

# **Payment behaviour in Germany**

**- Summary -**

**Deutsche Bundesbank  
2009**

## **I Definition of the problem, and design of the study**

Cash is still the preferred method of payment for consumers. Nevertheless, there has been a slow but steady decline over the past few years in the percentage of cash payments in German retail sales. The decline in the percentage share has, however, been offset by the absolute increase in the volume of transactions. Furthermore, debit cards, in particular, have become increasingly popular in recent years owing to a greater level of acceptance and technical improvements.

The declining significance of cash in retail trade contrasts with the overall increase in the number of banknotes and coins in circulation in Germany. In light of these developments, this report by the Deutsche Bundesbank will analyse the cash and cashless payment habits of the general public in Germany and the factors influencing their choice of payment instrument. Based on these results, the Bundesbank will forecast future developments. The focus of this study is on the payment habits of consumers at the point-of-sale (POS). This is to be understood as payments for goods and services which are made at the place of purchase. However, regularly recurring payments, which are generally settled on a cashless basis or debited from the individual's account directly (such as rent and ancillary costs, insurance premiums, telephone bills) are not taken into consideration.

In order to obtain reliable and up-to-date data on payment habits, the Bundesbank carried out an empirical survey in the spring of 2008.<sup>1</sup> Moreover, publicly accessible statistics, such as data on card ownership and retail transactions, were used as an additional source of information. The empirical survey comprises two parts: a computer-assisted personal interview (CAPI) and a "payments diary" which was kept by the participants. The interviews were conducted in stages between April and June 2008. The sample group for the survey consisted of German speaking individuals aged 18 years and above, residing in private households in Germany. A representative random sample was taken from this target group using a three-stage selection process.<sup>2</sup> A total of 2,272 interviews were conducted altogether (2,217 of which with a payments diary).

### **Detailed results of the study**

#### **II Comparative analysis of cash and cashless methods of payment**

Consumers have a range of different payment instruments to choose from (eg cash, credit transfers, direct debits, debit cards, credit cards, GeldKarte ("e-purse")) when paying for goods and services. Against this backdrop, there is a need to assess which criteria are generally of importance when choosing a specific payment instrument and which payment instruments fulfil these criteria. Furthermore, an analysis is carried out to determine which

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<sup>1</sup> The market research institute Ipsos was commissioned to conduct the market survey.

<sup>2</sup> In accordance with the ADM master sample

criteria are relevant for a customer regarding his choice of payment instrument for a specific purchase.

Two perspectives need to be considered in this analysis: that of the retailer and that of the customer. There is a certain level of dependency between the two positions: generally speaking, a retailer will use his selection of accepted payment procedures and payment instruments – taking his own interests into account (eg cost<sup>3</sup>, efficiency and security aspects) – to attempt to reach as large a customer base as possible. This approach, however, requires the retailer to adapt to customer requirements, which may, in some cases, run counter to his own demands. When selecting a specific method of payment, customers are, however, restricted by the portfolio of accepted payment instruments defined by the retailer.

In the survey, participants were asked to comment on a number of different criteria which, from the customer's perspective, play a role in the acquisition of certain payment instruments. The participants were first of all asked to grade the importance of these criteria when deciding whether to acquire a new payment instrument. The participants were then asked which payment instrument (cash, debit card, credit card or GeldKarte), in their opinion, actually fulfils this criterion.<sup>4</sup> Example: survey participants responded that the acceptance of a payment instrument in a retail outlet is very important for them. They also specified that, in their opinion, cash and debit cards fulfil this criterion, ie they are widely accepted.

The analysis gave the following results.

***Protection against financial loss and high level of acceptance are the most important factors for participants.***

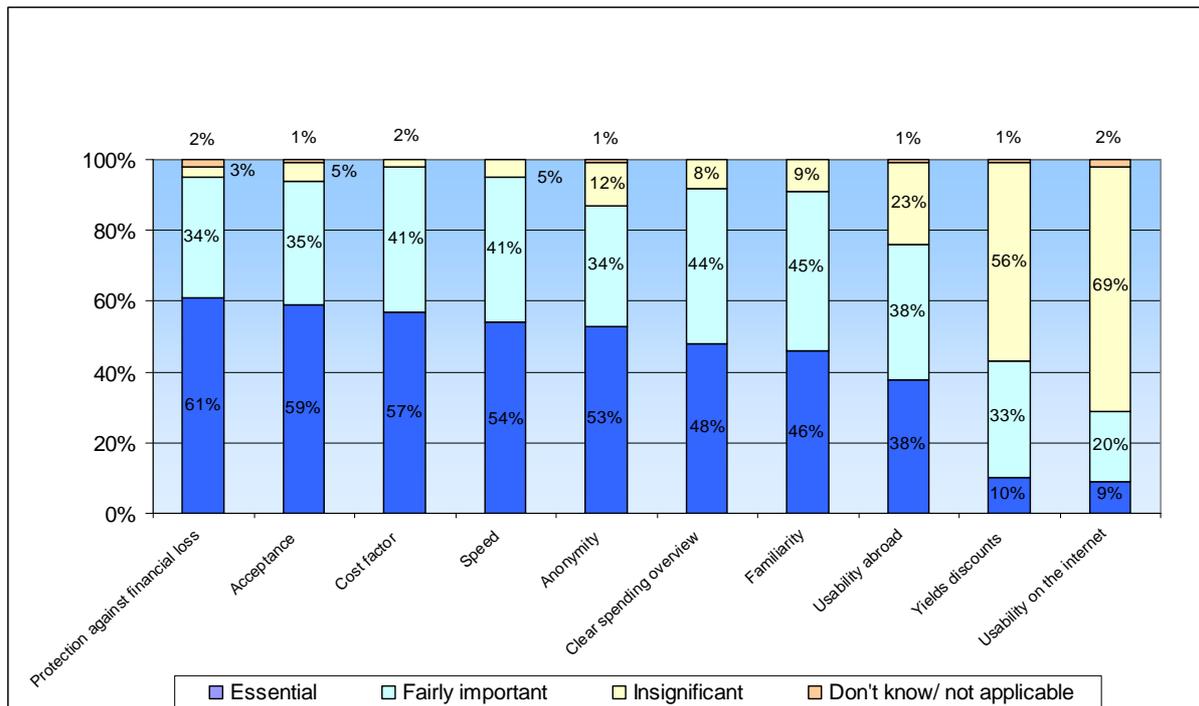
On the whole, the survey illustrates that half of the criteria under examination are of significant importance to the participants. For example, five out of ten criteria were deemed essential by more than 50% of the respondents. The most important criteria are protection against financial loss and a high level of acceptance in retail outlets. The least important criteria is being able to use the payment instrument for online payments and to collect bonus points or to qualify for discounts (see figure 1).

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<sup>3</sup> This study does not take account of indirect costs and cross-subsidisation between cash and cashless payments or the free-of-charge provision of cash as a basic infrastructure.

<sup>4</sup> Multiple answers possible

**Figure 1: Importance of certain payment instrument criteria from a user perspective**



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***In terms of fulfilling most criteria, cash recorded the best results.***

Aside from the criteria of protection against financial loss and usability for online payments, cash is the method of payment where the largest number of respondents deem the criteria under assessment to be fulfilled (see figure 2). One reason for this result may be that the payment habits of individuals evolve only slowly, despite the availability of alternative payment instruments. The GeldKarte seems least able to satisfy customer requirements. With the exception of the cost criteria, the respondents stated that the GeldKarte least satisfies the criteria under assessment. This is probably due to the rather low level of awareness with regard to how the GeldKarte works and where it can be used.

***Level of education and household income influence the assessment of payment instruments.***

In contrast to those with a lower level of education and household income, respondents with a higher level of education and household income feel that the criteria under assessment are better met by card-based payment instruments. This may be due to the fact that the latter use these payment instruments more frequently and are therefore more comfortable with them.

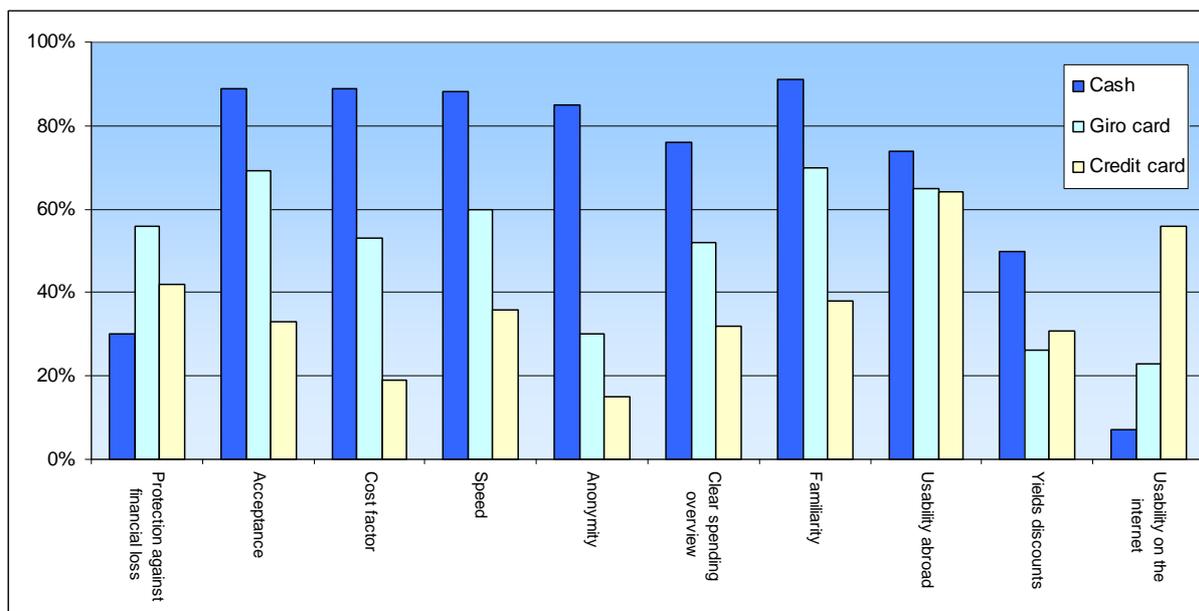
**Men are more inclined to use cards than woman**

With regard to the criteria analysed for the individual payment instruments, a larger proportion of men than women were of the opinion that the individual criteria under assessment were met by girocards<sup>5</sup> and credit cards in all aspects.

**Payment cards are assessed more favourably by younger respondents than by elder respondents.**

Card-based payment instruments, the girocard in particular, are assessed relatively favourably by older respondents as well. Nevertheless, compared with younger respondents, older respondents are more restrained when evaluating the degree of fulfilment of the criteria under assessment. The latter age group feels that the criteria under assessment are better met by cash. This result may, in particular, reflect the fact that respondents belonging to today's elder generation were not introduced to cashless payment instruments until a comparatively late stage in their life.

**Figure 2: Fulfilment of criteria by payment instruments from a user perspective**



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*Note: for methodological reasons, these results refer only to those respondents in possession of the respective payment instrument (cash 100%) or who are familiar with the way these instruments work. Multiple answers were also possible.*

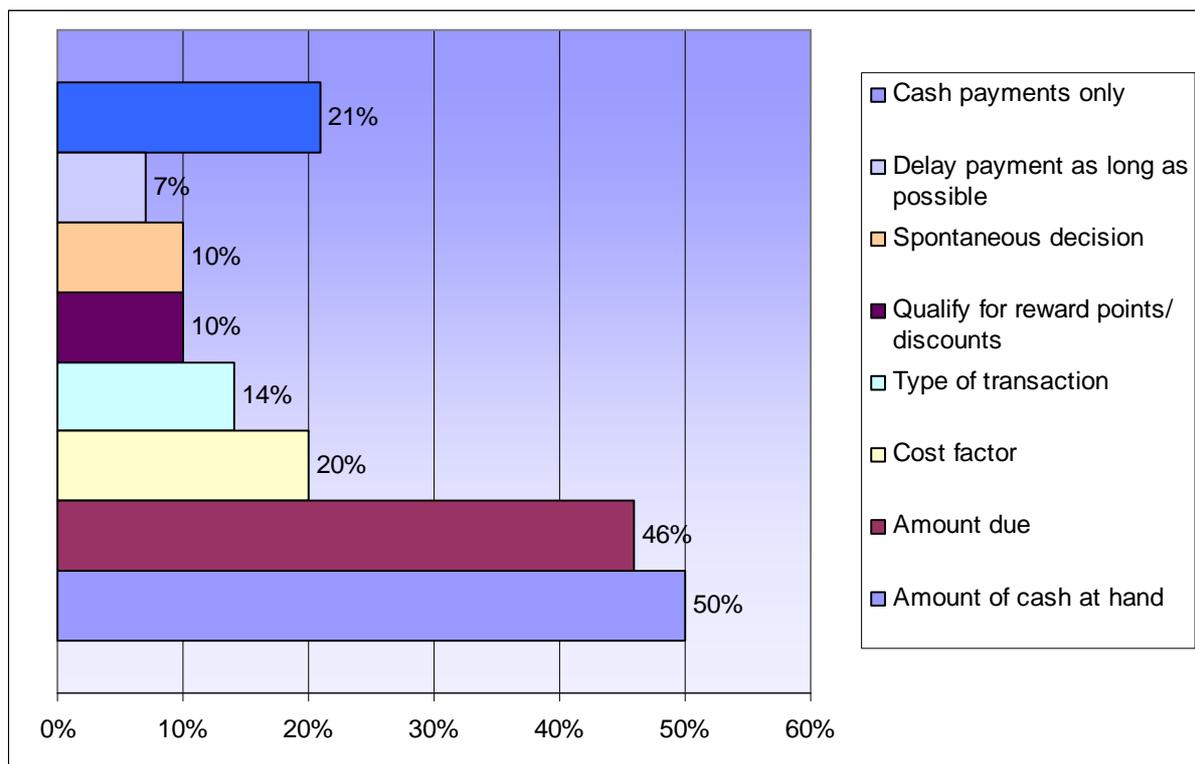
In addition to the analysis of which criteria are relevant from the customer's perspective when deciding whether to acquire a new payment instrument and the extent to which customers feel that certain payment instruments fulfil these criteria, an investigation was also conducted

<sup>5</sup> Girocard is the new common acceptance logo for the electronic cash (ec) system for payments at the point-of-sale and the German ATM system. Over the years, the term "ec card" has become broadly recognised as a synonym for "debit card" in the eyes of card holders. Given that the new girocard logo was not launched until shortly before the survey on which this study is based, it stands to reason that the girocard logo is not yet recognised as such; hence, the term "ec card" was used in the survey, while the term "girocard" is used in the text of this study.

to examine the factors that actually influence the choice of payment instrument used at the point-of-sale (POS).<sup>6</sup>

According to the results of the survey, around half of those surveyed make their decision as to which payment instrument they want to use at the POS based upon how much cash they have on them at the time. This means that the **amount of cash immediately at hand** is the most important selection criteria. The second most important factor when deciding which payment instrument to use at the POS (according to 46% of respondents) is **the amount due**. In third position – representing the opinion of 20% of the survey participants and therefore trailing far behind the first two criteria – is the **low cost factor**. At just 14% and 10% respectively, the **type of transaction** and the possibility of **earning reward points / discounts** play a subordinate role. Likewise, just 10% of respondents said that they make a **spontaneous decision** as to which payment instrument they want to use. Moreover, just 7% of respondents said that they choose the payment instrument which allows them to **delay payment for as long as possible**. It is striking that 21% of the survey participants reported that they pay **exclusively by cash** at the POS, even though they are in possession of one or more payment cards.

**Figure 3: Criteria influencing the choice of payment instrument at the POS**



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*Note: for methodological reasons, these results refer only to those respondents who, in addition to cash, are in possession of a girocard, GeldKarte and/or a credit card. Multiple answers were also possible.*

<sup>6</sup> For methodological reasons, this question was put only to those persons who, in addition to cash, are in possession of a girocard, credit card and/or a GeldKarte and who are therefore in a position to choose between various payment instruments. Multiple answers were also possible for this question.

### III Use of cash and cashless payment instruments

Having focussed in the previous chapter on how consumers perceive the various payment instruments and which factors influence their choice of payment instrument at the POS, the following chapter concentrates on the possession of payment instruments and concrete payment habits.

#### III 1 Possession of payment instruments

##### *Amount of cash at hand*

With regard to the amount of cash at hand (for transaction purposes), the results of the survey revealed that, on average, the participants carry around €118 with them in cash, €6.70 of which are coins. The following overview shows the amount of cash carried by individuals as a proportion of those surveyed.

**Figure 4: Amount of cash at hand**

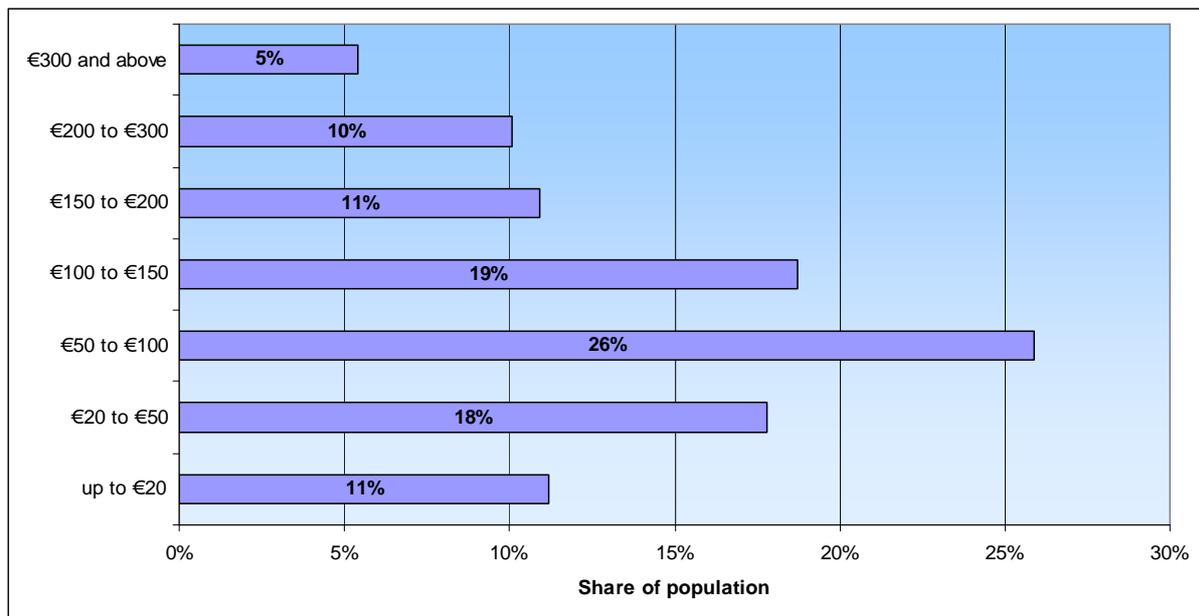


Table 1 provides a summary of the structure and the average amount of coins and banknotes carried by the respondents at any given time. On average, the survey participants carry a total of approximately 16 coins and 5 notes on them at any given time. The number of individual denominations is relatively well-balanced, with the one-cent coin being the most widespread coin (approximately 2.8 one-cent coins per respondent). With regard to euro banknotes, the most widespread denomination among survey participants was the €10 note (1.5 €10 notes per respondent); banknotes with a nominal value of €100 and above were barely recorded, if at all.

**Table 1: Structure of the amount of cash at hand**

Coins	At least 1 coin in wallet/purse	Ø number per respondent	Median	Banknotes	At least 1 banknote in wallet/purse	Ø number per respondent	Median
1 Cent	67%	2.8	2.0	5 Euro	64%	1.3	1.0
2 Cent	64%	2.2	2.0	10 Euro	72%	1.5	1.0
5 Cent	88%	2.0	1.0	20 Euro	68%	1.2	1.0
10 Cent	71%	2.2	2.0	50 Euro	53%	1.0	1.0
20 Cent	69%	2.0	2.0	100 Euro	10%	0.1	0.0
50 Cent	66%	1.5	1.0	200 Euro	1%	0.01	0.0
1 Euro	74%	2.0	2.0	500 Euro	0%	0	0.0
2 Euro	71%	1.6	1.0				
<b>Total</b>	<b>93%</b>	<b>16.2</b>	<b>14.0</b>	<b>Total</b>	<b>93%</b>	<b>5.2</b>	<b>4.0</b>

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*Note: All respondents were included in the calculation of the arithmetic average and median (middle value), including those who did not have the respective denomination on them at the time.*

### **Possession of payment cards**

Girocards account for the vast majority of all payment cards: 91% of the respondents said that they were in possession of at least one girocard. According to the Bundesbank's own data, only 27% of the respondents are in possession of a credit card. The fact that girocards are much more widely spread among the survey participants than credit cards is also confirmed by the Bundesbank's payment statistics for the year 2007.

However, there is a severe discrepancy between the answers provided regarding the number of "GeldKarten" which respondents claim to own and the actual number which they have in their possession. According to official data, around 79% of all girocards (approx. 73 million cards) are equipped with a "GeldKarte" function. Nevertheless, only 21% of those surveyed said that they are in possession of a "GeldKarte". 60% of the respondents stated that they are not familiar with the "GeldKarte" or have merely heard the term used before. A very substantial number of "GeldKarte" owners are unaware that the girocard in their possession is actually equipped with such a function.

### **III 2 Evaluation of payment behaviour based on payment diaries**

The following evaluation of payment behaviour in Germany is based on a multitude of entries in the payment diaries, which the survey participants were asked to complete over a period of one week. In this context, participants were asked to make a note of places where consumers would generally make purchases: retail outlets, petrol stations, chemists, the internet etc. The use of services, both at home and away from home, was also recorded. In addition, participants were asked to make a note of any special transactions that they made, such as the payment of pocket money and payments to private individuals (eg purchases at a flea market). Finally, participants were asked to note how much money they put aside per week in money boxes or cups/bottles/drawers etc. The response categories available to participants for indicating the payment instruments they used included – in addition to the standard methods of payment, such as cash, girocard, GeldKarte and credit cards – "exotic" payment instruments, like payments by mobile phone or by fingerprint recognition. The

purpose of this was to ascertain the extent to which these innovative payment instruments are actually used in practice.

Examination of the payments diaries reveals that cash, which accounts for a 57.9% **share of turnover**, is the preferred payment instrument in Germany. Girocard payments, with a share of 25.5%, came a distant second, followed by credit transfers (8.9%). Credit card payments (3.6%) and direct debits (1.9%) are of lesser importance on the whole. Even the GeldKarte, which, at the time of its introduction in Germany in 1996, was expected to displace cash significantly, accounts for a mere 0.5% share of all payment transactions. In view of their extremely low usage, more recent and innovative forms of payment, such as internet payment procedures (eg PayPal) and payment by means of fingerprint recognition, play a minimal role or, as in the case of payment by mobile phone, are not used at all.

If one looks at the **number of transactions**, as opposed to the share of turnover, cash accounts for an even greater share (82.5%). In contrast to this, the share of payment transactions effected using girocards (11.9%), credit transfers (1.8%) and credit cards (1.4%) is significantly lower than when calculated as a share of turnover.

**Table 2: Share of payment instruments by turnover and number of transactions**

Payment instrument	Distribution by turnover		Distribution by transaction volume	
	Turnover in €	% share	No of transactions	% share
Cash payment	405.486	57,9	20.161	82,5
Girocard	178.829	25,5	2.907	11,9
Credit card	25.538	3,6	333	1,4
GeldKarte	3.186	0,5	122	0,5
Prepaid card (w/o GeldKArte function)	551	0,1	49	0,2
Customer/ bonus card	1.390	0,2	34	0,1
Internet payment procedure	1.939	0,3	36	0,1
Direct debit	13.024	1,9	140	0,6
Credit transfer	62.199	8,9	447	1,8
Other	2.948	0,4	44	0,2
Cashless (no specific payment inst.)	5.349	0,8	161	0,7
<b>Total</b>	<b>700.438</b>	<b>100,0</b>	<b>24.437</b>	<b>100,0</b>

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In contrast to other payment instruments, cash, with an average transaction value of around €20, is used primarily for paying small and medium-sized amounts of up to €50. This is probably a reflection of the fact that the amount of cash carried on an individual at any given time – ie the question of whether the transaction in question can be settled using this available cash – is the main criterion when it comes to choosing a specific payment instrument at the POS (see figure 3). Another important reason which would explain the small share of cashless transactions for paying small amounts could be the fact that people are used to paying small amounts in cash. Furthermore, card payments are often only accepted once a certain minimum transaction amount has been reached. The higher the transaction amount, the greater the chance that a cashless payment instrument will be used

as it is fair to assume that a large number of survey participants would be disinclined to carry large amounts of money around with them on account of the risks involved.

With regard to socio-demographic considerations, it is immediately apparent that cash is the most commonly used payment instrument across all segments of the population. In terms of the various age groups, persons aged under 24 and 55 and above are the most inclined to make payments in cash. Moreover, women tend to settle a greater amount of payments in cash than men, whereas men use credit cards much more frequently than women. Cash is used much less frequently for payment purposes in eastern Germany than in western Germany, which is why the share of payments settled using, above all, girocards is correspondingly higher in eastern Germany. Furthermore, the higher the level of education and household income, the smaller the share of payments settled in cash and the greater the share of payments settled by girocard and credit cards, in particular. An evaluation carried out on the basis of occupational status shows that an extraordinary amount of cash payments are made, above all, by job-seekers, whereas full-time employees make an above-average number of payments using cashless payment instruments.

With regard to the payment location and payment habits that respondents were requested to note in their payments diary, notable differences in payment behaviour can be observed. With regard to “retail purchases of everyday items”, which were the most frequently executed transactions by survey participants, the share of cash payments, at 69%, is at the higher end of the scale; payments by girocard accounted for 28% of these transactions. Taken as a whole, cash payments made at the payment location “café, bar, snack bar, fast food restaurant”, where transaction amounts are predominantly small, account for the largest share of all payment types at 96%. By contrast, as expected, purchases made on the internet or from mail order companies account for just 3% and 9% respectively of all cash payments (payment on delivery), which is due, primarily, to the geographical distance between the customers and the retailers. Payment by credit transfer is the most common form of payment for such purchases. With a 46% share of turnover, the girocard is the most commonly used method of payment at petrol stations, whereas credit cards are more popular for paying in hotels and guest houses (19% share).

#### **IV Choosing between payment instruments and their usage – a microeconomic behavioural analysis**

In addition to describing and analysing the payment habits of the general public in Germany based on extrapolated aggregates, microeconomic investigations were also carried out at an individual level. The key question was to determine whether the low share of card payments in Germany is a result of inertia or force of habit or whether people make conscious and economically rational decisions which reflect their personal preferences for different payment instruments or the relative costs associated with using them instead of other methods of payment?

The answer to this question has implications on how the use of cash is perceived. If consumer behaviour is not rational and is instead more a question of inertia and force of habit, it is likely that the use of cash would decline over time as younger age groups are more used to using cashless payment instruments than older generations. If the payment behaviour of individuals is rational, the share of cash would be expected to decline only if the relative costs or the framework conditions for the use of cash and cards were to change significantly.

On balance, the payment behaviour of private households appears to be based on systematic decisions. This can be explained by the type of transaction, the characteristics of the payment instruments and the individuals concerned. Under the conditions of modern technology and assuming that the other determining factors influencing payment behaviour remain unchanged, it can be expected that the number of cash payments as a share of all transactions will not decline perceptibly in the near future. Changes to the framework conditions, eg new technologies or changes in strategy by retailers and payment system operators could, however, lead to further behavioural adjustments over the medium term. A greater shift towards payment locations where transactions are generally settled on a cashless basis (eg internet purchases) could lead to a reduction in the share of cash payment transactions.

A further important conclusion of the econometric analysis is that being in possession of a credit card does not have an impact on the share of cash transactions made. Decisions regarding whether to acquire a new payment instrument and how often to use it appear to be hierarchically structured. The first step is to decide whether a payment should be settled in cash. If this is not the case, the choice of payment instrument for making the cashless payment is dependent on other variables. In terms of deciding whether to use a girocard or a credit card, there appears to be only a minimal cost difference from the point of view of the individual.

Assuming that this is true, it is, from the users' perspective, a question of choosing between two close substitutes, ie two competing cashless payment systems for use as a domestic payment card. In Germany, for example, overdraft facilities are widely available, and these facilities can be used in connection with both girocards and credit cards. Furthermore, the balance on the majority of credit cards issued in Germany has to be settled on a monthly basis. Credit cards are therefore used as a payment instrument and not as a form of credit. Against this backdrop, it is probably of little relevance from the users' perspective, which of the two systems is used.

## **V Future outlook of payment habits in Germany**

In the preceding chapters, the focus was on current use of cash and cashless payment instruments. The following chapter, however, will briefly focus on past developments in payment habits and an attempt will be made to assess the future outlook of payment habits in Germany based on various determinants.

***Share of cash transactions in the retail trade twice as high as the share of debit cards – although this trend is slowly on the decline***

According to an assessment by the EHI Retail Institute, the share of retail revenue accounted for by cash went down from 79% to 60% between 1994 and 2008.<sup>7</sup> This decline can be explained first and foremost by the displacement of cash by debit card payments (girocard and electronic direct debit transactions), the share of which went up from around 3% to 30% during this same period. In addition to the displacement of cash payments, a large part of the increase in debit card turnover was, however, accounted for by the substitution of other cashless payment procedures, such as cheque payments and credit transfers, in the first seven years of the period under review. However, since 2003, the share of cash payments in the retail trade has been declining by around one percentage point every year, while the share of debit card payments has been increasing by virtually the same amount. Nevertheless, the cash required in the retail trade did not decline in absolute terms. Rather, it was compensated for by (nominal) increases in turnover.

***Credit card use remains at a low level.***

Unlike in the case of debit cards, credit cards have not gained any particular importance in the German retail trade and, according to the EHI, credit cards only managed to attain a comparatively small increase (from around 3% to 5%) in the share of sales revenue from between 1994 and 2008. This is attributable, among other factors, to the widespread use of overdraft facilities in Germany, which makes owning or using a credit card largely redundant. With an average transaction value of €77, credit cards compete more with girocards than with cash, the latter being used primarily for payments with an average transaction value of €20.

***Geldkarte unable to meet high expectations.***

The Geldkarte, which was developed for paying for small amounts – and is thus placed in direct competition with cash – has hardly gained in importance since its introduction and is used, first and foremost, for niche applications, such as parking meters and ticket machines. Not even the change in legislation (whereby proof of age is now required when purchasing cigarettes from a vending machine by means of a GeldKarte) was able to bring about any long-term growth in the use of this payment instrument.

***Further displacement of cash relatively unlikely in the short term.***

In the past, debit card payments have benefited greatly from technological advancements, especially in terms of processing speed. Furthermore, the number of retail outlets accepting debit card payments has increased as sharply as the number of debit cards in circulation in Germany. A saturation point does now seem to have been reached, however. For example, the increase in the number of POS terminals by 14% over the last four years has led to a decline of just 4.6% in the share of cash transactions. At the same time, given that 91% of

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<sup>7</sup> Time series based on earlier studies by the EHI Retail Institute, development of cards from a trade perspective, 1994 - 2008, retail trade turnover 2008 = €360 billion (excluding cars, mineral oil, chemists and mail order trade). The definition of retail trade by the EHI does not fully correspond with the definition of retail trade that was selected for this study.

those surveyed own at least one girocard, the distribution of these cards among the German public has already reached a very high level.

***Further slight decline in the share of cash payments possible in the medium to long term.***

It is unlikely that there will be a further displacement of cash payments by debit cards in the medium to long term unless there is an increase in the number of acceptance points, together with a change in the behavioural pattern of the general public, with the effect that, for example, existing cards would be used more frequently than at present for paying smaller amounts and that the cards could be used at a greater number of locations.

***The displacement of cash could be accelerated by a further increase in internet trade. Specialised internet payment procedures have the potential to displace classic cashless payment instruments.***

A further influential factor to be taken into account when considering payment behaviour is the developments in the area of goods and services sold via the internet and the classic mail order trade. While the classic mail order trade (excluding the internet) has been stagnating over the past few years or has even declined slightly, internet sales have recorded strong growth. Unlike in the case of stationary trade, payments on the internet are usually made on a cashless basis and cash payments (eg payment on delivery) play a negligible role. The displacement of cash could be accelerated by a further increase in online trade. One development which would contradict this expectation is that online trade could, in part, develop to the detriment of classic mail order trade, which is dominated by cashless forms of payments. Furthermore, certain products or services (eg fuel or the catering trade) cannot be purchased online, or only to a very limited extent. Irrespective of this, new innovative internet payment procedures (eg Click&Buy or PayPal) could, in future, have a crowding out effect on those cashless payment procedures (credit transfers, direct debits, credit cards) which currently dominate online payment procedures.

***Displacement of cash owing to widespread use of innovative cashless payment procedures in the retail trade not likely at present.***

The payment behaviour of the general public will, in future, also depend on which – if any – new payment instruments are offered by retail outlets. Consumers are more likely to use innovative payment systems, such as paying by mobile phone or by finger print recognition, if a sufficient number of acceptance points are available and if the procedure is perceived as being secure and convenient. No matter how the new payment procedures are designed, there is, however, the fundamental drawback that a significant proportion of the general public will only slowly, if at all, depart from the methods of payments which they are accustomed to, as they may feel unsafe about using new procedures. Moreover, from the point of view of traders, implementing a wide range of competing payment procedures would increase investment and settlement costs and would probably make it more difficult to achieve economies of scale.

***Tight-knit network of (free-of-charge) ATMs is promoting the use of cash.***

Credit institutions can, in principle, influence the payment behaviour of the general public by restricting or improving access to cash (primarily ATMs), as well as by gearing their support to cashless payment instruments. In the past, the banking industry considerably reduced the costs of cash handling by introducing a nationwide network of ATMs and simultaneously making cash available 24 hours a day, 7 days a week. It is therefore to be expected that cash availability will remain at a high level.

***SEPA opens doors for a new range of cashless payment procedures.***

It remains to be seen to what extent new developments in the area of cashless payments, such as the creation of a single euro payments area (SEPA) and the corresponding range of new harmonised payment instruments based on this platform, will lead to a change in payment behaviour. However, it is likely that, in the medium term, the development of the SEPA credit transfer and SEPA direct debit schemes will pave the way for further electronic and mobile payment procedures.

***Cash likely to remain the most commonly used payment instrument in future as well.***

In view of the aforementioned comments, it can be concluded that cash is likely to remain the most commonly used payment instrument in future, even though its share of total payment transactions will decrease further in the medium to long term. The same important reasons for using cash as a means of payment will, however, remain. For example, for most people, cash is a quick and familiar form of payment which is particularly suited for paying small amounts. The anonymous character of paying in cash also prevents the fraudulent use of personal data. Furthermore, cash is the only payment instrument which can be used without any recourse to (information) technology and is therefore suitable for emergency and crisis situations as well. In this respect, a cashless society is unlikely to become reality in the future.