Of the respondents who find it unacceptable if their bank were to share their payments data with a restaurant, 70% indicate that under no circumstances they would change their attitude.

5.2 Method

Ordered logit regressions are estimated to explain differences in attitudes across individuals. For each situation this research constructs a dependent variable that measures respondents’ attitudes in each case and ranges from 1 (very unacceptable) to 5 (very acceptable). These variables are given the names *attitude: case 1* to *attitude: case 9*.

The regressions include a wide range of variables to capture respondents’ socio-demographic characteristics. Binary dummy variables are constructed to control for gender, age, the level of education, the region where one lives and the level of income.

The data is also rich enough to construct a set of additional variables that may matter for attitudes. First of all, three binary dummy variables that capture self-reported online behaviour are built. *Online banking* is 1 for respondents who make use of online banking and 0 for respondents who do not. *Online shopping: at least six times a year* is 1 for respondents who shop online at least six times a year. The regressions also include a binary variable capturing whether one uses social media. *Social media* is 1 for respondents who use at least one of the following media: Facebook, LinkedIn, Instagram, Twitter, YouTube and Pinterest. Furthermore, it is

analysed to what extent consumers' attitudes relate to satisfaction with banks in general and their own bank by including *satisfaction with banks in general* and *satisfaction with own bank*. Both variables are measured as a grade between 1 (very poor) and 10 (excellent). Attitudes may also depend on perceptions of the current situation. Respondents indicate whether they think the nine cases reflect current practices by banks. Answers range from 1 (certainly not) to 5 (certainly). Nine variables capturing these perceptions, *perception of current situation: case 1* to *perception of current situation: case 9*, are constructed.

5.3 Results

Table 3 reveals that, depending on the context, attitudes towards the use of payments data are related to gender, age, education, income, where one lives, online activities, satisfaction with one's own bank and banks in general, and perceptions of the bank's current data usage practices.

Starting with gender, for 7 in 9 cases attitudes of males are more positive than those of females. Only in case of the use of payments data to prevent crime (case 1) or to determine whether to grant a loan or not and on what terms (case 2) *male* is insignificant.

Continuing with the age effect, there is clear evidence that in most cases young people are more likely to give their support than older people. Compared with consumers between 35 and 44, the reference group, consumers between 18 and 24 report more positive attitudes in six cases. For the last three cases, the situations in which payments data are used to help restaurants, consumers between 25 and 34 are also more supportive than consumers in the reference group.

The findings on age highlight the importance of analysing different contexts and aims of data usage separately; there is an opposite age effect in case 2. Compared with customers in the reference group, customers of 55 years or above have a more positive attitude towards the use of payments data to decide on a loan.

The effect of education is also context-dependent. Customers with a bachelor degree or higher have a more positive attitude towards the use of payments data to detect crime (case 1), or to improve services by tracking payments behaviour (cases 3 and 4) than customers with a lower degree of education. However, they are less supportive in the other six cases.

The importance of the particular situation is also highlighted by the income effects. Table 3 reports significant positive coefficients on *income: middle* and *income: high* for case 1, *income: middle* for case 3 and *income: middle* for case 7, whereas the income effects are insignificant for the other cases.

Furthermore, there are some significant regional differences. For example, compared with customers living in the West of the Netherlands, customers living in the South of the Netherlands are more likely to support the banks' usage of payments data to give unasked-for savings advice

(case 5), but less positive about payments data usage to identify trends in payment behaviour and improve services (case 3).

Table 3. Consumers' attitudes towards using payments data: ordered logit regressions

	(1) <i>Attitude: case 1</i>	(2) <i>Attitude: case 2</i>	(3) <i>Attitude: case 3</i>	(4) <i>Attitude: case 4</i>	(5) <i>Attitude: case 5</i>	(6) <i>Attitude: case 6</i>	(7) <i>Attitude: case 7</i>	(8) <i>Attitude: case 8</i>	(9) <i>Attitude: case 9</i>
	<i>Security: dubious transactions abroad</i>	<i>Payment behaviour for loan decision</i>	<i>Payment trends to improve services</i>	<i>Withdrawal trends to improve services</i>	<i>Spending habits and budget advice</i>	<i>Tracking withdrawals to offer insurance</i>	<i>Bank sends restaurant offer</i>	<i>Restaurant sends offer</i>	<i>Restaurant gets the data and sends offer</i>
<i>Male</i>	0.07 (0.11)	-0.02 (0.11)	0.45*** (0.11)	0.38*** (0.12)	0.36*** (0.11)	0.44*** (0.11)	0.31*** (0.11)	0.28** (0.13)	0.43** (0.18)
<i>24 and below</i>	0.46 (0.28)	0.19 (0.24)	0.64*** (0.23)	0.31 (0.27)	0.49** (0.22)	0.60** (0.27)	0.81*** (0.26)	0.80*** (0.29)	1.09*** (0.40)
<i>Between 25 and 34</i>	-0.08 (0.21)	0.30 (0.21)	0.05 (0.22)	0.18 (0.23)	0.18 (0.21)	0.18 (0.23)	0.57*** (0.22)	0.54** (0.27)	0.92** (0.38)
<i>Between 45 and 54</i>	0.06 (0.17)	0.13 (0.19)	0.18 (0.19)	-0.03 (0.21)	0.12 (0.17)	0.21 (0.19)	0.05 (0.20)	0.14 (0.23)	0.23 (0.36)
<i>Between 55 and 64</i>	0.02 (0.18)	0.36* (0.19)	0.10 (0.19)	-0.08 (0.20)	-0.06 (0.17)	0.17 (0.18)	-0.03 (0.19)	-0.00 (0.23)	0.21 (0.36)
<i>65 and over</i>	-0.08 (0.18)	0.39* (0.20)	-0.03 (0.20)	0.00 (0.20)	0.13 (0.18)	0.29 (0.20)	-0.01 (0.20)	0.06 (0.23)	0.15 (0.37)
<i>Education: bachelor degree or higher</i>	0.28** (0.12)	-0.23* (0.12)	0.23* (0.14)	0.31** (0.13)	-0.59*** (0.12)	-0.26** (0.12)	-0.28** (0.12)	-0.62*** (0.15)	-0.56*** (0.21)
<i>Income: middle</i>	0.34** (0.17)	0.03 (0.17)	-0.03 (0.16)	0.19 (0.18)	0.11 (0.17)	0.08 (0.17)	0.30* (0.17)	0.22 (0.19)	0.23 (0.26)
<i>Income: high</i>	0.46*** (0.15)	-0.05 (0.15)	0.41*** (0.16)	0.25 (0.15)	-0.22 (0.15)	-0.18 (0.15)	0.01 (0.16)	-0.21 (0.18)	-0.21 (0.25)
<i>Region: East</i>	0.03 (0.14)	0.01 (0.13)	0.03 (0.14)	0.10 (0.14)	0.20 (0.13)	0.27* (0.14)	0.16 (0.14)	0.09 (0.16)	-0.07 (0.24)
<i>Region: South</i>	0.08 (0.14)	-0.02 (0.14)	-0.28** (0.14)	-0.04 (0.14)	0.33** (0.14)	0.05 (0.13)	0.09 (0.13)	0.01 (0.15)	-0.13 (0.23)
<i>Online banking</i>	0.65** (0.31)	-0.17 (0.25)	0.55* (0.28)	0.57** (0.26)	0.02 (0.25)	-0.62** (0.27)	-0.29 (0.26)	-0.37 (0.31)	-0.64** (0.32)
<i>Online shopping: at least six times a year</i>	0.33*** (0.12)	0.03 (0.11)	0.19 (0.12)	0.48*** (0.12)	-0.24** (0.11)	-0.06 (0.11)	-0.20* (0.12)	-0.46*** (0.13)	-0.64*** (0.20)
<i>Social media</i>	0.17 (0.14)	0.09 (0.14)	0.18 (0.14)	0.23 (0.15)	0.21 (0.14)	0.23* (0.13)	0.17 (0.14)	0.34** (0.16)	0.21 (0.24)
<i>Satisfaction with banks in general</i>	-0.05 (0.06)	0.14** (0.06)	0.13** (0.06)	0.03 (0.06)	0.21*** (0.06)	0.23*** (0.06)	0.20*** (0.06)	0.12* (0.07)	0.29*** (0.10)
<i>Satisfaction with own bank</i>	0.10 (0.06)	0.25*** (0.06)	0.22*** (0.06)	0.23*** (0.07)	0.13** (0.06)	0.15** (0.06)	0.13** (0.06)	0.20*** (0.07)	0.01 (0.11)
<i>Perception of current situation: case i</i>	0.73*** (0.06)	0.76*** (0.07)	0.72*** (0.08)	1.11*** (0.08)	0.75*** (0.06)	0.62*** (0.07)	0.84*** (0.07)	1.03*** (0.08)	1.09*** (0.11)
Wald χ^2 (Prob > χ^2)	208.65 (0.00)	196.69 (0.00)	235.89 (0.00)	386.68 (0.00)	296.04 (0.00)	193.41 (0.00)	225.72 (0.00)	226.58 (0.00)	170.81 (0.00)

Note: The table reports parameter estimates for ordered logit regressions using 1,231 observations. The dependent variables range from 1 (very unacceptable) to 5 (very acceptable). This table shows only a selection of explanatory variables. Available upon request are the coefficients of *income: unknown* and *region: North*. These are all insignificant. Robust standard errors are in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

In addition, compared with customers who do not use online banking, customers who use online banking have a more positive attitude towards the use of payments data to detect crime (case 1) and improve services (cases 3 and 4) but they are less supportive when payments data are tracked to offer travel insurance (case 6) or when their bank sells their data to a restaurant (case 9). Also, consumers who shop at least six times a year online have a more positive attitude in cases 1 and 4 than consumers who shop less frequently online or not at all. In contrast, frequent online shoppers are less supportive about payments data usage to give unasked-for savings advice or to help restaurants. People who use social media are more positive towards the usage of their payments data than other people. The effect is significant in cases 6 and 8.

Moreover, attitudes are significantly related to customers' satisfaction with their own bank and banks in general. For example, regarding the case about the unasked-for savings advice, a 1 point higher grade given to one's own bank is associated with a 1.6 percentage points lower likelihood of reporting the answer *"very unacceptable"* and a 1.1 percentage points lower likelihood of answering *"unacceptable"*.

Lastly, attitudes are positively related to perceptions of the banks' current practices. Consumers who think that the bank already uses payments data in a particular way find the usage more acceptable than other consumers.

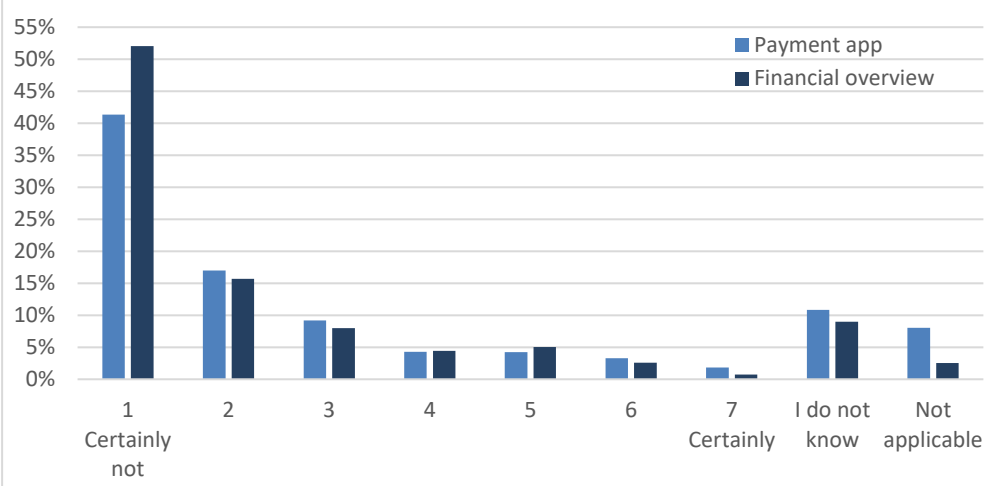
6. Willingness to share payments data with non-banks

6.1 Willingness to share payments data with non-banks is low

To further test the importance of the context for privacy attitudes, the answers to two questions of the trust survey are examined. The first question is: *"Suppose a company (non-bank) offers you the possibility to pay in stores with an app on your smartphone. For this purpose you need to share your bank data with this party. Assume you have a smartphone, would you use such an app?"*. The second question of interest is: *"Suppose a company (non-bank) offers you the possibility to make a comprehensive overview of your financial situation. For this purpose you need to share your bank data, data on insurance, pensions, etc. with this party. Would you do this?"*. Figure 1 show the response shares.

The willingness to share data to use innovative products offered by non-banks is low. A high share of respondents report that they would certainly not share their financial data with a non-bank. In case of the payment app the response share is 41%, whereas it is 52% in case of the financial overview. This finding highlights the importance of the context. Not only the aim of the data usage matters, but also the organisation that gets the data. This is in line with the findings presented on the restaurant case in Section 5.1.

Figure 1. Willingness to share payments data with non-banks to use innovative products



Source: CentERpanel, January 2016.
 Note: 2,105 observations.

6.2 Method

Ordered logit regressions are estimated to research the factors related to people’s willingness to share their payments data with non-banks to use innovative products. Two dependent variables are constructed: *attitude: payment app* and *attitude: financial overview*. Both variables range from 1 (certainly not willing to share data) to 7 (certainly willing to share data).¹³ The explanatory variables are the same as in the regressions used to explain the importance attached to privacy as a payment attribute (see Section 4.2).

6.3 Results

Trust matters for consumers’ willingness to share their data with non-banks, see Table 4. The models including the trust variables outperform the models without these variables.¹⁴ Trust has a positive effect on the willingness to share payments data to use a payment app. People who in general trust other people are more likely to share their data than people who distrust others. Table 4 also shows that the stronger the degree of trust in banks, the stronger the willingness to share payments data. Consumers who perceive managers of financial institutions as knowledgeable and ethical persons are more willing to share their payments data than consumers with a negative perception. To illustrate the effect of perceived knowledge of managers of financial institutions, if *managers: knowledgeable* is 1 higher, the likelihood of opting for “*certainly not willing to share data*” is 3.7 percentage points lower. Males are more willing to share payments data than females. Furthermore, the willingness to share payments data is relatively high among

¹³ The variables are set at missing and not included in the analyses for respondent who opted for “*I do not know*” or “*Not applicable*”.
¹⁴ Now the trust variables are simply based on the answers to the January 2016 trust survey.

young people and low among elderly people. Consumers with high income are more willing to share their payments data than consumers with low income.

Table 4. Willingness to share payments data with non-banks: ordered logit regressions

	(1) <i>Attitude: payment app</i>	(2) <i>Attitude: payment app</i>	(3) <i>Attitude: financial overview</i>	(4) <i>Attitude: financial overview</i>
<i>Male</i>	0.36*** (0.11)	0.39*** (0.11)	0.36*** (0.11)	0.39*** (0.11)
<i>24 and below</i>	0.69* (0.39)	0.74* (0.40)	0.53 (0.45)	0.51 (0.45)
<i>Between 25 and 34</i>	0.08 (0.22)	0.16 (0.22)	-0.13 (0.21)	-0.08 (0.22)
<i>Between 45 and 54</i>	-0.36** (0.16)	-0.36** (0.16)	-0.24 (0.16)	-0.27* (0.16)
<i>Between 55 and 64</i>	-0.80*** (0.17)	-0.81*** (0.17)	-0.92*** (0.17)	-0.93*** (0.17)
<i>65 and over</i>	-1.21*** (0.21)	-1.24*** (0.21)	-1.36*** (0.20)	-1.39*** (0.21)
<i>Education: bachelor degree or higher</i>	0.02 (0.11)	0.02 (0.11)	0.15 (0.11)	0.14 (0.11)
<i>Income: middle</i>	0.18 (0.14)	0.19 (0.14)	0.13 (0.14)	0.12 (0.14)
<i>Income: high</i>	0.39** (0.17)	0.29* (0.17)	0.31* (0.16)	0.20 (0.16)
<i>Region: South</i>	-0.19 (0.13)	-0.21* (0.13)	-0.13 (0.13)	-0.14 (0.13)
<i>Partner</i>	-0.19 (0.13)	-0.19 (0.13)	-0.23* (0.13)	-0.23* (0.13)
<i>Trust in other people</i>		0.25** (0.11)		0.28** (0.11)
<i>Trust in own bank</i>		-0.06 (0.09)		-0.01 (0.08)
<i>Trust in banks in general</i>		0.24*** (0.09)		0.11 (0.09)
<i>Managers: knowledgeable</i>		0.17** (0.08)		0.15* (0.08)
<i>Managers: ethical</i>		0.13* (0.07)		0.13* (0.08)
Observations	1,578	1,578	1,724	1,724
Wald χ^2 (Prob > χ^2)	176.22 (0.00)	213.78 (0.00)	192.43 (0.00)	224.64 (0.00)
Akaike's Information Criterion	4,442.82	4,400.58	4,358.91	4,329.78

Note: The table reports parameter estimates for ordered logit regressions. The dependent variable is *attitude: payment app* in column 1 and 2 and measures the willingness to share payments data with non-banks to use a payments app. The dependent variable in column 3 and 4 is *attitude: financial overview* and captures the willingness to share data with non-banks to get a financial overview. Both variables range from 1 (certainly not willing to share data) to 7 (certainly willing to share data). This table shows only a selection of explanatory variables. Available upon request are the coefficients of *income: unknown*, *region: North*, *region: East*, *degree of urbanisation*, *responsible for finances*, *number of children*, and *paid job*. These are all insignificant. Robust standard errors are in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

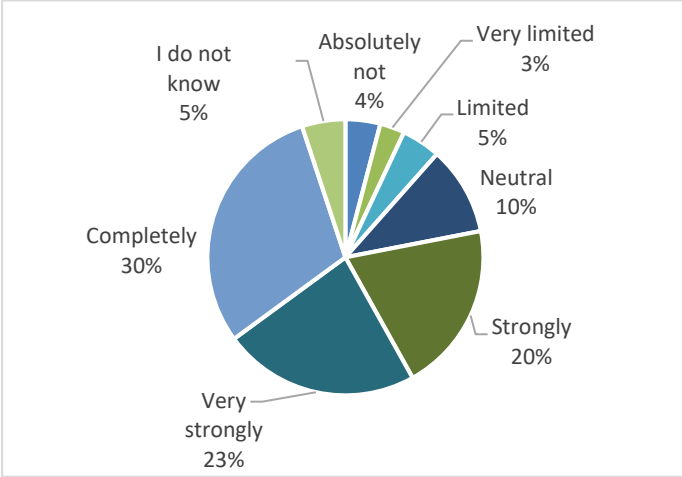
Trust is also significantly related to consumers' willingness to share data to be able to get a financial overview. Consumers who trust other people are more willing to share their financial data than other consumers. Also, people who find managers of financial institutions knowledgeable and ethical are more likely to share their data than people with lower levels of trust in these managers. As in the payment app case, the coefficient for *male* is positive and the

relationship between age and the willingness to share payments data is negative. For example, males are 8.7 percentage points less likely to answer “certainly not willing to share data” than females. People with a partner are less willing to share their payments data for this purpose than people without a partner.

7. Impact on trust

Based on the previous findings, it sounds plausible that careful handling of payments data is important to secure trust in banks. Trust in banks is not only key for banks themselves but also for financial stability. Therefore it is important to research the effect which commercial use of customer data has on trust in banks. This paper researches the outcomes of a question measuring what factors cause a loss of trust in one’s bank. An updated version of the main survey question in the research of Jansen et al. (2015), which was part of the 2016 trust survey, is used. The question is phrased as follows: “Suppose one of the following events occurs at you bank(s). To what extent will your trust in your bank(s) decrease?”. One of the eight factors examined is “Your bank(s) wants (want) to sell your data to other companies.”.¹⁵ The responses are illustrated in Figure 2.

Figure 2. Extent to which trust decreases when one’s own bank(s) wants (want) to sell customer data to other companies.



Source: CentERpanel, January 2016.
 Note: 2,105 observations.

The selling of data potentially leads to a substantial loss of trust. 3 out of 4 respondents report that their trust would decline strongly to completely when their bank would sell their data. Only 1 in 10 respondents report that it would have a limited to no effect on their level of trust. On average the reported trust loss is the highest in case of commercial use of customer data.

¹⁵ This factor was not included in the 2010 and 2012 surveys that Jansen et al. (2015) used.

“Managers of your bank are receiving large bonuses” ranks second and “There are media reports that customers of your bank(s) are withdrawing funds” is in third position.¹⁶

Regressions are estimated to explain variation in the degree to which consumers would lose trust in their bank(s) if it/they would want to sell their data to other companies. The dependent variable *trust trigger* is constructed. This variable ranges from 1 (absolutely no loss of trust) to 7 (complete loss of trust).¹⁷ The explanatory variables are similar to before (see Section 4.2). The regression results are in Table 5.

Table 5. Extent to which one loses trust when one’s bank(s) wants (want) to sell customer data: ordered logit regressions

	(1) <i>Trust trigger</i>	(2) <i>Trust trigger</i>
<i>Male</i>	-0.19** (0.10)	-0.20** (0.10)
<i>24 and below</i>	-0.32 (0.27)	-0.34 (0.27)
<i>Between 25 and 34</i>	-0.05 (0.18)	-0.15 (0.18)
<i>Between 45 and 54</i>	0.31** (0.14)	0.27* (0.14)
<i>Between 55 and 64</i>	0.45*** (0.15)	0.41*** (0.14)
<i>65 and over</i>	0.42** (0.18)	0.40** (0.17)
<i>Education: bachelor degree or higher</i>	0.20** (0.09)	0.16* (0.09)
<i>Income: middle</i>	0.10 (0.12)	0.11 (0.12)
<i>Income: high</i>	-0.14 (0.14)	-0.06 (0.14)
<i>Trust in other people</i>		0.14 (0.10)
<i>Trust in own bank</i>		-0.00 (0.08)
<i>Trust in banks in general</i>		-0.17** (0.08)
<i>Managers: knowledgeable</i>		-0.15** (0.07)
<i>Managers: ethical</i>		-0.28*** (0.07)
Observations	1,840	1,840
Wald χ^2 (Prob > χ^2)	50.81 (0.00)	131.71 (0.00)
Akaike’s Information Criterion	6,141.40	6,065.95

Note: The table reports parameter estimates for ordered logit regressions. The dependent variable is *trust trigger* and measures the answer to “Suppose one of the following events occurs at you bank(s). To what extent will your trust in your bank(s) decrease? Your bank(s) wants (want) to sell your data to other companies.” on a 1 (absolutely not) to 7 (completely) scale. This table shows only a selection of explanatory variables. Available upon request are the coefficients of *income: unknown*, *region: North*, *region: East*, *region: South*, *degree of urbanisation*, *responsible for finances*, *partner*, *number of children*, and *paid job*. These are all insignificant. Robust standard errors are in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

¹⁶ Other factors were: (1) “The explanations related to financial products of your bank(s) are lengthy and difficult to read.”, (2) “The share price of your bank(s) drops (drop) sharply.”, (3) “Family and friends are advising you to withdraw funds from your bank(s).”, (4) “Your bank(s) gets (get) government support.”, (5) “Your bank(s) is (are) repeatedly a target of cybercrime.”.

¹⁷ “I do not know” answers are set at missing.

The degree to which a planned sale of customer data would trigger a loss of trust is related to socio-demographic factors. Females are more likely to lose trust than males. The same holds for customers aged 45 and over compared with customers between 35 and 44 and people with a bachelor degree or higher compared with people with a lower degree of education.

The extent to which one loses trust when a bank wants to sell customer data also depends on the level of trust in banks (Table 5, column 2). A model including trust variables as explanatory variables outperforms a model without these variables. The higher trust in banks is, the lower the extent to which one would lose trust as a result of the bank's intention to sell customer data. The reported trust loss depends negatively on the perceived knowledge and ethical behaviour of managers of financial institutions. For example, a person who agrees that in general managers of financial institutions are ethical is 11.6 percentage points less likely to completely lose trust than a person who disagrees that these managers are ethical.

8. Conclusion

Financial institutions need to constantly rethink their privacy and data protection policies owing to new developments. They also need to take into account the effects of their policies on customer behaviour. Moreover, for policymakers it is also key to know consumers' attitudes towards use of their payments data by banks and other companies. This research reveals that consumers generally find privacy of their payments data important. It also shows that their willingness to support the use of this data is clearly context-dependent. For example, when payments data are used to secure safety, most people support its usage. However, most consumers find it unacceptable for banks to sell their payments data or spending patterns obtained from these data to other companies. Only 1 in 20 respondents find the use their data acceptable in all situations or have a neutral attitude. The relationships with socio-demographic characteristics, satisfaction with the bank and perceptions of the current situation also depend on the aim of the data usage. Moreover, this research shows that the selling of customer data to other companies can have a strong effect on people's trust in banks. Lastly, this paper finds that most people are unwilling to share their payments data with non-banks to use a payment app or get a financial overview. This holds particularly for consumers who do not trust other people and banks and for consumers who have a negative picture of the ethical behaviour and knowledge of managers of financial institutions. Customers' trust is an important prerequisite for banks to be able to make better use of payments data.

These findings have important implications. It is key for banks that try to keep their customers satisfied to know that most people are not happy about other companies using their payments data, that privacy attitudes differ between people and are context-dependent, and to take these facts into account when deciding on the use of payments data. These are also important

facts for legislators seeking to protect consumers' privacy. For policymakers aiming to safeguard financial stability and banks it is essential to be aware that the commercial use of payments data without consumers' approval can result in a serious loss of trust in banks. Banks may either follow a strategy by which data usage is tailored towards the wishes of each specific customer or choose to build a customer base that consists of a specific type of customer. In the latter case, a bank can either position itself as a bank that finds privacy very important and does not turn customer data into gold or as a bank that follows new trends in payments data usage and makes optimal use of customer data.

All in all, these results support the notion that the aim of data usage must be communicated clearly to consumers and that it is important to ask for their consent in such a way that people know what they are saying yes to. Only this way it is possible for banks to make better use of payments data.

There are several directions for further research. It is important to research consumers' attitudes in other countries to learn to what degree our results can be generalized. Future research is also needed to obtain more detailed insight into consumers' attitudes when the financial reward of sharing information is presented explicitly. In addition, it would be interesting to repeat the surveys over time, because the importance attached to privacy may change over time.

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