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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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Features that drive adoption of new payment methods: Evidence from a Discrete Choice Experiment*

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Abstract

This study examines which features drive consumer adoption of new digital payment methods in the Netherlands. We conducted a Discrete Choice Experiment in the LISS panel in November 2025 among 2,084 respondents and analyse preferences for six features: the origin of the payment service provider, the functionality, app requirements, privacy, delayed payments, and automatic payment functionalities. The results show that the origin of the provider is the strongest determinant of adoption. Relative to payment methods offered by a Dutch provider, otherwise identical methods offered by European, American or Asian providers are significantly less preferred. Convenience also matters. Respondents prefer payment methods that are integrated into an existing banking app, can be used both online and in stores, and support recurring automatic payments. By contrast, additional features such as offline use and conditional payments add limited utility. A latent class model reveals substantial heterogeneity, distinguishing a small group of reluctant non-adopters from several adopter segments that differ in their sensitivity to the attributes. The findings imply that a broad adoption of new digital payment methods is most likely when trusted governance is combined with convenient, well-integrated functionality. Policymakers, banks and other PSPs should communicate clearly why new payment methods are being developed and how their features benefit consumers in everyday use.

Key words: digital payments; consumer adoption; discrete choice experiment; payment preferences

JEL codes: D12, C93, G41, E58

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1. Introduction

Consumers increasingly rely on cards, mobile apps and other digital solutions for their everyday payments. Nowadays, consumers have access to a wide array of payment instruments for all kinds of payments: at point-of-sale, online or peer-to-peer payments. At the same time, new payment instruments are being developed in response to concerns about resilience, privacy and strategic autonomy. Central banks around the world are exploring, piloting and implementing Central Bank Digital Currencies (CBDCs) as potential public digital alternatives to existing payment systems with the aim of enhancing financial inclusion and autonomy. To illustrate, Illes et al. (2025) surveyed 93 central banks, of which 85 were exploring retail CBDC, wholesale CBDC or both. Another example is stablecoins, a type of crypto-asset that is tied to fiat currencies or other assets, to maintain a relative stable value (FSB, 2020; Arner et al., 2020).

The rise of innovative payment methods raises the question to what extent consumers are willing to adopt new payment instruments and which features would drive this adoption. This study addresses that question for the Netherlands. The Netherlands is at the forefront of digitalised payments: only 17% of point-of-sale payments are made in cash (DNB & DPA, 2026), while the European average is around 50% (ECB, 2024). Understanding what makes consumers willing to adopt and use a payment method is important for designing inclusive and resilient payment options, especially in a context where network effects play an important role for the success of the innovation.

We examine how six specific features of payment methods influence the willingness to adopt and use a new payment method: the region of origin of the payment service provider (PSP), functionality, app requirements, privacy, delayed payments and automatic payments. The preferences are elicited through a Discrete Choice Experiment (DCE) in which respondents repeatedly choose between two hypothetical payment methods with varying attribute levels or indicate that they would prefer neither option (the opt-out option). This method is particularly well suited to this context as it allows the analysis of preferences for hypothetical scenarios. Revealed preference data is restricted to existing payment instruments, while a DCE enables the evaluation of new payment designs and the trade-offs consumers make between these features (McFadden, 1974; Train, 2009; de Bekker-Grob et al., 2012). As shown also in this study, a discrepancy between stated revealed preference and choice-based data is often found. By using a DCE, this study moves beyond stated attitudes and quantifies the relative importance consumers assign to specific payment attributes. The data were collected through the Dutch LISS panel in November 2025 and are analysed using Multinomial Logit (MNL) and Latent Class (LC) models.

Three findings of this study stand out. First, the strongest driver of adoption of new payments is the origin of the PSP. Dutch consumers exhibit a clear home bias and more broadly a preference for European over non-European providers. Second, convenience matters. Respondents dislike payment methods that require a new app, that work only online (but not at point-of-sale) or lack the option for automatic payments. Simultaneously, we find no added value in features like offline, delayed or conditional payments. Third, preferences are heterogeneous. While only a small segment of respondents is unlikely to adopt at all, for other

segments different features matter. Personal characteristics such as age, digital skills and trust in different institutions also play a role.

By examining consumer preferences for new payment method features, this research contributes to the growing literature on payment innovation and adoption. Recent DCE studies in payments by Elsinger et al. (2025) and Choi et al. (2026) examine consumer preferences for alternative CBDC designs. Rather than studying the adoption of specific CBDC designs, our paper aims to identify the broader conditions under which consumers are willing to adopt new digital payment methods. In addition, by jointly examining institutional attributes, such as the geographical origin of the provider and the level of privacy of the payment data, and practical characteristics related to functionality, app integration, delayed payments and automatic payments. Moreover, the latent class analysis identifies distinct consumer segments, showing not only which features matter on average, but also how these differ across groups. The results are relevant for both policymakers and private providers designing new payment instruments in a context shaped by consumer preferences, network effects and trust.

The remainder of the paper is structured as follows. Section 2 summarizes relevant literature. Section 3 describes the DCE design data collection and Section 4 sets out the methodology. Section 5 presents the results. Section 6 concludes and discusses the policy implications and suggestions for further research.

2. Literature

Consumer adoption and use of payment instruments depend on the characteristics of the instrument, consumers' perceptions of those characteristics, socio-demographic traits, and institutional conditions. Key attributes such as perceived ease of use, perceived usefulness, speed, safety and trust have consistently been identified as important drivers of adoption (Kim et al., 2007; Gao & Waechter, 2017; Hasan et al., 2024). These factors are typically studied through the Technology Acceptance Model (TAM) or the Unified Theory of Acceptance and Use of Technology (UTAUT) (Venkatesh et al., 2010). These models measure the willingness to use a method as the main predictor for actual use. Al-Saedi et al. (2020) conducted a quantitative meta-analysis of 25 studies that used the UTAUT in the context of mobile payments and showed that perceived risk, perceived trust, perceived cost and self-efficacy were the most frequent significant factors in the surveyed studies.

In the payment literature, adoption decisions are strongly linked to how consumers perceive attributes of payment instruments. Schuh and Stavins (2013) and Greene et al. (2024) show that consumer adoption decisions are driven by consumers' perception of the payment attributes, even after controlling for demographics and financial variables. Foscht et al. (2010) find that features of the payment method shape both acceptance and desirability. Therefore, payment adoption is a relevant setting for a DCE, as the DCE forces respondents to make trade-offs between features directly.

Consumer characteristics also play a role in the adoption of payment methods (Foscht et al., 2010). For example, risk attitude and personal innovativeness (Yang et al., 2011), but also age, gender and level of income (Shy et al., 2021; Greene et al., 2024). The total number of payment methods that are adopted significantly depends on demographic variables such as age. Younger consumers tend to hold a larger portfolio of payment

instruments than older consumers (Schuh & Stavins, 2013). The relative weight of these demographics varies across Europe. Studies in Italy (Migliore et al., 2022) and Belgium (Hellemans et al., 2023) show that the willingness to use mobile payments depend on both personal characteristics and the local setting. For instance, Migliore et al. (2022) find that for Italian consumers social influence and habit play an important role in the adoption of mobile payments. In Belgium, regional difference remain after controlling for socio-economic variables which suggests that regional cultural differences play a role in adoption in Flanders (Dutch speaking) and Wallonia (French speaking).

Trust is often seen as a basic condition for adoption rather than one of the drivers as payments depend heavily on trust between the parties involved in the transaction. Chandra et al. (2010) and Xin et al. (2015) show that trust strongly shapes the intention to adopt mobile payments. The reputation of the service provider and payment vendor contributes to the level of trust (Chandra et al., 2010). Initial trust, before using the service, has a positive impact on perceived usefulness and use intention (Zhou, 2011) and trust also supports continued use (Shao et al., 2019).

Price-related attributes are another key determinant of payment choice. A large body of literature highlights the importance of costs, surcharges and financial incentives in shaping adoption and use (e.g. Humphrey et al., 2001; Borzekowski et al., 2008; Choi et al., 2026). In acceptance models this is captured as the price value, i.e. the trade-off consumers make between the benefits of a method and what it costs to use (Venkatesh et al., 2012). Koulayev et al. (2016) examined the adoption and use of payment instruments across contexts and show that increasing debit costs shift low-income consumers towards paper-based method (cash or cheques), while high-income consumers shift more towards credit cards. Consumers are likely to deviate from their preferred payment method if they can avoid a surcharge or receive a discount (Stavins, 2018). Loyalty reward programs can induce a shift to credit card usage at the expense of cash and debit card use (Arango et al., 2015). Aboolet and Fang (2021) find that people who consider mobile payments affordable are more likely to use them. Costs matter on the merchant's side as well. Caps on interchange fees have been linked to lower merchant costs and wider card acceptance (Carbó-Valverde et al., 2016), which connects price to the merchant-acceptance dynamics discussed next.

Finally, supply-side factors such as merchant acceptance play a crucial role. Consumers can only use payment instruments that are accepted in this two-sided market, in which a method succeeds only when enough consumers adopt it and enough merchants accept it (Rochet & Tirole, 2003). Network effects are therefore central to adoption: consumers prefer methods that many merchants accept, while merchants prefer methods that many consumers use (Arifovic, 2020). Huynh et al. (2022) show that use of a payment method only occurs if both sides of the market adopt and accept the instrument, where merchant acceptance depends strongly on costs and consumer acceptance depends on merchant acceptance. There is a mutual feedback loop on both sides as consumer adoption depends on merchant acceptance, and vice versa (Rysman, 2007; Huyng et al., 2022). Using French data, Bounie et al (2017) confirm this pattern. They find that merchants are more likely to accept cards in places where local customers prefer to pay by card. However, the relative importance of merchant

acceptance may vary across payment types. Wakamori and Welte (2017) find that cash usage is primarily driven by consumer preference rather than merchant acceptance.

Our study contributes to the literature in three ways. First, whereas much of the payment adoption literature examines broad perceptions such as usefulness, ease of use, risk and trust, we quantify consumers' trade-offs between concrete design features of a hypothetical new payment method. The design allows us to jointly examine institutional and practical characteristics. Second, we extend the emerging DCE literature on digital payments. For example, Elsinger et al. (2025) and Choi et al. (2026) examine preferences for alternative designs for CBDC. Our study differs from these studies by examining more generic new digital payment methods rather than one predetermined instrument. Third, by conducting a latent class analysis, we identify distinct heterogenous groups.

3. Discrete Choice Experiment

A DCE is a method to elicit individual preferences in a context where goods or services have multiple attributes. Originating from random utility theory, DCEs are particularly valuable in understanding how individuals make trade-offs between features of a product or service (McFadden, 1974; Merino-Castello, 2003). This type of experiment is commonly applied in fields such as health economics (Kjaer, 2005; de Bekker-Grob et al., 2012), transportation (Hensher, 1994), marketing and consumer research (Louviere et al., 2000) and increasingly in payment services (Elsinger et al., 2025; Choi et al., 2026).

In a DCE, respondents are presented with a series of hypothetical choice sets. Each choice set consists of two or more alternatives that vary systematically in the levels of the attributes. For each choice set, the respondent indicates their preferred alternative. By asking each respondent multiple choice sets, their underlying preferences and the relative importance of the attributes are uncovered. This approach closely mirrors real-world decision-making, where consumers choose between competing options with varying characteristics (Merino-Castello, 2003).

3.1. Attributes and levels

To identify and quantify the importance of six features of new payment instruments, this study employs a DCE. Each attribute is made as concrete and realistic as possible to reflect actual choices that consumers may need to make. The DCE includes six attributes, with either two, three or four levels. Table 1 shows an overview of these attributes, including the explanation given to the respondents in the survey before the start of the DCE. Some important drivers of adoption and use are not included in this experiment such as price and merchant acceptance. Price is excluded from the experiment as this could dominate the valuation of other design features, while our main goal is to understand more about the actual design features. Moreover, merchant acceptance is also held constant, allowing us to isolate preferences based on intrinsic characteristics of the payment method. The results should therefore be interpreted as preferences conditional on cost and acceptance.

3.1.1. Payment Service Provider

The PSP attribute captures the institutional origin of the payment method, with levels distinguishing between the Netherlands, Europe, the United States and Asia. This attribute reflects differences in trust and regulatory environment in which the PSP operates. Existing research shows that the identity of the issuer is a key determinant of payment adoption. Choi et al. (2026) show that consumers differentiate between central banks, private financial institutions and BigTechs, with central banks being the preferred issuer among South-Korean consumers. In the marketing literature this is studied more broadly. Verlegh & Steenkamp (1999) conclude that consumers rely on the origin of the provider when little other information is known and perceived risks are high. In an experiment, Michaelis et al. (2008) find that a favourable country of origin raises initial trust for high-risk services. For the Dutch banking sector, van der Cruijsen and Diepstraten (2017) show that consumers are not likely to switch to a foreign bank. By including geographic origin as an attribute, rather than type of issuer, the DCE captures preferences for domestic versus foreign providers. This is especially relevant for the development of the digital euro and in the current geopolitical climate, in which Dutch card payments rely largely on non-European providers.

Table 1. DCE attributes and levels

Attribute	Explanation	Levels
Payment service provider (PSP)	The country or region the organization offering the payment method comes from	(1) the Netherlands (2) Europe (3) United States (4) Asia
Functionality	The ways in which you can use the payment method	(1) Online, in stores and offline (like a payment card that can be loaded with money) (2) Online and in stores (3) Online only
App requirements	Which app is required to use the payment method	(1) Existing bank app (2) New app
Delayed payments	The option to set up a payment now and send it later (for example to give you time to review the payment)	(1) Send payment max. 10 seconds later (2) Send payment max. 1 hour later (3) Send payment max. 1 day later
Privacy	Which parties have access to your personal data (for example you bank account number)	(1) Fully anonymous (2) Only the PSP has access to your data (3) Your data can only be shared to third parties with your permission
Automatic payments	The option to pay automatically for recurring expenses (such as rent or insurance) or when a condition is met (such as the delivery of a package)	(1) You need to pay each payment separately (2) Automatic payments are possible for recurring payments (such as rent) (3) Automatic payments are possible for recurring payments (such as rent) and when a condition is met (such as the delivery of a package)

3.1.2. Functionality

The functionality attribute reflects in which context the payment method can be used; only online, online and in store, or also offline. Functionality is a crucial determinant of payment behaviour (Koulayev et al. (2016). Schuh and Stavins (2013) show that, conditional on adoption, the ease of use significantly influences the actual

use. Teo et al. (2015) and Boden et al. (2020) conclude that convenience is especially important for mobile payments. More specifically, the use for in-store mobile payments is driven by ease of use, usefulness, perceived risk, convenience and trust (de Kerviler et al., 2016). Elsinger et al. (2025) included an online/offline attribute in their DCE for different forms of the digital euro and found that the offline functionality had a limited impact on adoption compared to an online only option. The variation in the attribute levels allows us to identify how much consumers value functionality in a payment context and whether there is added value to an offline option in new payment instruments.

3.1.3. App requirements

The app attribute captures whether the payment method requires a consumer to download a new app to use it, or whether it can be used in their existing bank app. This attribute reflects onboarding complexity and access barriers. Difficulty in setting up a new payment method has a negative effect on adoption (Schuh & Stavins, 2013; Huynh et al., 2022). In acceptance models, a download requirement raises the effort involved which lowers the willingness to use (Venkatesh et al., 2012). Innovation resistance theory similarly identifies this barrier which can actively discourage consumers who would otherwise be likely to use the new product (Kaur et al., 2020). While this attribute is closely linked to functionality, the app attribute focuses more on possible barriers during the adoption stage, whereas functionality focuses on ease of use while using the payment method. The DCE allows us to learn about the trade-off.

3.1.4. Privacy

The privacy attribute relates to the extent to which personal payment data can be accessed or shared. Either payments can be made fully anonymous, the payment data is accessible to the PSP or data can be shared with third parties with user permission. Privacy is a key concern in digital payments. Yang et al. (2015) show that privacy, financial and performance risk, has a strong negative effect on the intention to use mobile payments. In several countries, like India and Malaysia, mobile payments are underutilised and the lack of adoption has been attributed to privacy concerns among users (Sahi et al., 2022). Choi et al. (2025) find that privacy preferences may depend on transaction type and payment instrument. Moreover, Bijlsma et al. (2024) show that personal characteristics, consumers' digital skills, online behaviour and trust in firms affect consumers' attitude towards data usage. Elsinger et al. (2025) show that, without remuneration, consumers are indifferent between full privacy and limited privacy in payments, but monetary incentives may make them more willing to sacrifice some privacy. This does not hold for privacy-sensitive consumers. The inclusion of the privacy attribute builds on research by Elsinger et al. (2025) by including the third option where payment data can be shared with third parties with user permission.

3.1.5. Delayed payments

The delayed payments attribute captures flexibility in payment timing. Three different levels (10 seconds, 1 hour and 1 day) indicate the maximum delay that is possible between initiating and executing the payment.

These levels were chosen to represent a near instant payment (10 seconds), a relatively short period (1 hour) and a substantial period (1 day). The levels were deliberately spaced apart to make the trade-off between speed and control more salient for respondents. Fast and real-time payments are key drivers of adoption (Aurazo et al., 2024), reflecting consumer demand for instant payments. However, the option to delay a payment may be a useful additional feature, allowing a transaction to be checked before it is settled, for example to double check correctness of the amount or addressee, to take a pause to prevent from phishing or discourage coercion of criminals. This points to a trade-off between speed and control. Note that the explanation on possible fraud prevention was not shared in the survey.

3.1.6. Automatic payments

The automatic payments attribute reflects the degree of automation in recurring or conditional payments with three different levels: manual payments only, automatic payments for recurring payments or automatic payments for both recurring payments and conditional events (smart contracts). Automation is an increasingly interesting element of payment systems with the rise of agentic payments and the importance of seamless and embedded payments to increase convenience (Tan et al., 2025). Automation raises the usefulness of a method, but it also involves a trade-off between convenience and control. The attribute gives us insights about consumer preferences and how much value they adhere to an additional feature like conditional payments. As with delayed payments, the literature on this topic is scarce.

3.2. Survey design

The survey was administered through the LISS panel[1] in November 2025. In total, 2,084 respondents completed the questionnaire, corresponding to a response rate of 76.3%. Besides the DCE, the questionnaire included items on payment behaviour, payment preferences, familiarity with new payment instruments (Wero, digital euro, stablecoins) and self-assessed digital skills.

The questionnaire was pre-tested in October 2025 among payment experts and average consumers to ensure a sound design. Pre-testing can improve respondents understanding of the attributes and levels and help with readability and structure. Additionally, it may prevent respondent fatigue (Campoamor et al., 2024). For the pre-testing, participants first completed the proposed DCE and the additional survey questions, followed by some questions about their thoughts during and ideas for the survey. In total, fourteen participants took part in the pre-test. Based on the pre-test, we made some adjustments. First, we adjusted the explanation of the attributes to be easier to understand and we made sure that the explanation was available on each page of the DCE questions. Second, rather than only asking which attribute was the most/least important, we changed this to a likert-scale question (1-5) and asked respondents to rate each attribute. Third, we added several reasons

[1] The LISS panel is used by numerous researchers. The following link shows a list of recent publications: https://www.dataarchive.lissdata.nl/publications

why people would want to use a new payment method. Finally, we added a question on trust in the ECB and a question to measure digital skills of the respondent.

Given the number of attributes and levels, a full factorial design would generate $4 \times 2 \times 3^4 = 648$ possible alternatives. Presenting all these alternatives would be impossible. Therefore, we use a fractional factorial design to select a subset of alternatives to preserve statistical efficiency and to keep the survey comprehensible for respondents. The experimental design was constructed using a D-optimal design approach (Louviere et al., 2000; Train, 2009). The design was generated in R using the *idefix* package without any prior parameter values (Shang & Chandra, 2023). The final design consisted of 32 choice sets. Each choice set includes two alternatives and an opt-out option in case the respondent does not choose either alternative. These 32 choice sets were divided into four blocks of eight choice sets. These blocks were created to be balanced among the levels of the attributes. The four blocks lead to four versions of the questionnaire which were randomly distributed among respondents. Within the survey, choice sets were randomized for each respondent to prevent bias. Each choice set was guided by the question: *which payment method would you be most likely to use, alongside the payment methods you already use?*

3.3. Explanatory variables

Besides the attributes, several explanatory variables are used to capture heterogeneity in the sample. These include gender, age, digital skills and trust in different institutions. *Female* is a binary variable which is 1 if the respondent is female and 0 if the respondent is male. *Age* is a continuous variable that captures the age of the respondent. *Digital skills* is a binary variable which is 1 if the respondent has high perceived digital skills and 0 otherwise, based on the self-assessment question: *what grade would you give yourself for digital skills in general on a scale of 1 to 10? Where 1 means '(almost) no digital skills' and 10 'very good digital skills.* Respondents who give themselves a 6 or higher are considered to have high digital skills. Finally, the trust variables are categorical on a scale of 1 'very little trust' to 5 'a lot of trust'. We measured trust in Dutch banks, the Dutch government, BigTech companies, the Dutch central bank (DNB), the European Central Bank (ECB) and in the Dutch payment system. Table 2 lists the descriptive statistics.

Table 2. Descriptive statistics

	Mean	Std.	Min.	Max.
Female	0.51	0.50	0	1
Age	55.87	18.18	16	97
Digital skills	0.86	0.35	0	1
Trust in Dutch banks	3.56	0.80	1	5
Trust in the Dutch government	3.00	0.94	1	5
Trust in BigTech companies	2.40	0.84	1	5
Trust in the Dutch central bank	3.62	0.87	1	5
Trust in the European Central Bank	3.31	0.91	1	5
Trust in the Dutch payment system	3.61	0.74	1	5

Note: Unweighted results based on 2,084 respondents.

4. Methodology

To analyse the outcomes of the DCE we estimate two models. First, Multinomial Logit (MNL) models to estimate the average effect of the attribute levels and the relative importance of each attribute. Second, a Latent Class (LC) model to uncover heterogeneity between groups in payment adoption.

Both models are grounded in random utility theory (McFadden, 1974; Train, 2009). Each payment method is presented in a choice task and delivers a certain level of benefit (utility) to the respondent. We assume that the respondent chooses the alternative that yields the highest utility for them. Each respondent *n* (N = 2,084) completes *C* = 8 choice sets with J = 3 alternatives (option A, option B and the opt-out option). Option A and B in choice set *c* are described by a vector of six attributes with different levels as specified in Section 3. The utility that respondent *n* derives from alternative *j* in choice set *c* is specified as:

$$U_{njc} = V_{njc} + \epsilon_{njc},$$

where V_{njc} is the observable utility and ϵ_{njc} the unobserved stochastic error term. The observable utility is modelled as a function of the attribute levels:

$$V_{njc} = \delta ASC_j + \beta' \boldsymbol{x}_{njc},$$

where $\boldsymbol{x}_{njc}$ is a vector of dummy-coded attribute levels (given that each attribute is categorical or binary). The estimated preference parameters are captured in vector β (McFadden, 1974; Train, 2009). This shows the utility of each attribute level relative to the reference level of that same attribute. The term δASC_j is the alternative-specific constant (ASC) for the opt-out, which equals 1 if the opt-out option is chosen and 0 otherwise. This constant is needed to distinguish between choosing a payment method at the reference level or not choosing a payment method at all.

4.1.1. Multinomial Logit Model

The MNL model (McFadden, 1974) is a widely used model to analyse the outcomes of a DCE. It assumes that the error terms are independently and identically distributed following the Type I Extreme Value distribution. Under this assumption, the probability that respondent *n* chooses alternative *j* in choice situation *c* is given by:

$$P_{njc} = \frac{\exp(V_{njc})}{\sum_{k=1}^{J} \exp(V_{nkc})}.$$

The vector β is estimated by maximum likelihood, where $y_{njc} = 1$ if alternative *j* is chosen and 0 otherwise. The log-likelihood is:

$$\ln \mathcal{L} = \sum_{n=1}^{N} \sum_{c=1}^{C} \sum_{j=1}^{J} y_{njc} \ln P_{njc}\,.$$

As every respondent makes eight choices, these are not independent observations. We therefore report clustered standard errors at the respondent level. Moreover, the MNL assumes the Independence of Irrelevant Alternatives (IIA) and preference homogeneity across respondents. The IIA implies that the relative odds of choosing option A over option B do not depend on other alternatives in the choice set. While this assumption may not hold in practice, the MNL model is still widely used for analysing DCE data and provides a useful benchmark for

evaluating consumer preferences (Train, 2009). In the next section, we discuss the LC model which relaxes the IIA.

To capture observed heterogeneity, we also estimate the model with interaction effects for gender, age and digital skills. As a robustness check, we re-estimate the baseline model excluding the respondents who opted out all eight choice tasks.

4.1.2. Latent Class Model

As the MNL model assumes homogeneity across respondents, we additionally estimate a LC model to account for unobserved heterogeneity (Kamakura & Russell, 1989; Wedel & Kamakura, 2000; Train, 2009). This model assumes that the population consists of a finite number of unobserved (latent) classes *S*, each with its own set of preference parameters β_s. These class-specific estimates can reveal differences in sensitivity to attributes in the DCE. Respondents are not allocated to a class manually. The model infers the preference for each class and the probability that a given respondent belongs to a certain class based on the posterior probabilities. The model specification is as follows.

Conditional on belonging to class *s*, the utility of respondent *n* for alternative *j* in choice set *c* is:

$$U_{njc|s} = V_{njc|s+}\, \epsilon_{njc|s} = \delta_s ASC_j + \beta_s' \boldsymbol{x}_{njc|s} + \epsilon_{njc|s},$$

with the error terms assumed to follow the same distribution as the MNL model. The class-specific choice probability is therefore

$$P_{njc|s} = \frac{\exp(V_{njc|s})}{\sum_{k=1}^{J} \exp(V_{nkc|s})}.$$

Besides the choice probability, it is also necessary to estimate the probability of class membership. The probability that respondent *n* belongs to class *s* is estimated as

$$\pi_{ns} = \frac{\exp(\gamma_s' \boldsymbol{z}_n)}{\sum_{r=1}^{S} \exp(\gamma_r' \boldsymbol{z}_n)},$$

where γ_s is a vector of parameters for the class membership and $\boldsymbol{z}_n$ may contain socio-demographic variables. Combining all these elements, the log-likelihood is

$$\ln \mathcal{L} = \sum_{n=1}^{N} ln \left[\sum_{s=1}^{S} \pi_s \prod_{c=1}^{C} \prod_{j=1}^{J} (P_{njc|s})^{y_{njc}} \right].$$

The log-likelihood is maximised using the Expectation-Maximisation (EM) algorithm (Dempster et al., 1977) from thirty random starting points to prevent entering a local optimum. To determine the number of classes, we estimate models with an increasing number of classes and compare them by examining the Bayesian Information Criterion (BIC) and the Akaike Information Criterion (AIC). We additionally require classes to be of a substantial size (> 10% of the sample) and examine model complexity.

5. Results

5.1. MNL

Table 3 presents the estimation results of the MNL models. The reference categories are a Dutch PSP, online, in stores and offline functionalities, integration into existing banking app, a delayed payment at most 1 day later, full anonymity, and automatic and recurring conditional payments. Model 1 includes all respondents, whereas Model 2 excludes respondents who consistently selected the opt-out option across all eight choice sets (*non-adopters*). The results are highly similar across both specifications in terms of sign, magnitude and statistical significance, indicating that the findings are largely robust to the exclusion of non-adopters. Coefficients in Model 2 are generally somewhat larger in absolute value, suggesting stronger preferences among respondents who are willing to adopt a new payment method.

The ASC for the opt-out option is negative and highly significant in both models. This implies that respondents generally prefer to select a payment method described by the six attributes than opting out. The more negative coefficient in Model 2 (-2.154 versus -1.620) suggests an even stronger propensity to adopt a new payment method among adopters. The remainder of the results describe the results of Model 1.

The region of origin of the PSP is the most important determinant for the adoption of new payment methods. Relative to a PSP originating from the Netherlands, all foreign PSPs are associated with significantly lower utility. The negative coefficients increase in magnitude from Europe (-0.465) to the United States (-1.527) and Asia (-2.082). The pattern indicates a clear home bias for domestic payment instruments, with decreasing preference as the geographical distance from the Netherlands increases. Holding all other attributes constant, the odds of choosing a payment method decrease by approximately 37% for a European PSP, 78% for a US PSP and 88% for an Asian PSP.

Several other attributes influence adoption decisions, although these effects are considerably smaller than the PSP effect. Respondents prefer payment methods that can be integrated in their existing banking app. The estimated coefficient implies that the odds of choosing a payment method are approximately 39% lower when users must download a new application.

Consumers also value broad functionalities. A payment method that can only be used online is significantly less preferred than one that can be used online, in physical stores and offline. By contrast, there is no significant difference between payment methods that can be used both online and in stores and the reference category. This suggests that consumers primarily value the ability to use the payment method across multiple contexts, while the offline functionality provides no significant additional utility. Automatic payment functionality is valued by consumers. Payment methods that do not support automatic payments are significantly less preferred than those offering both recurring and conditional payments. However, offering only recurring payments does not significantly reduce utility compared to being able to do both recurring and conditional payments. Again, this indicates that consumers place relatively little additional value on more advanced forms of payment automation. These features show the importance of functionality and convenience for the adoption of new payment methods.

Privacy plays a comparatively modest role in adoption decisions. Note that in the experiment, all levels of privacy were relatively high and that this may have an effect on these conclusions. Relative to a fully anonymous payment method, utility declines when personal payment data are known to the PSP or may be shared with third parties. The effect is statistically significant only for third-party data sharing, indicating that consumers are particularly concerned about broader dissemination of their payment information. This is in line with earlier findings by for example Bijlsma et al. (2024).

Finally, settlement speed has a positive but comparatively small effect. The delayed payments attribute shows that respondents prefer faster settlement times, with near-instant settlement (max. 10 seconds) generating the highest utility. While the potential fraud-prevention benefits of this attribute were not explicitly explained in the survey, the results seem to indicate that respondents either do not see this option as a (useful) fraud prevention option or that they do really value speed more.

Table 3. Results MNL

	(1) All respondents	(2) All respondents excluding non-adopters
ASC opt-out	-1.620***	-2.154***
	(0.059)	(0.061)
Region of origin PSP: Europe	-0.465***	-0.527***
	(0.028)	(0.031)
Region of origin PSP: United States	-1.527***	-1.647***
	(0.044)	(0.047)
Region of origin PSP: Asia	-2.082***	-2.194***
	(0.052)	(0.054)
Functionality: In stores and online	-0.034	-0.010
	(0.030)	(0.031)
Functionality: Online only	-0.418***	-0.437***
	(0.032)	(0.033)
App requirements: New app	-0.465***	-0.491***
	(0.023)	(0.024)
Delayed payments: Max. 10 seconds	0.115***	0.129***
	(0.028)	(0.030)
Delayed payments: Max. 1 hour	0.064**	0.087***
	(0.026)	(0.028)
Privacy: Personal data known to PSP	-0.229	-0.204
	(0.033)	(0.033)
Privacy: Personal data may be shared with third party	-0.327***	-0.335***
	(0.029)	(0.031)
Automatic payments: No automatic payments	-0.282***	-0.311***
	(0.038)	(0.039)
Automatic payments: Recurrent payments possible	0.019	0.035
	(0.028)	(0.029)
Observations	50,256	44,976
Number of respondents	2,084	1,864
Choice sets per respondent	8	8
Unique choice sets	32	32

Note: Standard errors are between parentheses and clustered at the respondent level. Significance levels are shown as follows: *** p < 0.01, ** p < 0.05, * p < 0.1.

5.1.1. MNL with heterogenous effects

To examine whether preferences for new payment methods vary across population groups, we estimate MNL models with interaction effects for age, digital skills and gender. Section 3 provides a detailed description of these variables.

Table 4 presents the results for heterogenous preferences by digital skills. Consistent with expectations, respondents with higher digital skills display greater willingness to adopt new payment methods, which is reflected in the significantly lower propensity to select the opt-out option. More digitally skilled respondents attach greater importance to the origin of the PSP, exhibiting stronger negative preferences for providers originating from the United States and Asia.

Interestingly, a negative significant interaction effect is found for the requirement to install a separate app. This suggests that the inconvenience of downloading an additional application is perceived more negatively by respondents with high digital skills. Moreover, significant negative interaction effects are also found for online only payment methods and not being able to do automatic payments. Taken together, people with high digital skills are more innovation-oriented and less likely to stick to the status quo. At the same time, they do exhibit stronger preferences for certain characteristics such as origin of PSP and functionalities.

Table 4. Results MNL with digital skills interaction effects

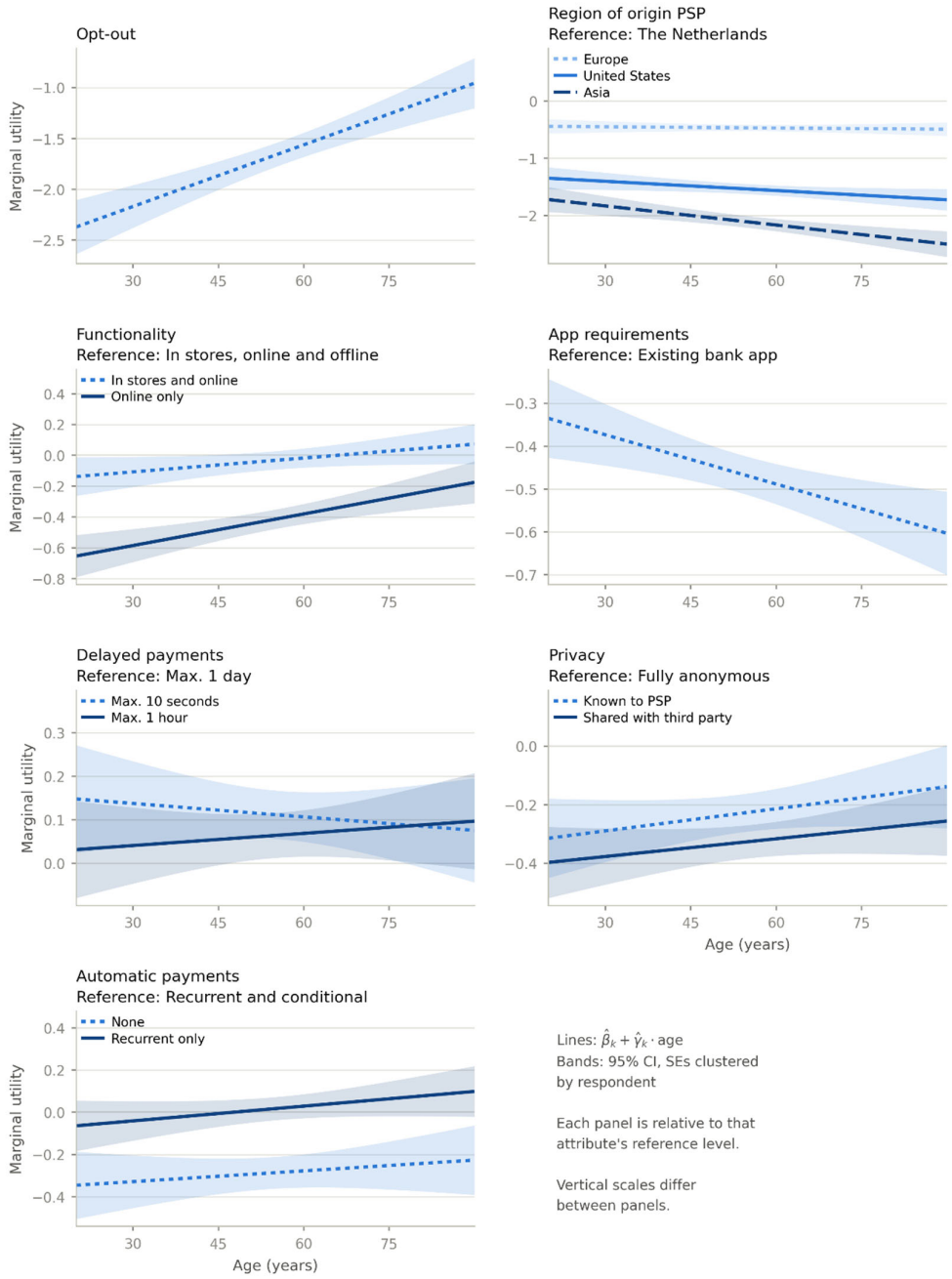
	(1) All respondents	(4) All respondents
ASC opt-out	-1.620***	0.569***
	(0.059)	(0.147)
Region of origin PSP: Europe	-0.465***	-0.509***
	(0.028)	(0.069)
Region of origin PSP: United States	-1.527***	-1.190***
	(0.044)	(0.111)
Region of origin PSP: Asia	-2.082***	-1.706***
	(0.052)	(0.125)
Functionality: In stores and online	-0.034	-0.005
	(0.030)	(0.081)
Functionality: Online only	-0.418***	-0.272***
	(0.032)	(0.089)
App requirements: New app	-0.465***	-0.384***
	(0.023)	(0.057)
Delayed payments: Max. 10 seconds	0.115***	0.098
	(0.028)	(0.086)
Delayed payments: Max. 1 hour	0.064**	0.093
	(0.026)	(0.067)
Privacy: Personal data known to PSP	-0.229	-0.206**
	(0.033)	(0.096)
Privacy: Personal data may be shared with third party	-0.327***	-0.222***
	(0.029)	(0.078)
Automatic payments: No automatic payments	-0.282***	-0.077
	(0.038)	(0.100)
Automatic payments: Recurrent payments possible	0.019	0.063
	(0.028)	(0.071)
ASC opt-out *x* Digital skills		-1.272***
		(0.160)
Region of origin PSP: Europe *x* Digital skills		0.041
		(0.008)

Region of origin PSP: United States *x* Digital skills		-0.418***
		(0.121)
Region of origin PSP: Asia *x* Digital skills		-0.451***
		(0.137)
Functionality: In store and online *x* Digital skills		-0.042
		(0.087)
Functionality: Online only *x* Digital skills		-0.181*
		(0.095)
App requirements: New app *x* Digital skills		-0.103*
		(0.062)
Delayed payments: Max. 10 seconds *x* Digital skills		0.025
		(0.091)
Delayed payments: Max. 1 hour *x* Digital skills		-0.030
		(0.073)
Privacy: Personal data known to PSP *x* Digital skills		-0.010
		(0.084)
Privacy: Personal data may be shared with third party *x* Digital skills		-0.125
		(0.045)
Automatic payments: No automatic payments *x* Digital skills		-0.255**
		(0.109)
Automatic payments: Recurrent payments possible *x* Digital skills		-0.058
		(0.077)
Observations	50,256	50,256
Number of respondents	2,084	2,084
Choice sets per respondent	8	8
Unique choice sets	32	32

Note: Standard errors are between parentheses and clustered at the respondent level. Significance levels are shown as follows: *** p < 0.01, ** p < 0.05, * p < 0.1.

Figure 1 shows the marginal effects at age 30, 45, 60 and 75. The regression results are listed in Appendix A, Table A1. The results show that age moderates the influence of several attributes. In particular, the negative effects associated with non-European PSP's and the requirement to download a new app become larger with age. For example, changing the PSP's origin from the Netherlands to Asia reduces the average probability of choosing the payment method by 37.3 percentage points at age 30 and by 41.6 percentage points at age 75. Conversely, the negative effect associated with an online only payment method becomes smaller with age. Moreover, the utility associated with opting out becomes substantially less negative with age. These findings indicate that older consumers attach greater value to provider origin and integration into the existing banking app, whereas younger consumers are more sensitive to functionality restrictions and are more likely to adopt.

Figure 1. Average marginal effects at different ages



Note: Average marginal effects calculated at ages 30, 45, 60 and 75 years based on 2,084 respondents.

Appendix A, Table A2 shows the results for gender interactions. The only significant effect is the interaction concerning the opt-out alternative. As the estimated coefficient is positive but relatively small, it shows that women are somewhat more likely to opt-out compared to men. Within the attributes no gender effects are found indicating that men and women value the attributes in a similar way.

5.1.2. Stated preferences

After completing the DCE, respondents were asked to rate the importance of each attribute on a 5-point scale ranging from 1 (not important at all) to 5 (very important). They were also asked to indicate which factors could motivate them to adopt a new payment method. Respondents could not return to the DCE after these questions were presented.

Respondents rank privacy (mean: 4.51), functionality (mean: 4.10) and the origin of the PSP (mean: 4.06) as the three most important elements in their choice of payment method in this context. Followed by automatic payments (mean: 3.76) and the app (mean: 3.66). Delayed payments score the lowest in terms of importance (mean: 2.85).

Comparing these ratings with the DCE results reveals both similarities and differences. The origin of the PSP is ranked as one of the most important drivers in the DCE and is also ranked as one of the most important in the stated preferences. In contrast, privacy is rated as the most important attribute in the stated preferences, while its effect on choice behaviour is more limited. This discrepancy is found more often in the literature. For example, Elsinger et al. (2025) find that only privacy-sensitive consumers derive utility from privacy relative to costs, while most respondents in their sample prioritise other characteristics. It could be that the discrepancy is rather large in this experiment as the three levels of the privacy attribute still encompass relatively high forms of privacy, e.g. the level with the lowest form of privacy still gives the consumer the ability to stop data sharing by not giving permission.

Functionality and automatic payment features exhibit a similar pattern. Both attributes are considered important in the stated preferences, yet the DCE results indicate that consumers are primarily sensitive to these attributes when functionality falls below a minimum threshold. The discrepancy may partly be caused due to differences in interpretation. In the stated preference, respondents may have understood ‘functionality’ more broadly, including ease of use, speed and reliability, whereas the DCE attribute captured it only in the context of how the payment method can be used. The two measures may therefore not refer to the same underlying concept.

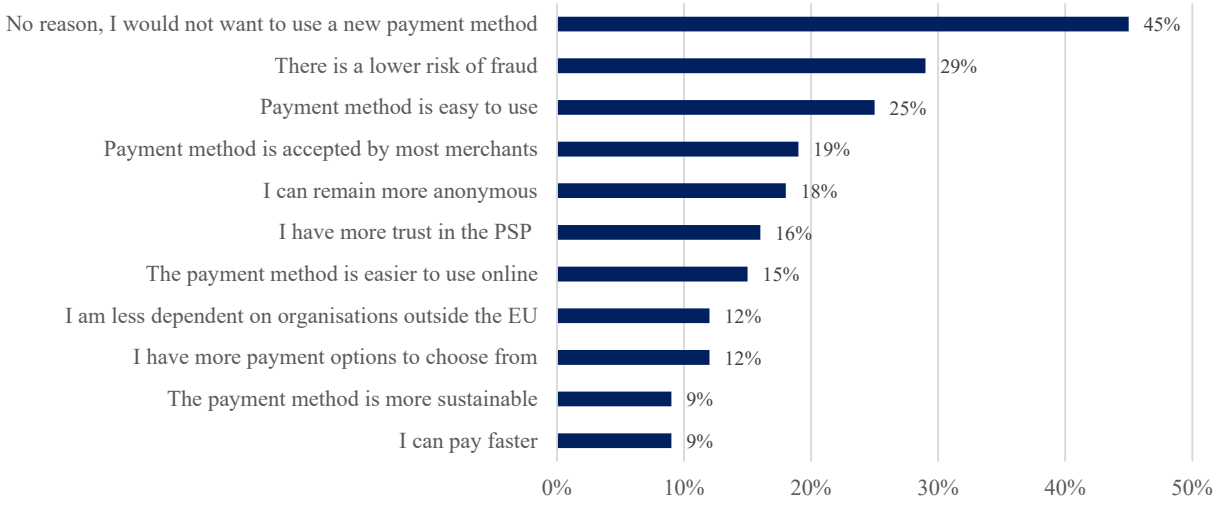
Finally, delayed payments are the least important and have only a modest effect on choice probabilities in the DCE. The consistency between the stated and choice-based stated preferences suggests that settlement speed is relatively unimportant compared to other payment characteristics. A possible explanation is that instant payments are the norm in the Netherlands, and thus that Dutch people are used to the availability of very fast payments. Moreover, people could also not be aware that this may be useful in fraud prevention and therefore do not see the benefits of delaying a payment.

Figure 2 shows the frequency with which respondents selected various reasons for adopting a new payment method. Approximately 45% of respondents indicate that they would not want to use a new payment method. This percentage is substantially higher than the 11% of respondents that were identified as non-adopters in the DCE.

Among the respondents who are willing to consider a new payment method, a lower risk of fraud is mentioned most often. Interestingly, delayed payments can be a tool to prevent fraud as a consumer has time to

check the payment before it is final. As delayed payments did not have a strong effect on the choice probabilities in the DCE and were named relatively unimportant in the stated preferences, it could be that respondents do not see the added value of delayed payments in fraud prevention, or that they believe other fraud measures would be better. Moreover, only 12% of the respondents state being less dependent on organizations outside the EU as a reason to use a new payment method, despite the strong preference for domestic and European PSPs in the DCE.

Figure 2. Reasons to try a new payment method



Note: Unweighted results based on 2,084 respondents. Respondents could select up to three reasons.

5.2. Latent Class Model

To capture preference heterogeneity in the adoption of payment methods, we estimated LC models varying from two to eight classes. Model selection is based on information criteria AIC and BIC (Table 5) and model complexity. The information criteria indicate substantial improvements from two to six classes. While both criteria are lowest for seven classes, there is only a marginal gain from six to seven classes. Given the limited gain in fit, increased model complexity and interpretability considerations, the six-class model is selected for further analysis.

Table 5. Model selection

Classes	AIC	BIC	Class shares
2	25161.62	25370.23	[31.4%, 68.6%]
3	24205.68	24522.46	[52.2%, 19.4%, 28.5%]
4	23646.73	24071.68	[15.6%, 28.1%, 30.5%, 25.9%]
5	23410.68	23943.79	[13.0%, 21.7%, 26.4%, 26.0%, 12.8%]
6	23266.90	23908.18	[12.8%, 12.4%, 17.4% 12.5%, 23.5%, 21.3%]
7	23151.00	23900.45	[16.1%, 10.6%, 11.7%, 11.6%, 10.6%, 23.0%, 16.4%]
8	23084.06	23941.67	[11.4%, 11.9%, 6.1%, 11.3%, 15.5%, 21.9%, 10.7%, 11.2%]

Table 6 and Table 7 show the LC estimates and class characteristics, respectively. The model reveals substantial heterogeneity in consumers' preferences. The six classes are relatively well balanced with shares ranging from approximately 12% to 24%. The largest segments are Class 5 (23.5%) and Class 6 (21.3%) followed by Class 3 (17.5%). The other classes account for 12-13% of the respondents.

Class 1 ('Reluctant non-adopters') represents 12.8% of the respondents. This is the only class with a positive, significant opt-out constant which indicates a strong tendency to choose not to adopt a new digital payment method. Conditional on adoption, respondents in this class show a preference towards Dutch and European PSPs. Interestingly, Asian PSPs are ranked slightly higher than PSPs from the US. Other attributes play a less important role in this class. If respondents in this class need to download a new app, it has a negative effect on adoption. Being able to pay both online and in stores compared to online, in stores and offline is positively valued. This class includes, on average, older respondents with low digital skills and low levels of trust across almost all institutions. Overall, this class consists of people who are very unlikely to adopt a new payment method.

Class 2 ('Functionality driven') consists of 12.4% of the respondents. The strongly negative opt-out indicates a high baseline propensity to adopt a new digital payment method. Unlike other classes, this group does not significantly distinguish between Dutch and European PSPs, suggesting that a European origin is broadly accepted in this class. They do value providers from the US and Asia negatively. Functionality is particularly important in this group. Online only and new app requirements both reduce utility, indicating a preference for easy to use and integrated solutions. The strongest distinguishing feature in this class is the valuation of automatic payments. The absence of any form of automatic payment has a large negative coefficient, and a payment method that only allows recurrent payments is also less favourable. This class appears to value new payment methods primarily when they offer broad and advanced functionality. Respondents in this class are relatively young, have high digital skills and have high levels of trust.

Class 3 ('Control-oriented pragmatic adopters') represents 17.4% of the respondents. Again, respondents are willing to adopt, but their preferences are relatively moderate across the attributes. Provider origin matters, but it is not the dominant attribute for this class. Functionality of the payment method and privacy influence their decision to adopt. This class is distinctive as the only one with positive significant coefficient for the absence of automatic payments. These respondents appear to value active control over their payments. This class also includes respondents who are relatively young and have high digital skills, but their trust is somewhat lower than that of other classes.

Class 4 ('Geo-politically sensitive adopters') comprises 12.5% of the respondents. While respondents in this class are generally willing to adopt, they will only do so under strict conditions regarding the provider's origin. This class displays a strong aversion towards non-Dutch PSPs, and especially towards Asian providers. Other attributes play a comparatively minor role. Respondents in this class have high digital skills and are somewhat older, and have relatively high trust in the Dutch central bank and the Dutch payment system. This class has the lowest trust in BigTech companies. This trust profile is consistent with the class's strong preference for domestic providers.

Class 5 ('Convenience-oriented adopters') is the largest segment accounting for 23.5% of respondents. Members of this class have a relatively low opt-out constant, suggesting a strong baseline propensity to adopt. This class values faster payments rather than the option to delay payment and respondents dislike situations in which payment data can be shared with third parties. The absence of automatic payments has a negative impact, but this class does not see the added benefit of conditional payments. This class appears to represent a large segment, open to adoption when the payment method is convenient, fast and has a relatively high form of privacy. This class has high digital skills, the lowest share of women, and much trust in the Dutch central bank, the ECB and the Dutch payment system.

Class 6 ('Cautious adopters') includes 21.3% of the respondents. Compared to other adopters, they are somewhat more cautious as reflected by a smaller negative opt-out. Class 6 differs from the other classes as it is the only class with positive significant coefficients for the delayed payment attribute and negative significant coefficients for the privacy attribute. The other attributes are similar to other classes. This class appears to cover a relatively large group who value their privacy highly and while they are still likely to adopt, they are more reluctant compared to other classes. This class contains the highest share of women, is somewhat older and while digital skills are relatively high, they are lower than in Class 2, 4 and 5. Trust of respondents in this class is moderate.

Table 6. Results LC-6 model

	Class 1	**Class 2**	**Class 3**	**Class 4**	**Class 5**	**Class 6**
ASC opt-out	3.486***	-4.604***	-3.025***	-4.212***	-5.846***	-0.879***
	(1.065)	(0.330)	(0.181)	(0.465)	(0.315)	(0.141)
Region of origin PSP: Europe	-0.940**	-0.027	-0.287**	-1.357***	-0.920***	-0.692***
	(0.046)	(0.168)	(0.088)	(0.216)	(0.156)	(0.093)
Region of origin PSP: United States	-8.859***	-0.970***	-0.544***	-7.009***	-2.991***	-1.918***
	(1.565)	(0.183)	(0.092)	(0.643)	(0.202)	(0.132)
Region of origin PSP: Asia	-3.262***	-1.623***	-0.538***	-14.628***	-4.473***	-3.407***
	(0.039)	(0.229)	(0.099)	(1.403)	(0.231)	(0.216)
Functionality: In stores and online	1.185**	-0.165	-0.168	0.241	-0.104	0.111
	(0.028)	(0.126)	(0.072)	(0.222)	(0.142)	(0.085)
Functionality: Online only	0.564	-1.017***	-0.432***	-0.598***	-0.682***	-0.421***
	(0.636)	(0.155)	(0.071)	(0.227)	(0.118)	(0.096)
App requirements: New app	-0.871*	-0.677***	-0.590***	-0.732***	-0.549***	-0.762***
	(0.460)	(0.134)	(0.059)	(0.214)	(0.097)	(0.075)
Delayed payments: Max. 10 seconds	0.930	0.032	0.045	-0.194	0.241*	0.183**
	(0.614)	(0.117)	(0.076)	(0.266)	(0.141)	(0.089)
Delayed payments: Max. 1 hour	0.695	0.176	-0.121	-0.613**	0.496***	0.187**
	(0.656)	(0.167)	(0.075)	(0.198)	(0.129)	(0.085)
Privacy: Personal data known to PSP	-1.009	-0.294*	-0.326***	-0.417**	-0.010	-0.383***
	(0.711)	(0.173)	(0.083)	(0.198)	(0.116)	(0.091)
Privacy: Personal data may be shared with third party	-0.593	-0.541***	-0.237**	-0.269	-0.643***	-0.527***
	(0.504)	(0.149)	(0.077)	(0.266)	(0.141)	(0.091)
Automatic payments: No automatic payments	-0.944	-2.354***	0.202**	-0.279	-0.374**	-0.417***
	(0.688)	(0.196)	(0.088)	(0.324)	(0.129)	(0.108)
Automatic payments: Recurrent payments possible	0.123	-0.450***	0.059	-0.445*	0.179	0.090
	(0.519)	(0.132)	(0.076)	(0.245)	(0.124)	(0.088)
Class share	12.8%	12.4%	17.4%	12.5%	23.5%	21.3%

Note: Standard errors between parentheses. Significance levels are shown as follows: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table 7. Class descriptives

	Class 1	Class 2	Class 3	Class 4	Class 5	Class 6
Female	0.54	0.48	0.49	0.54	0.45	0.59
Age	61.98	50.75	51.34	58.29	54.54	58.55
Digital skills	0.67	0.91	0.85	0.92	0.89	0.85
Trust in Dutch banks	3.31	3.59	3.52	3.62	3.66	3.57
Trust in the Dutch government	2.89	3.09	2.94	3.02	3.09	2.92
Trust in BigTech companies	2.22	2.55	2.53	2.24	2.48	2.31
Trust in the Dutch central bank	3.30	3.74	3.52	3.77	3.76	3.56
Trust in the European Central Bank	2.99	3.53	3.30	3.40	3.45	3.17
Trust in the Dutch payment system	3.29	3.73	3.57	3.70	3.72	3.59

Note: The table shows the class-specific mean of each variable. Respondents were assigned to a class based on posterior probability.

6. Discussion and conclusion

The results show that the adoption of new digital payment methods in the Netherlands depends on both institutional trust and practical usability. The strongest determinant of adoption is the origin of the PSP. Respondents clearly prefer a Dutch provider over foreign alternatives, and the negative effect becomes substantially larger for providers from the United States and Asia. This points to a strong home bias and more broadly to the relevance of perceived security, institutional trust and strategic autonomy. The importance of the provider origin is also visible in the LC model, where several classes display strong aversions to non-Dutch providers.

At the same time, adoption is not driven by governance considerations only. Convenience is also central. Respondents are less likely to adopt a new payment method if they must download a new app, when it can only be used online or when it does not support automatic payments. The results suggest that consumers mainly value these features up to a basic threshold as additional features such as offline and conditional payments do not give added value. It could be that consumers are not aware of the benefits of these new features.

The latent class model shows that there is considerable heterogeneity in consumers' preferences for new digital payment methods. Although most consumers are willing to adopt, e.g. 89.4% of the respondents chose to adopt in at least one choice task in the DCE, they differ in the attributes that they value. The origin of the provider is a key determinant in many segments, whereas other groups place greater emphasis on privacy, fast payments or control over their payments. Across all classes functionality and integration with existing banking systems are important. A relatively small group is identified as non-adopters, who are somewhat older, have lower digital skills and report lower levels of trust in institutions and the payment system. Taken together, the findings imply that broad consumer adoption is most likely when new payment instruments combine trusted governance with convenience and well-integrated functionality.

These findings have several policy implications. First, the strong preference for Dutch and European providers suggests that governance and institutional trust are important for adoption. Consumers may be more willing to adopt when they understand who the provider is, under which regulatory framework it operates and how their data is protected. Second, communication should not only focus on policy goals but emphasize the consumer benefits of certain features like the offline functionality. Policymakers should establish concrete, user-centred communication to explain these benefits. Moreover, the LC analysis identifies different groups of

consumers, for which different communication strategies could be effective. Third, the effort required to start using a new payment method should be kept to a minimum, as this is seen as a barrier to adopt. Hence, technical integration is necessary to avoid onboarding issues.

Future research could build on this study in multiple ways. First, incorporating revealed preference data, for example on adoption and use of new payment methods such as CBDC or new payment apps, could validate in due course whether the outcomes of the DCE are in line with actual consumer behaviour. Second, experimental research could test how different communication strategies can influence adoption and how policy makers can communicate the added benefits of certain features. For example, illustrating how delayed payments can prevent fraud may increase valuation of this feature and could lead to fraud reduction in the future. Third, extending the experiment to a cross-country setting can provide insights into how institutional factors shape consumer preference and can aid the adoption of new payment methods that are available across the EU such as the digital euro.

Overall, the results indicate that broad adoption of new digital payment methods is most likely when trusted governance is paired with convenience and clear everyday usefulness. A Dutch or European provider may create an important foundation, but this is unlikely to be sufficient on its own. Consumers also need payment methods that are easy to use. For policymakers, the central challenge is therefore not only to develop payment methods with public objectives, but also to make their benefits tangible enough for consumers to adopt as adoption is key for a successful payment innovation.

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Appendix A. Results MNL with interaction effects

Table A1. Results MNL with age interaction effects

	(1) All respondents	(2) All respondents
ASC opt-out	-1.620***	-2.775***
	(0.059)	(0.200)
Region of origin PSP: Europe	-0.465***	-0.429***
	(0.028)	(0.009)
Region of origin PSP: United States	-1.527***	-1.241***
	(0.044)	(0.143)
Region of origin PSP: Asia	-2.082***	-1.500***
	(0.052)	(0.163)
Functionality: In stores and online	-0.034	-0.197**
	(0.030)	(0.094)
Functionality: Online only	-0.418***	-0.790***
	(0.032)	(0.102)
App requirements: New app	-0.465***	-0.259***
	(0.023)	(0.069)
Delayed payments: Max. 10 seconds	0.115***	0.168*
	(0.028)	(0.092)
Delayed payments: Max. 1 hour	0.064**	0.013
	(0.026)	(0.083)
Privacy: Personal data known to PSP	-0.229	-0.365***
	(0.033)	(0.102)
Privacy: Personal data may be shared with third party	-0.327***	-0.438***
	(0.029)	(0.090)
Automatic payments: No automatic payments	-0.282***	-0.380***
	(0.038)	(0.120)
Automatic payments: Recurrent payments possible	0.019	-0.110
	(0.028)	(0.090)
ASC opt-out *x* Age		0.020***
		(0.003)
Region of origin PSP: Europe *x* Age		-0.001
		(0.002)
Region of origin PSP: United States *x* Age		-0.005**
		(0.002)
Region of origin PSP: Asia *x* Age		-0.011***
		(0.003)
Functionality: In stores and online *x* Age		0.003*
		(0.002)
Functionality: Online only *x* Age		0.007***
		(0.002)
App requirements: New app *x* Age		-0.004***
		(0.001)
Delayed payments: Max. 10 seconds *x* Age		-0.001
		(0.002)
Delayed payments: Max. 1 hour *x* Age		0.001
		(0.001)
Privacy: Personal data known to PSP *x* Age		0.003
		(0.002)
Privacy: Personal data may be shared with third party *x* Age		0.002
		(0.002)
Automatic payments: No automatic payments *x* Age		0.002
		(0.002)
Automatic payments: Recurrent payments possible *x* Age		0.002
		(0.002)
Observations	50,256	50,256
Number of respondents	2,084	2,084
Choice sets per respondent	8	8
Unique choice sets	32	32

Note: Standard errors are between parentheses and clustered at the respondent level. Significance levels are shown as follows: *** p < 0.01, ** p < 0.05, * p < 0.1.

Table A2. Results MNL with gender interaction effects

	(1) All respondents	(5) All respondents
ASC opt-out	-1.620***	-1.771***
	(0.059)	(0.087)
Region of origin PSP: Europe	-0.465***	-0.472***
	(0.028)	(0.040)
Region of origin PSP: United States	-1.527***	-1.515***
	(0.044)	(0.062)
Region of origin PSP: Asia	-2.082***	-2.065***
	(0.052)	(0.074)
Functionality: In stores and online	-0.034	-0.062
	(0.030)	(0.043)
Functionality: Online only	-0.418***	-0.415***
	(0.032)	(0.032)
App requirements: New app	-0.465***	-0.446***
	(0.023)	(0.032)
Delayed payments: Max. 10 seconds	0.115***	0.147***
	(0.028)	(0.045)
Delayed payments: Max. 1 hour	0.064**	0.059
	(0.026)	(0.038)
Privacy: Personal data known to PSP	-0.229	-0.214***
	(0.033)	(0.045)
Privacy: Personal data may be shared with third party	-0.327***	-0.315***
	(0.029)	(0.041)
Automatic payments: No automatic payments	-0.282***	-0.302***
	(0.038)	(0.053)
Automatic payments: Recurrent payments possible	0.019	0.022
	(0.028)	(0.039)
ASC opt-out *x* Female		0.281**
		(0.119)
Region of origin PSP: Europe *x* Female		0.011
		(0.056)
Region of origin PSP: United States *x* Female		-0.028
	-	(0.088)
Region of origin PSP: Asia *x* Female		-0.040
		(0.103)
Functionality: In stores and online *x* Female		0.053
		(0.061)
Functionality: Online only *x* Female		-0.010
		(0.064)
App requirements: New app *x* Female		-0.037
		(0.045)
Delayed payments: Max. 10 seconds *x* Female		-0.063
		(0.057)
Delayed payments: Max. 1 hour *x* Female		0.010
		(0.052)
Privacy: Personal data known to PSP *x* Female		-0.031
		(0.066)
Privacy: Personal data may be shared with third party *x* Female		-0.025
		(0.058)
Automatic payments: No automatic payments *x* Female		0.038
		(0.077)
Automatic payments: Recurrent payments possible *x* Female		-0.004
		(0.056)
Observations	50,256	50,256
Number of respondents	2,084	2,084
Choice sets per respondent	8	8
Unique choice sets	32	32

Note: Standard errors are between parentheses and clustered at the respondent level. Significance levels are shown as follows: *** p < 0.01, ** p < 0.05, * p < 0.1.

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