

# The Use of Payment Instruments in Austria

## A Study Based on Survey Data from 1996 to 2011

*This study analyzes the results of the OeNB's methods-of-payment survey of fall 2011 and compares them with the results of similar surveys from the years 1996, 2000 and 2005. The rapid development of cashless payment options in the 15 years that have passed between the first and last analyzed survey and the more widespread availability of payment cards raise the question how consumer behavior has changed.*

*With a value share of some 65% of total payments, cash still remains the most important payment instrument. Debit cards have also risen in importance (to some 25%). While the share of debit card payments doubled between 2000 and 2005, their recent increase was far less significant. The value share of credit cards remains low at 5%.*

*Even though the use of payment instruments varies with education, income and age, in terms of value more than 50% of all payments are still made in cash in each of these socio-demographic subgroups. By contrast, gender and the size of a resident's home town do not have much impact on the use of cash. The use of payment instruments is determined by two further factors: the size of the payment and the type of the purchase. It is shown that card payments increased markedly in the period from 1996 to 2011 primarily for amounts exceeding EUR 20. Still, cash continues to be used intensively for larger-value payments as well, and it still accounts for a large share of payments in both the food and services sectors, as well as in restaurants and hotels.*

*By international comparison, Austrian payments are shown to be very cash-intensive. The available data suggest that this situation is not solely the result of a low POS terminal density. Rather, this tendency may also be attributable to the fact that Austrian consumers have a positive view of cash. Moreover, a relatively high ATM density and the possibility to withdraw cash free of charge may positively influence the use of cash. On the supply side, the survey results indicate that card acceptance is low for small-value payments.*

*JEL classification: E41, E58, D12*

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The previous 15 years have witnessed considerable changes in payment options in Austria: payment cards are now widespread and there are substantially more POS terminals. Innovative forms of payment such as payment via mobile phone or online payment solutions were not around 15 years ago; credit cards are now accepted in some grocery stores. These changes raise a number of fundamental questions. How are Austrians reacting to the greater variety

of payment options? How do these options affect the use of cash? How is the demand for cash changing?

Aggregate data can and, in many cases, will be used to analyze the aforementioned changes. Detailed statistics relating to the number of payment cards issued, the transactions effected with these cards and the number of POS terminals are available. Despite the information content of these statistics, ultimately, they cannot map the

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use of cash itself. This situation is unsatisfactory, as cash plays a key role in consumers' payment transactions. In addition, since the introduction of euro notes and coins in 2002, statistics relating to currency in circulation at a national level are no longer available. However, even if such statistics did exist, they would only offer indirect evidence on the use of cash for payment purposes, as the transaction demand for cash makes up only a relatively small fraction of total currency in circulation.<sup>2</sup> For these reasons, the developments in the use of payment instruments by private households can only be comprehensively assessed by using survey data. In the light of the above, this study therefore presents results derived from surveys relating to Austrian payment habits.

The data from the surveys offer further advantages. Apart from the portfolio of payment instruments that is being offered by payment service providers and apart from merchant behavior, the use of payment instruments depends on many other factors such as the relative costs or the preferences of households. Surveys can partially elicit information on these factors. In addition, microdata make it possible to identify structural shifts within sociodemographic groups, in specific sectors and for payment amount categories. As a result, conclusions can be drawn about the extent to which changes in payment habits are driven by supply or demand. The information collected in surveys also makes it possible to place the discussion about possible reasons for changes in cash demand on an empirically more robust basis. The findings obtained have implications that go fundamentally beyond

the narrower matter of the choice of payment instrument, e.g. for competition and regulatory policy. The level of costs incurred by payment systems is also of relevance from a macroeconomic perspective. Schmiedel et al. (2012) estimate the social costs of payment instruments, excluding consumer costs, at about 1% of GDP. Moreover, the insights gleaned from the data analysis can help foster our understanding of the demand for money and the transmission mechanism and facilitate an assessment of the effects of payment innovations on the cost of inflation.

For these reasons, the OeNB has carried out four in-depth payment surveys since 1996 (Mooslechner and Wehinger, 1997; Mooslechner et al., 2002 and 2006). The latest survey of fall 2011 not only provided a basis for comparison with the earlier surveys but also elicited more comprehensive information about the payment habits of the survey respondents. The present study refers primarily to the results of this latest survey and offers a detailed description of changes in payment habits, with a focus on cash, debit cards and credit cards as the most important forms of payment among consumers. The aim of our study is to present a descriptive analysis of how households have reacted to the massive change in the available payment infrastructure and thus in the range of payment instruments on offer. We will also discuss possible reasons for the change in the payment habits of Austrian households, a question which has increasingly come into the focus of international research in recent years. Available research shows that payment instrument markets are highly complex, with

<sup>2</sup> The ECB (2011) estimates that about one-third of the total amount of euro notes and coins in circulation is used for transactions.

many key aspects remaining not well understood. In this light, the present study can be regarded as one step along the way, though it cannot provide a comprehensive explanatory model.

Chapter 1 presents an overview of the structure and development of the Austrian payment card market. Chapter 2 summarizes the key results of the 2011 survey and discusses them in an international context. Chapter 3 examines sectoral differences and sociodemographic characteristics in greater detail. Chapter 4 discusses possible reasons for the continued high levels of cash usage. Chapter 5 presents the conclusions.

## 1 Development of Austria's Payment Infrastructure

The previous 15 years have witnessed a fundamental change in Austria's payment infrastructure. This chapter briefly presents the most important changes in the numbers of payment cards in circulation and available POS terminals.

### 1.1 Card Ownership

Overall, around 8.3 million debit cards (for both payment purposes and cash withdrawals) and some 2.7 million credit cards were issued by end-2011. This means that the number of debit and credit cards<sup>3</sup> has increased by around one-quarter since 2005. Statistically, this implies that every Austrian resident possessed at least one debit card or credit card in 2011. Since, however, one person can hold several cards,

such average figures have only limited information content in relation to the actual distribution of payment cards among the population. Therefore, we present survey evidence derived from a representative sample of Austrians aged 15 and above.<sup>4</sup>

The relevant results show that 86% of respondents had a payment card in 2011, with debit cards being held by almost every respondent with a payment card (table 1). This value has doubled against the value observed 15 years earlier. Credit cards are far less widely disseminated with values below 30%.<sup>5</sup>

To obtain an overview of the use of payment instruments, the 2011 survey for the first time included questions on how many debit cards, credit cards and retailer loyalty cards with payment functionality respondents own. The average is 1.8 cards per person (median: 1). The survey results also reveal which payment instruments are actually used for expenditures. Evidence from payment diaries shows that an average of 1.15 different payment instruments (including cash) were used per week in 1996.<sup>6</sup> This value rose steadily to 1.75 until 2011. Although the number of POS terminals (and also that of payment cards available to consumers) increased considerably between 1996 and 2011, 45% of respondents still used only one payment instrument during the week under review.

Chart 1 shows that the share of respondents owning a debit card in-

<sup>3</sup> See appendix for a glossary of the terms.

<sup>4</sup> The OeNB commissions representative surveys on the possession and use of payment cards at regular intervals.

<sup>5</sup> The statistical variance is larger for credit cards owing to their lower share. The results for credit cards should therefore be interpreted with caution. It should also be borne in mind that the results shown in table 1 and chart 1 reflect respondents' subjective assessments.

<sup>6</sup> The underlying data (payment survey) are explained in greater detail in chapter 2. All payments are recorded with the exception of regularly transacted payments, which are mostly carried out in cashless form (for instance, transfers or standing orders). The 2011 survey included a total of 11 payment options. The usage of debit cards here refers to their use for payment purposes.

Table 1

**Card Ownership in Austria**

	1996	2000	2005	2011
Share of respondents with a				
payment card	44.1	69.2	78.2	85.9
debit card	41.5	62.0	76.1	84.9
credit card	16.9	25.2	28.4	23.0 <sup>1</sup>
Number of payment cards owned by respondents				
mean	..	..	..	1.76
median	..	..	..	1
Number of payment instruments that are used according to the payment diary				
mean	1.15	1.36	1.60	1.75
median	1	1	1	2
Share of respondents who use only one payment instrument according to the payment diary	87.0	69.1	50.9	45.8

Source: OeNB (payment surveys).

<sup>1</sup> This value might be attributable to a statistical outlier. This is a plausible assumption, especially since the statistical variance of the credit card share is larger as the latter is rather small. A comparison with similar surveys from the years 2010 and 2012 reveals that the value shown is lower than in Q3 10 (31%) but roughly as high as in Q2 12 (24%).

creased in every age, income and educational group, registering the steepest growth for those aged 60+, for those under the age of 24, for persons who have completed their compulsory secondary education or vocational schooling and for persons with a low personal net income. In the period from 1996 to 2011 taken as a whole, the share of respondents owning a credit card rose primarily for higher-income persons and for those with higher education. Chart 1 shows, however, that the share of credit cards in these population groups declined in the period from 2005 to 2011. This development might however be attributable to a statistical outlier in the survey data.<sup>7</sup>

## 1.2 Payment Infrastructure

Since debit cards can be used for both payments and cash withdrawals, information on their frequency of use for payments is particularly relevant. Chart 2 shows that although total debit card payments have risen steadily in absolute terms (chart 2, left-hand figure), annual growth rates, which topped 30% until 2002, have since slowed to between 5% and 10%.

This development reflects the steep growth in the number of POS terminals. In 1989, debit card payments were possible at only some 200 debit card POS terminals throughout Austria. In 2011, by contrast, the number of terminals had risen to more than 100,000.

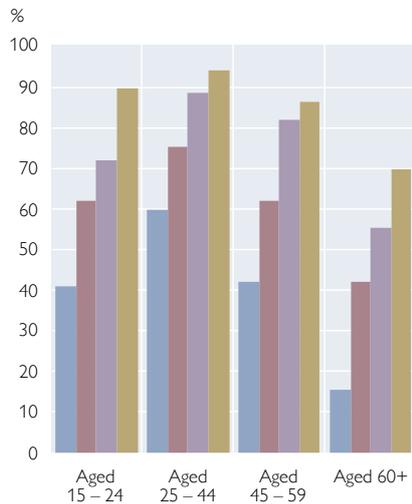
<sup>7</sup> It is not easy to find a conclusive explanation for this result. For one thing, the decrease in the ownership of credit cards in the groups of higher-educated and higher-income respondents might be attributable to statistical outliers. To verify this conjecture, the results in chart 1 were compared with those taken from another survey conducted in the second quarter of 2012. The corresponding value for “high school leaving certificate or higher” was 52% (Q2 2012) as compared to 42% in chart 1 and was 44% for income in the third tercile (as compared to 39% in chart 1). These findings indeed suggest that the mean values for 2011 shown in chart 1 are underestimated. Second, the decrease could also be due – at least in part – to the financial and economic crisis. For the period from 2008 to 2009, Foster et al. (2011) note a decline in credit card ownership at least for the U.S.A. (more up-to-date information from this source is not available). For Austria, this explanation is however speculative and cannot be supported by data. Unlike the survey data, statistics relating to the number of credit cards issued in Austria show a rise of 9.7% for the period from 2006 to 2011. All in all, therefore, an argument for a statistical outlier exists.

Chart 1

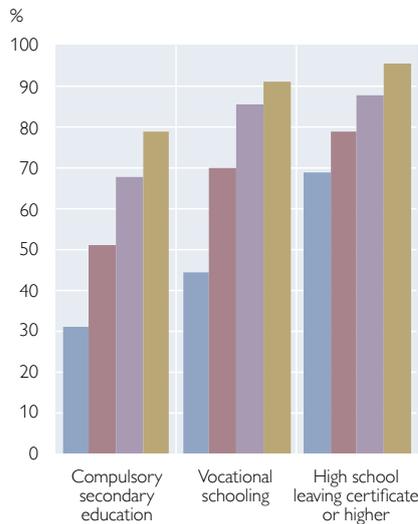
## Card Ownership by Sociodemographic Characteristics

### Debit card

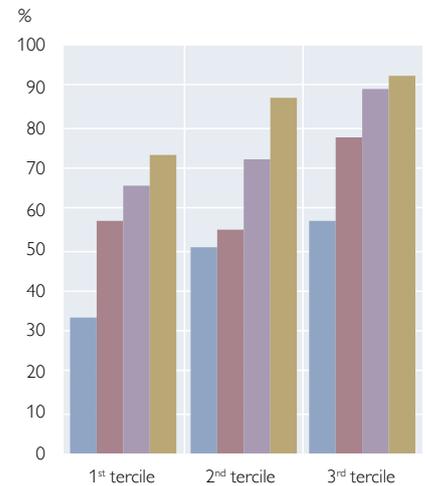
#### By age



#### By education

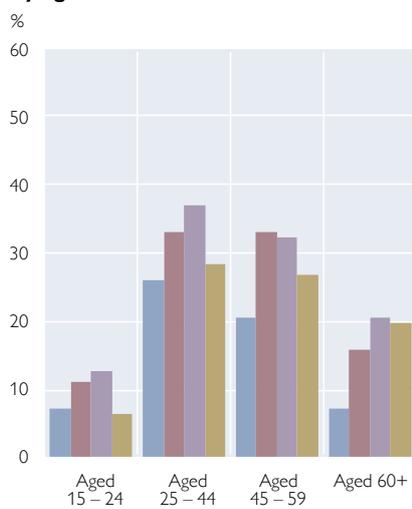


#### By personal income

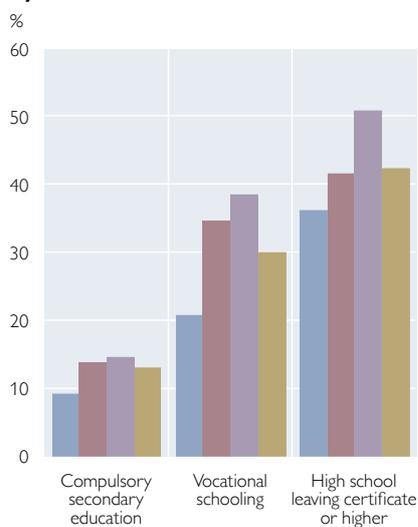


### Credit card

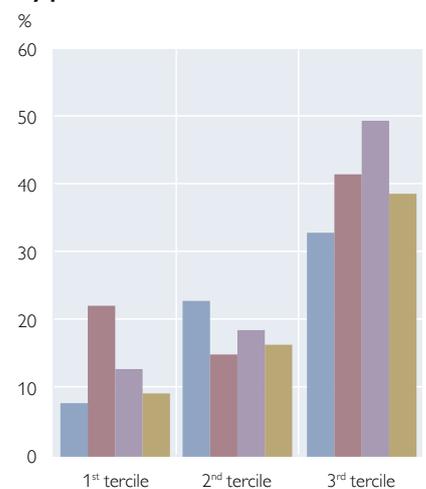
#### By age



#### By education



#### By personal income



■ 1996 ■ 2000 ■ 2005 ■ 2011

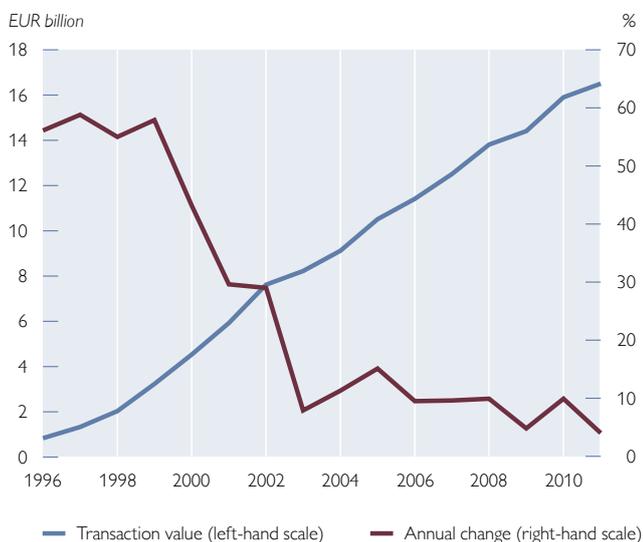
Source: OeNB (2011 payment survey).

Whereas the relevant total transactions rose almost linearly with the number of POS terminals (or vice versa) until roughly 2006, lately only total transactions per terminal have continued to increase (chart 2, right-hand figure).

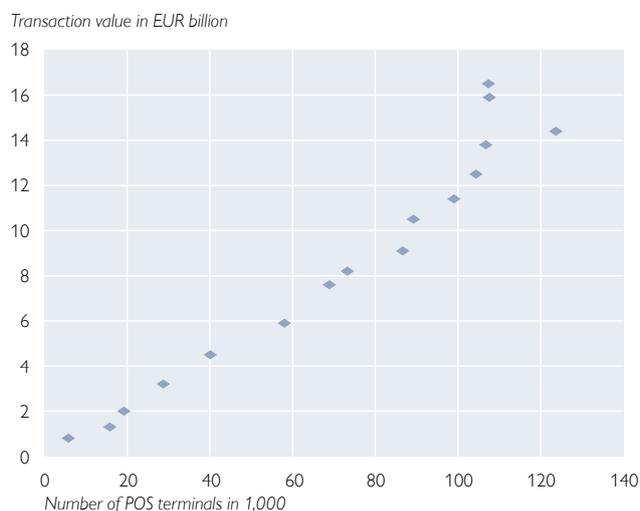
Payments made with credit cards issued in Austria totaled EUR 4.4 billion in 2011. A clear growth trend cannot be discerned, with growth rates fluctuating between +1.3% and +13% in the last five years under review.

### Debit Card Payments and POS Terminals

#### Transaction value



#### Transaction value and number of POS terminals<sup>1</sup>



Source: ECB Blue Book; older data: Europay Austria.

<sup>1</sup> The one-off decrease from some 120,000 POS terminals to about 107,000 POS terminals is attributable to a statistical adjustment.

### 1.3 Card Transactions in Selected Euro Area Countries

Table 2 summarizes some key data on card transactions in Austria as compared to the euro area, Germany, the Netherlands and Finland.<sup>8</sup> The table shows that Austria has a lower density

of POS terminals per million inhabitants than the euro area. This picture is also confirmed in terms of the number of card payments and the total payment volume per inhabitant that is processed with cards. Overall, the figures indicate that Austrian payments are far

Table 2

#### International Comparison of Key Figures on Card Transactions

	Austria	Germany	Netherlands	Finland	Euro area
Number of POS terminals per 1 million inhabitants	12,754	8,693	16,752	37,681	19,390
Number of annual transactions per inhabitant					
Debit card	39.0	29.4	139.8	184.7	29.6
Credit card	4.5	0.5	6.6 <sup>1</sup>	18.0 <sup>1</sup>	1.0
Total annual payment value per inhabitant in Euro					
Debit card	1,959.6	1,701.4	5,099.4	5,658.1	1,397.4
Credit card	523.5	394.6	666.9 <sup>1</sup>	1,042.6 <sup>1</sup>	90.2

Source: ECB (Statistical Data Warehouse).

<sup>1</sup> Cards with a credit/delayed debit function.

Note: The data are derived from the year 2011 and relate to payment cards issued in the relevant country.

<sup>8</sup> Germany was selected in this instance, as the OeNB survey data are also compared below with data from Germany. The Netherlands and Finland are both countries where payment cards are used frequently.

less card-intensive than those in the Netherlands and Finland but somewhat more card-intensive than in Germany.

## 2 Survey Results on the Payment Transactions of Austrian Households

This chapter presents the results of the survey relating to the payment habits of Austrian households (payment survey), which the OeNB conducted in fall 2011.<sup>9</sup> This survey is based on a random sample of persons resident in Austria and aged 15+. The respondents were personally interviewed about general aspects of their payment habits (card ownership, cash withdrawals etc.). They then received a payment diary for recording all purchases and the usage of their payment instruments for the period of seven successive days, including all expenditures they had made for themselves, for others and for their household as a whole. The scope of transactions comprised point-of-sale transactions as well as online, mail order, phone order and person-to-person payments (e.g. pocket money, charitable donations). Recurrent payments (e.g. rent, operating expenditure, insurance, phone bills, loan payments) were not to be recorded. Payments thus recorded were transacted in the period from September 2011 to January 2012, with most payments being made in the months of September and October. This is important insofar as earlier surveys from the years 2000 and 2005 were also carried out in the months of September and October.<sup>10</sup>

Of the 2,271 respondents surveyed, 1,165 actually kept a payment diary.

Overall, 12,811 payment transactions totaling EUR 347,864 were recorded, which is equivalent to an average of some 11 transactions per person per week, or 1.6 transactions per day.

### 2.1 Key Figures Indicate Good Data Quality

To indicate the quality of the sample, table 3 summarizes some key figures compiled from the surveys from the years 1996, 2000, 2005 and 2011. The 2011 survey recorded mean weekly expenditures per respondent of EUR 307.6. An extrapolation of this amount onto annual expenditures and onto the aggregate economy results in a projection of roughly 75% of aggregate private consumption (national accounts definition). This figure indicates good survey coverage since (under the national accounts definition) private consumption includes housing costs (rental payments, power, gas etc.) and insurance services, which account for around one-third of expenditures by private individuals and were not recorded in the payment diary.<sup>11</sup>

Compared with the previous surveys, however, it is apparent that the coverage of payments in the diaries fell over time. This relates to both average weekly expenditure per person and the median of the number of recorded transactions. Owing to the lack of comparable figures available for Austria, we cannot assess whether this decline is plausible. In terms of the average number of payments, at the very least, the results for Austria are roughly comparable with those of other studies. As shown in Jonker et al. (2012), the

<sup>9</sup> This survey was commissioned by the OeNB and conducted by the Institute for Empirical Social Research (IFES).

<sup>10</sup> For further information on the sample design and the field work, see the section entitled "Statistical Background Information" in the appendix.

<sup>11</sup> However, it should be noted that many problems (e.g. how to assess expenditure for children) are inherent in this extrapolation so that it provides only a rough indication.

Table 3

**Key Figures on Card Transactions in Austria**

	1996	2000	2005	2011
<b>Transactions</b>				
Total number of transactions	14,255.0	14,973.0	14,075.0	12,811.0
Average number of weekly transactions per person	12.8	12.5	11.7	11.1
Average number of daily transactions per person	1.8	1.8	1.7	1.6
Median number of weekly transactions per person	12.0	12.0	11.0	10.0
Median number of daily transactions per person	1.7	1.7	1.6	1.4
Mode of the number of transactions	13	10	9	7
<b>Payment amount</b>				
Total value of recorded transactions	503,251.6	425,675.4	408,041.6	355,905.3
Mean value of transactions per person (weighted)	451.3	354.7	339.8	307.6
Median value of weekly transactions per person	268.2	279.0	255.6	219.4
Median value of daily transactions per person	38.3	39.9	36.5	31.3

Source: OeNB (payment surveys).

Noe: The payments of 1996, 2000 and 2005 were inflated with the CPI to the value of September 2011.

values for Austria do largely correspond to those of other countries: the number of payments per person per day is 1.6 in the Netherlands, 2.2 in Australia, 1.7 in Canada and 1.6 in Germany.<sup>12</sup>

The exact reason for the decline in the payments recorded cannot easily be determined. One possibility is that the sociodemographic structure of the persons included in the sample has changed compared with previous surveys. Since payment diaries are sent in by respondents themselves, the final structure of the sample cannot be controlled ex ante. Although the results presented below were weighted so that the sample is representative for the target population in terms of age, gender and federal province, the weighting cannot entirely correct major distortions in the sample. This should be borne in mind particularly when survey results are compared across time.

Table A1 in the appendix summarizes the sociodemographic structure of the samples. The 2011 sample in-

cludes somewhat more elderly people than that of 2005. Likewise, the 2011 sample comprised far fewer people from small towns and more people from large cities. This factor could influence results. In particular, results relating to the temporal evolution of aggregate shares of payment instruments should be considered as rough estimates. For this reason, we will also present evidence for sociodemographic subgroups below, which minimizes but does not entirely eliminate possible distortions owing to different sample structures.

In addition to its sociodemographic composition, the sample can be analyzed also in terms of the structure of the recorded payments. The results arising from this analysis are very robust. An analysis of the structure of expenditures (section 3.1, table 8) reveals that the share of transactions for expenditures at gas stations (between roughly 7% and 8%) and in restaurants/hotels (between some 21% and 22%) was very

<sup>12</sup> In view of major differences in the sample design, as well as in the type and volume of the recorded payments, these international studies – apart from that commissioned by the Deutsche Bundesbank – are only to a limited extent comparable with the OeNB's survey.

constant in the period from 1996 to 2011. Also the shares of transactions in other sectors fluctuated only slightly in all four surveys.

Similarly, a comparison of the distribution of payments over time (table 4) shows little change in the period from 2000 to 2011.

For debit card payments, furthermore, population data about the average transaction amount are available. A comparison of the actual average payment amount with that of the samples indicates good data quality in respect of the 2005 and 2011 surveys. For instance, an average value determined from the survey data of some EUR 48 for debit card payments can be compared with the actual value of some EUR 50.

## 2.2 Cash Remains the Most Widely Used Payment Instrument

The OeNB's 2011 payment survey shows that cash remains the most important payment instrument at 82.1% of transactions and 65.3% of total payment volume. Debit cards are used to process one-fourth of total payments (in value terms). Although credit cards account for only 1.7% of transactions, they make up almost 5% in terms of payment value (table 5). In addition, payments by transfer/direct debit account for a value share<sup>13</sup> of about 4%. All other payment options play only a minor role.

Table 6 shows the usage of payment instruments broken down by payment amounts. 96% of payments up to EUR 10 were transacted in cash in the period under review. The corresponding share for debit cards was only 3%. Debit cards were important for pay-

Table 4  
**Distribution of Recorded Payment Amounts**

	1996	2000	2005	2011
EUR				
Minimum	0.3	0.4	1.1	0.2
p5	1.5	1.8	2.3	2.0
p25 (1 <sup>st</sup> quartile)	5.7	6.5	6.8	6.3
Median	13.2	14.5	14.7	14.8
p75 (3 <sup>rd</sup> quartile)	28.7	31.8	31.7	32.6
p90 (9 <sup>th</sup> decile)	54.1	56.8	56.6	60.3
p95	81.4	90.0	89.3	86.5
Maximum	4,066	6,091	3,959	830

Source: OeNB (payment surveys).

Note: This table shows the distribution of payment amounts recorded by respondents in the years 1996, 2000, 2005 and 2011. The payments of 1996, 2000 and 2005 were inflated with the CPI to the value of September 2011. "p25" denotes, for instance, the amount, below which 25% of all payments range (e.g. 25% of all payments were less than EUR 6.3 in 2011).

Table 5  
**Shares of Payment Instruments in 2011**

	Volume shares %	Value shares
Cash	82.12	65.33
Debit cards	13.65	24.96
Credit cards (including online orders)	1.67	4.75
Retailer loyalty cards with payment functionality	0.09	0.16
Quick-enabled cards	0.16	0.06
Direct debit payments/transfers	1.51	3.72
Online payment systems <sup>1</sup>	0.13	0.23
Payments by mobile phone	0.04	0.01
Prepaid cards	0.10	0.15
Other (e.g. coupons)	0.55	0.65

Source: OeNB (2011 payment survey).

<sup>1</sup> This item includes payment schemes that can only be used online (e.g. PayPal, ClickandBuy).

ments of more than EUR 20 – about one-fourth of payments between EUR 20 and EUR 50 were made by debit cards. Credit cards accounted for a share of more than 5% only for amounts exceeding EUR 50. To be highlighted is the fact that, even in the case of payments of more than EUR 100, almost half of transactions were still processed in cash (table 6).<sup>14</sup>

<sup>13</sup> In this article "value share" refers to the percentage share of a given payment instrument in the total value of overall transactions, whereas "volume share" is used to denote the share of a given payment instrument in the total number of overall transactions.

<sup>14</sup> Essentially, this result corresponds to findings of ECB (2011), which are derived however not from actual transaction data but from questions relating to respondents' average payment behavior.

Table 6

### Shares of Payment Instruments in Different Amount Categories

	Cash	Debit cards	Credit cards	Other
	%			
Up to EUR 10	95.7	3.1	0.2	1.0
EUR 10 to EUR 20	86.7	11.1	0.7	1.5
EUR 20 to EUR 50	70.9	24.4	1.9	2.8
EUR 50 to EUR 100	55.5	33.4	6.4	4.6
EUR 100 or more	48.9	33.6	8.2	9.3

Source: OeNB (2011 payment survey).

Note: This table shows the share of the relevant payment instrument in total payment transactions within the amount category indicated. The rows add up to 100%.

Payment cards are primarily used for larger-value amounts. Accordingly, the median transaction size of cash payments was EUR 11.2 (i.e. 50% of all cash payments were lower than EUR 11.2) and the median transaction size of debit card (credit card) payments EUR 34.9 (EUR 59.7).<sup>15</sup> Chart 3 depicts the

entire distribution of cash, debit and credit card transactions.

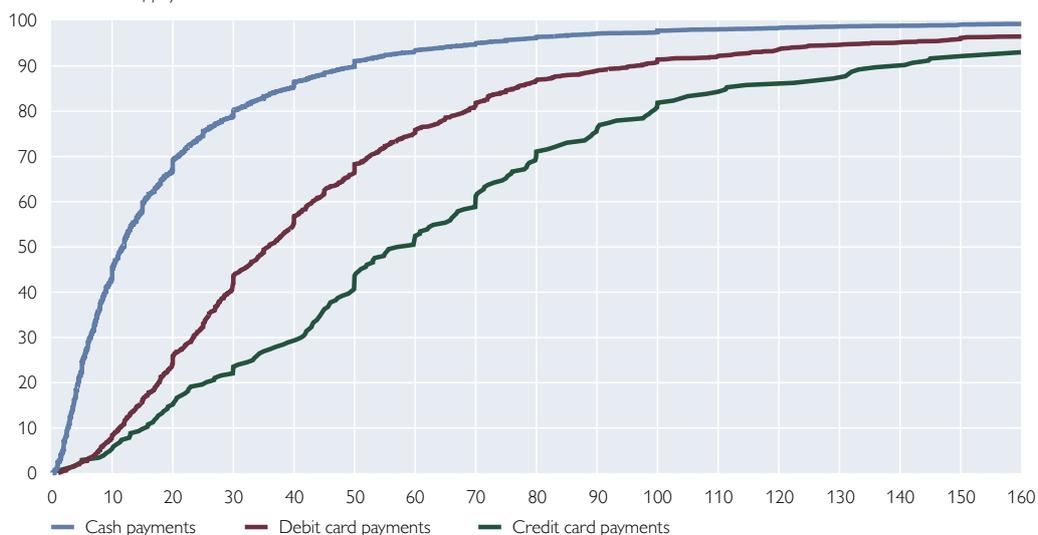
When analyzing the changes in payment habits for the period from 1996 to 2011, we exclude bank transfers for reasons of comparability. This is why the results for 2011 shown in charts 4a and 4b differ slightly from those in table 5. The comparison over time shows that debit cards continued to gain in importance in the period under review. However, while the share of debit card payments doubled between 2000 and 2005, its recent increase was less steep, accelerating by just 2 percentage points to about 14% between 2005 and 2011. The share of credit cards as a percentage of total payments remains small.

In terms of value shares, cash has further contracted (to 68%) although its decline in the period from 2006 to 2011 (–2.5 percentage points) was far

Chart 3

### Distribution of Payment Amounts in 2011

Cumulated share of payments in %



Source: OeNB (2011 payment survey).

Note: The distribution of credit card payments is based on a relatively small number of observations.

<sup>15</sup> The average payment amounts per payment instrument are shown in table 9.

less pronounced than in the period from 2000 to 2005 (–11 percentage points) – the years which saw the switch from the Austrian schilling to euro notes and coins. While one-fourth of overall payment volumes were settled with debit cards in 2011, the importance of credit cards remained small at just 5% in terms of payment value (chart 4a).

### 2.3 Usage of Cash in an International Comparison

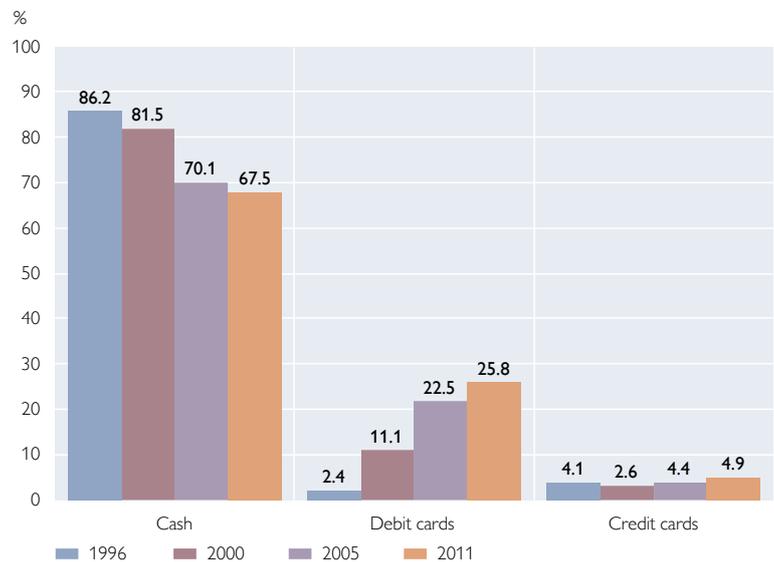
As far as we know, only a few central banks/research institutions are currently gathering data that are based on payment diaries. Most notably, a survey which was methodically largely comparable with its Austrian counterpart was carried out in Germany in 2011 (Deutsche Bundesbank, 2012).

A closer comparison reveals that the data for both countries are very similar in many respects. This factor may be seen as an additional validation of the Austrian (and vice versa also the German) findings. For instance, the average payment amount for cash payments in Austria and Germany is EUR 21 and EUR 20, respectively (median: EUR 11 and EUR 10). The shares in the overall number of transactions also show a surprisingly similar picture for both countries (table 7). By contrast, there are larger differences in terms of value shares: The cash share in Austria significantly exceeds that in Germany, while the share of payments by credit card and transfers is considerably larger in Germany.<sup>16</sup>

The differing results for Germany and Austria are leveled out to some extent if only cash, debit card and credit card payments are compared (exclud-

Chart 4a

#### Share of Payment Instruments (in Value Terms)

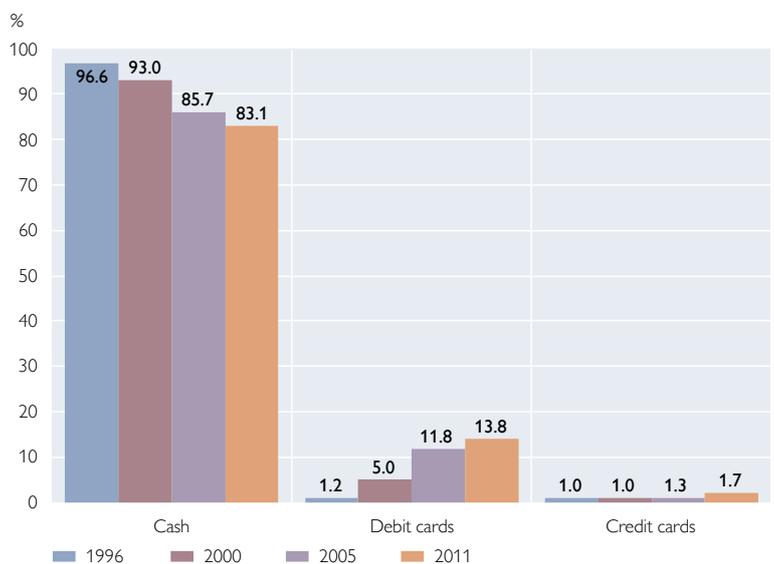


Source: OeNB (payment surveys).

Note: The chart shows the share of different payment instruments as a percentage of the overall payment volume the survey respondents recorded within a period of a week (payment diary).

Chart 4b

#### Share of Payment Instruments in Total Number of Transactions



Source: OeNB (payment surveys).

Note: The chart shows the share of different payment instruments as a percentage of all payment transactions that the survey respondents recorded within a period of a week (payment diary).

<sup>16</sup> The fact that the volume share of credit cards and transfers is relatively similar in both countries suggests that the respective value shares are influenced by some larger value payments in Germany.

Table 7

**Comparison with the Results for Germany**

	Austria	Germany
	%	
<b>Volume shares</b>		
Cash	82.1	82.0
Debit cards	13.6	13.4
Credit cards	1.7	1.8
Direct debit payments/transfers	1.5	1.6
Other	1.1	1.2
<b>Value shares</b>		
Cash	65.3	53.1
Debit cards	25.0	28.3
Credit cards	4.7	7.4
Direct debit payments/transfers	3.7	8.9
Other	1.3	2.3
<b>Value shares (excluding direct debit payments/transfers and other)</b>		
Cash	68.7	59.8
Debit cards	26.3	31.9
Credit cards	5.0	8.3

Source: OeNB (2011 payment survey), Deutsche Bundesbank (2012).

Note: Both surveys were conducted at the same time. The underlying survey methodology and the design of the questionnaire for both surveys are largely comparable.

ing transactions by transfers or other means of payment). In this case, the value share of cash is some 60% in Germany and around 69% in Austria.

To assess whether cash is as dominant in other countries as it is in Austria, the results were compared with data for two additional countries that share a similar degree of economic development: the Netherlands and Canada (Jonker et al., 2012; Arango and Welte, 2012). However, it should be borne in mind that, for these countries, both the methodology of the data collection and the scope of the recorded payments diverge from those in Austria and Germany, which means that results are only roughly comparable.<sup>17</sup> The share of cash in total payment value is 42% in the Netherlands and 23% in Canada. Debit card payments have a share of 54% in the Netherlands and 30% in Canada. Both countries thus have a far

higher value share of card payments, with cash payments in the Netherlands having been replaced almost exclusively by debit card payments and, in Canada, by both debit and credit card payments. In the Netherlands, as in Austria and Germany, the share of credit card payments is relatively small (3%), whereas in Canada it is 41%.

### 3 A More Disaggregated Analysis of the Development of Payment Transactions from 1996 to 2011

The development over time for different sociodemographic and transaction-specific subgroups is presented below for the period from 1996 to 2011.

#### 3.1 Some Sectors Show Major Changes in Payment Instrument Use

Most of the recorded transactions were conducted in two sectors (food: 46%; restaurants/hotels: 22%). While debit cards were hardly used to pay for food in 1996, over the course of time (after 5% in 2000 and 13% in 2005) their share had risen to 16% by 2011. The clothing and shoes sector recorded the steepest decline in the share of cash transactions. In 1996, 87% of payments had still been transacted in cash in this sector. In 2011, however, cash payments accounted for only slightly more than half of all payments (57%). By contrast, the share of debit card payments increased – more than one-third of payments (36%) for clothing and shoes were processed with a debit card in 2011. Major changes were also seen in a second sector. At gas stations, 79% of transactions had still been cash payments in 1996, whereas in 2011 only 57% of all payments were made in cash.

<sup>17</sup> The survey in the Netherlands was conducted online in 2010. The Canadian survey was conducted both online and via face-to-face interviews in 2009.

Table 8

## Selected Results by Type of Purchase

Sector		Payment instrument share in volume terms in the relevant sector, %				Payment instrument share in value terms in the relevant sector, %			
		1996	2000	2005	2011	1996	2000	2005	2011
Total share of expendi- ture	Food	45.0	47.4	43.4	46.0	44.0	41.6	39.9	45.3
	Tobacconists/newsstands	14.2	12.9	11.7	10.4	5.5	5.1	6.0	5.6
	Clothing, shoes	6.0	7.0	6.0	6.6	16.4	18.8	15.4	13.9
	Gas stations	6.6	7.1	7.6	7.2	11.1	12.0	12.5	12.6
	Restaurants/hotels	21.1	21.0	22.3	22.1	17.1	13.0	15.0	12.9
	Leisure activities	5.6	4.5	5.6	2.7	6.0	9.3	7.9	3.3
Cash	Food	98.8	94.5	86.9	82.9	95.6	89.3	78.7	70.8
	Tobacconists/newsstands	99.7	99.4	97.7	92.6	98.8	97.9	95.1	83.6
	Clothing, shoes	86.6	78.5	67.7	56.8	73.3	63.2	51.3	38.7
	Gas stations	79.0	74.6	62.7	56.9	74.9	70.3	56.1	49.6
	Restaurants/hotels	99.4	99.0	98.5	95.9	88.9	96.9	94.7	91.6
	Leisure activities	98.1	94.6	83.7	82.1	92.8	73.4	68.1	60.4
Debit cards	Food	0.4	5.0	12.5	15.9	1.1	10.0	20.5	26.8
	Tobacconists/newsstands	0.0	0.4	2.3	6.5	0.0	1.6	4.9	15.6
	Clothing, shoes	1.7	13.3	26.8	35.7	3.2	21.8	35.2	47.2
	Gas stations	14.0	14.5	25.7	33.0	15.4	15.6	29.5	37.0
	Restaurants/hotels	0.0	0.2	0.8	2.2	0.0	0.3	2.0	4.1
	Leisure activities	0.7	2.3	12.6	11.7	1.9	11.0	16.0	19.4
Credit cards	Food	0.1	0.1	0.2	0.3	0.4	0.2	0.4	0.8
	Tobacconists/newsstands	0.2	0.1	0.0	0.5	0.9	0.5	0.0	0.6
	Clothing, shoes	4.9	6.1	5.3	5.6	8.6	10.3	12.8	12.2
	Gas stations	5.1	7.0	6.8	7.8	6.2	7.5	8.6	10.7
	Restaurants/hotels	0.6	0.4	0.6	0.9	11.1	1.1	3.3	3.2
	Leisure activities	0.5	1.0	2.6	3.5	2.7	1.9	13.6	15.7

Source: OeNB (payment surveys).

This development was also mostly attributable to a shift in the direction of debit card payments, whose share more than doubled from 14% in 1996 to 33% in 2011.

An analysis of the shares in terms of payment value reveals a largely similar picture, although the changes were even more pronounced. In the period from 1996 to 2011, the value share of cash payments fell by 25 percentage points in the food sector and by 35 percentage points in the clothing and shoes sector. In both sectors, this market share was absorbed by debit card payments (food: +26 percentage points; clothing and shoes: +44 percentage points).

Credit cards play a role primarily in sectors where larger-value amounts are paid: the share of credit cards as percentage of payment value rose from 6% (1996) to 11% (2011) at gas stations, from 9% to 12% in the clothing and shoe sector (table 8).

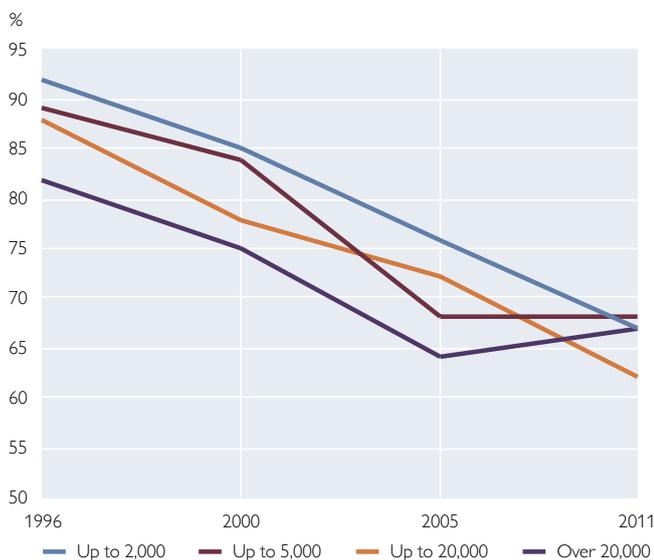
### 3.2 Decline in Cash Payments Particularly Marked among Young Respondents

Charts 5 and 6 show shares of cash payments (in terms of payment value) over time for different sociodemographic subgroups.<sup>18</sup> A first look at differences between subgroups observed in 2011 reveals that particularly income, education and age are correlated with cash

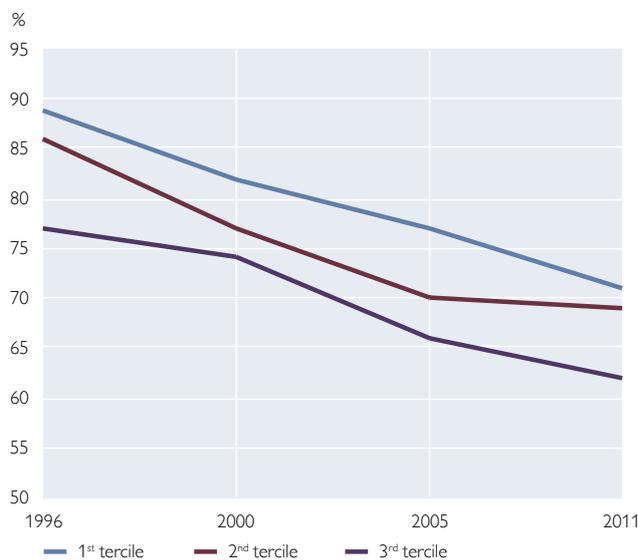
<sup>18</sup> These calculations are based on only a relatively small number of respondents, implying that results could be distorted by larger-value payments. This is why we interpret only the larger trend, disregarding smaller fluctuations.

### Share of Cash Payments by Sociodemographic Characteristics

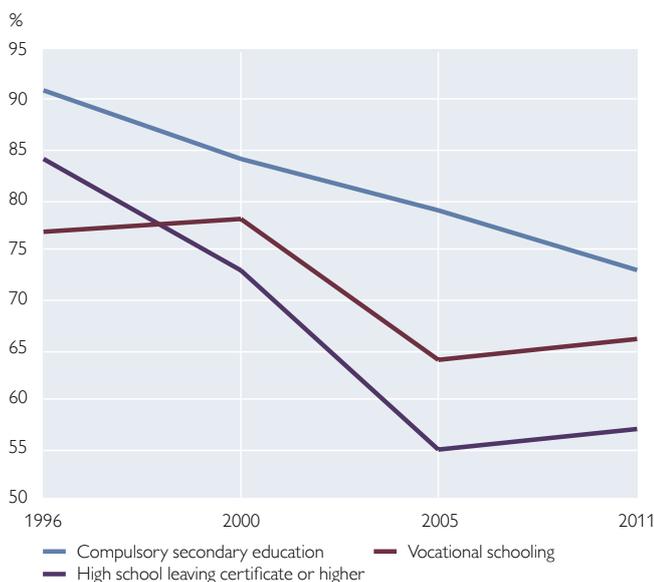
**By size of respondent's home town**



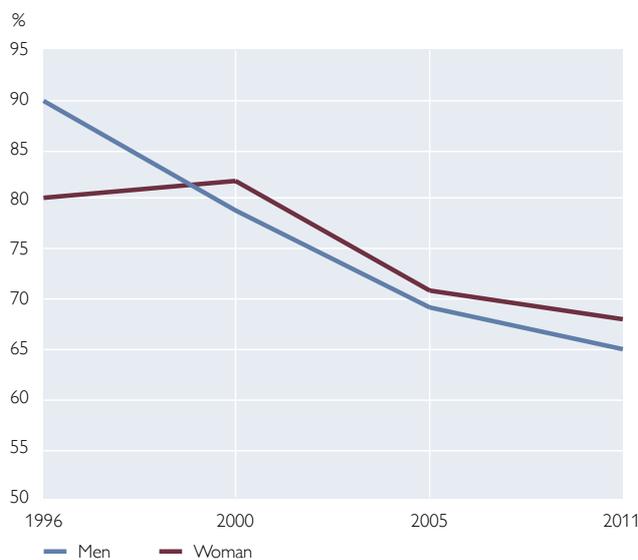
**By income**



**By secondary education**



**By gender**

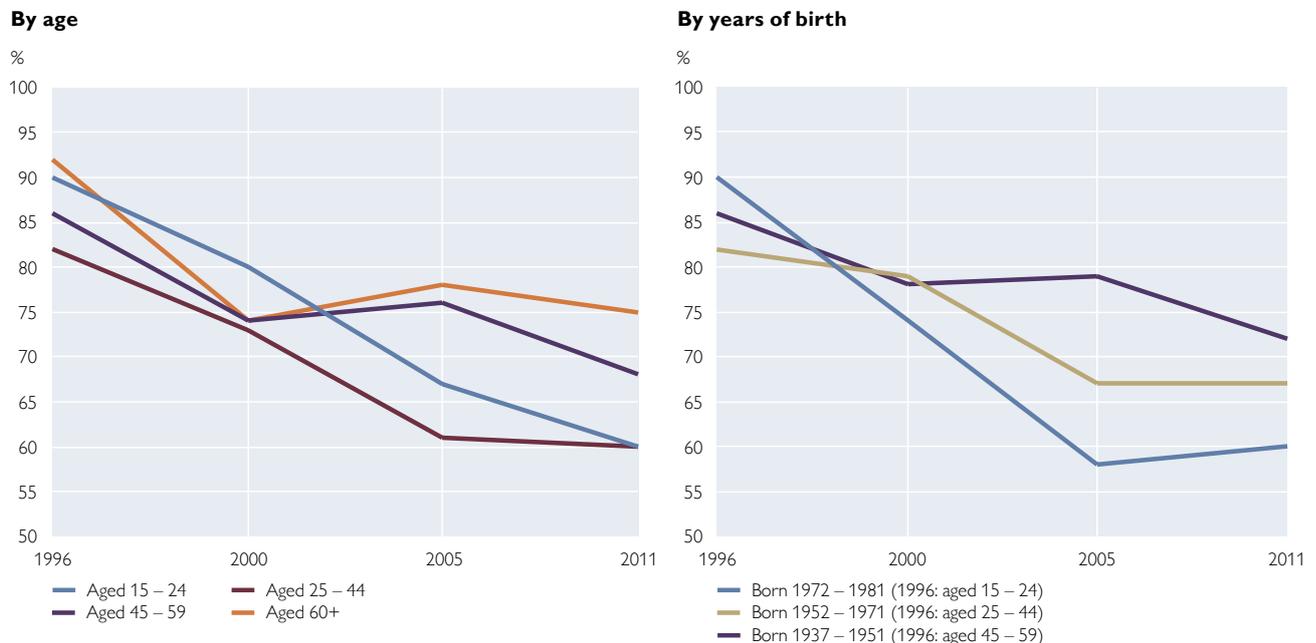


Source: OeNB (payment surveys).

usage, with the latter falling in inverse proportion to income and educational levels. By contrast, the older the respondents are, the higher their level of cash use is – the largest share of cash as a percentage of total expenditure was recorded by respondents aged 60+. Gender or size of home town only play a secondary role.

Over time, the decline in the share of cash payments was about equally strong in all income tertiles (e.g. the third tertile comprises the highest personal net income). Higher-educated persons (high school leaving certificate or higher) also reacted very strongly: they reduced their share of cash payments from 84% to 57% (for persons

### Share of Cash Payments (in Value Terms) by Sociodemographic Characteristics



Source: OeNB (2011 payment survey).

who had completed only compulsory secondary education, the share still amounted to 73% in 2011). An analysis by age (chart 6, left-hand figure) shows that the share of cash payments over time slumped sharply (by 30 percentage points) for persons aged 15 to 24. At –17 percentage points, persons aged 60+ reduced their share of cash payments the least in relative terms. The difference between older and younger respondents has widened over time.

Alternatively, the effect of age can also be analyzed by looking at birth cohorts (chart 6, right-hand figure). Respondents who were young in 1996 (born 1972 – 1981) had a share of cash payments of 90% back then, which in the course of time fell to about 60%. The development was quite different for respondents who were already middle-aged to elderly in 1996: although

the share of cash payments for this group of respondents (born 1937 – 1951) also fell, it only declined from some 86% to 72%. A cohort effect is therefore discernible: the changes in payment infrastructure (especially, the increase in POS terminal density), which are likely to have affected everyone more or less equally, had an impact of varying strength on cash usage depending on the birth cohort.<sup>19</sup>

Analyzed in terms of gender-specific differences, the share of cash payments was significantly higher for men (90%) than for women (80%) in 1996. Since 2000, however, the difference in the share of cash payments between women and men has ceased to be of real significance. A catching-up process in POS terminal density could be the reason behind the finding that the share of cash payments slumped the most

<sup>19</sup> Based on the assumption that all birth cohorts experienced similar changes with regard to the number of POS terminals.

sharply in smaller towns – with the decline topping 20% in villages and small towns (up to 20,000 inhabitants). In contrast, the decline in the cash share was only 14 percentage points in towns of more than 20,000 inhabitants.

### 3.3 Debit Cards Increasingly Used for Amounts Exceeding EUR 10

To understand the important role of cash, it is useful to analyze the overall distributions of payment amounts (table 4): 50% of the payments re-

corded are below EUR 15 and 75% are below EUR 33. These results imply that the relative importance of cash will not change much unless smaller-value amounts are settled with alternative payment instruments. For this reason it is important to analyze how the share of card payments has developed for small-value amounts.

Results show that the average payment amount of cash transactions fell over time, although the changes were not large: whereas an average cash payment amounted to EUR 26.4 (inflation-adjusted) in 1996, it was EUR 20.9 in 2011. In parallel with this development, the payment amount of debit card transactions also fell from EUR 59.2 to EUR 48.1 (table 4).

The changes are also observable over the distribution as a whole, with clear shifts emerging (chart 7). The use of debit cards considerably gained in importance for larger-value payment amounts. Until 2000, only 5% of payments were made with debit cards for

Table 9

#### Average Payment Amounts

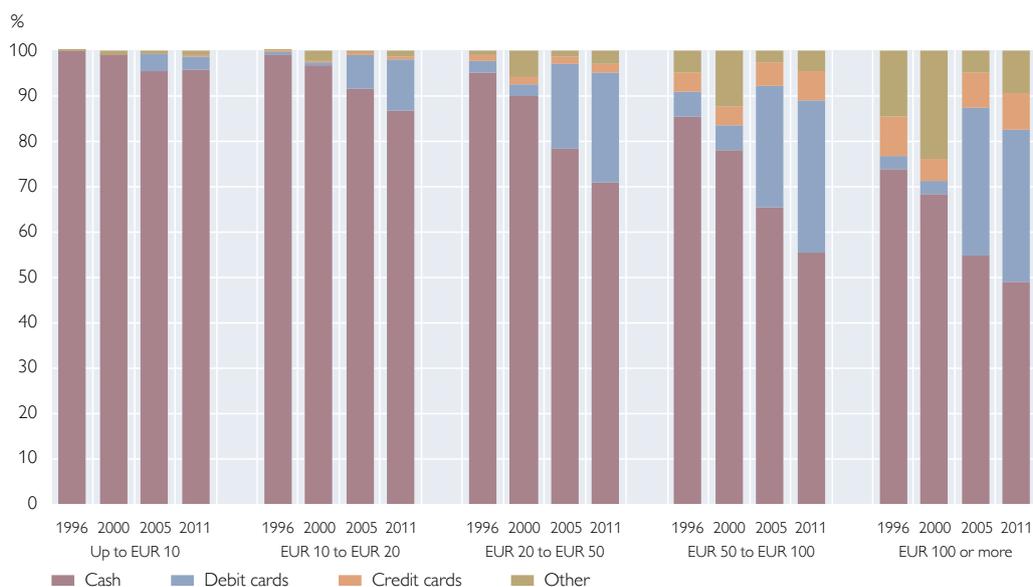
	1996	2000	2005	2011
EUR				
Cash	26.4	25.1	23.4	20.9
Debit cards	59.2	63.9	54.5	48.1
Credit cards	126.2	76.1	99.5	74.8

Source: OeNB (payment surveys).

Note: The payment amounts for the years 1996, 2000 and 2005 were inflated with the CPI to the value of the year 2011. The average values for credit card payments are based on a small number of observations, which means that their standard error is relatively large.

Chart 7

#### Share of Payment Instruments by Payment Amount from 1996 to 2011



Source: OeNB methods-of-payment surveys.

Note: Payment amounts for the years 1996, 2000 and 2005 were inflated with the CPI to the value of the year 2011.

amounts between EUR 50 and EUR 100. In 2011, by contrast, one-third of all payments in this range were made by debit cards. The share of debit card payments also grew for small-value amounts – however, shifts were only small for payments between EUR 10 and EUR 20 and barely evident for payments of up to EUR 10.

Overall, therefore, the results show that although debit card payments have substituted cash payments to some extent, cash payments have not been concentrated on specific amount ranges (small-value amounts, for instance). As for the question whether payment cards are also making inroads into the territory of low transaction amounts, it is clear that payment cards (particularly *debit cards* and *Quick-enabled cards*) have not succeeded in doing so in the 15 years under review. This situation may be attributable to both consumer and merchant behavior, with the latter being critically influenced by the service charge they have to pay for card transactions.

#### 4 Reasons for High Cash Usage in Austria

This chapter discusses the possible reasons why cash in Austria is still widely used for payments. In general, cash usage can be supply- and/or demand-side driven. As an example, one could raise the question whether cash is largely used because cashless payment

instruments are not (always) accepted and/or whether the use of cash reflects consumer preferences and cost considerations.

To explore the significance of these explanations for Austria, descriptive survey evidence is discussed below. However, it should be emphasized that our analysis is indicative only and does not possess any informative value with regard to causal relationships.<sup>20</sup> Despite these qualifications, the results nevertheless help to shed light on the principal reasons underlying high cash usage in Austria.<sup>21</sup>

##### 4.1 Card Acceptance and Market Structure

For each individual cash transaction, the payment diary recorded whether the transaction could also have been made in cashless form. On the basis of the relevant results, we analyze whether high cash usage is attributable to insufficient payment card acceptance.

Table 10 summarizes results concerning the share of transactions for which cashless payments were or would have been feasible (in the event that cash was paid). When interpreting these figures, it should be kept in mind that they are based on the subjective assessment of respondents, which means that the figures could be biased. For instance, a distortion would arise if cash-only users did not realize whether payment cards are accepted or not.<sup>22</sup>

<sup>20</sup> Two cases are cited as examples of problems that may arise in the interpretation of the results. First, a low level of payment card acceptance by merchants could be interpreted as an explanation for the high share of cash payments. The acceptance of payment cards, however, is itself endogenous and depends on consumer behavior. Second, cash usage depends on the costs of cash withdrawals. We will only touch upon this aspect.

<sup>21</sup> The processing of payments in cash in order to avoid taxes may also be of relevance. Since we cannot furnish any evidence for such behavior, this factor is not considered below. However, we assume that this motive is unlikely to strongly influence payment habits in volume terms (although it could be pertinent for specific ranges of amounts). This assessment derives from the fact that the overwhelming majority of payments recorded in the survey are relatively small (95% of the payments are less than EUR 90).

<sup>22</sup> A further limitation is that this answer was not provided in quite a number of cases. Such missing answers are not included in table 10. Their inclusion generally results in the acceptance rate being lower – around 64% (instead of 76%). The underlying pattern of the results in table 10, such as those relating to different expenditure categories or payment amounts, remains largely unaffected, however.

Table 10

### Perceived Acceptance of Payment Cards

	% of transactions
<b>Total</b>	76
<b>By sector</b>	
Food	89
Tobacconists/newsstands	81
Clothing, shoes	96
Gas stations	97
Restaurants/hotels	38
Leisure activities	44
<b>By payment amounts</b>	
Up to EUR 5	56
EUR 5 to EUR 10	71
EUR 10 to EUR 25	80
EUR 25 to EUR 50	85
Over EUR 50	89
<b>By size of respondent's home town (inhabitants)</b>	
Up to 2,000	72
Up to 5,000	74
Up to 20,000	80
Over 20,000	76

Source: OeNB (2011 payment survey).

Note: This table shows the share of transactions (in terms of overall transaction numbers) for which card payments were feasible. The values represent the respondents' subjective assessment. The category "Don't know" was not included.

Bearing this limitation in mind, we find that card payments would have been feasible for 76% of total transactions. Prima facie, this finding does not indicate that the high propensity for cash in Austria is solely the result of a low level of payment card acceptance.

Table 10 also includes a disaggregated sector-by-sector presentation – for two reasons: first, this makes it possible to check the plausibility of the results. Results confirm that payment cards are accepted for almost every transaction in the clothing and shoes sector and at gas stations, which concurs with the authors' perception. By contrast, payment card acceptance is the lowest in restaurants/hotels. It is

similarly low in the leisure activities sector, which is marked primarily by the provision of services. Second, the sectoral results allow us to draw more precise conclusions about payment habits. For instance, they show that some 90% of food purchases – the by far most important expenditure category of respondents – are payable by card. Nevertheless, the share of cash payments for food items stands at 71% (in terms of payment value). By contrast, the share of cash payments in the clothing and shoes sector, which also showed a very high card acceptance level, was only 39%. One reason for this difference could lie in differing payment amounts, with this factor potentially influencing both consumer behavior and merchants' acceptance of payment cards. As regards the latter, a classification by payment amounts confirms that the acceptance of payment cards is much lower for small-value amounts than for large-value amounts. This phenomenon points to the effect of costs which merchants incur for low-value card payments.<sup>23</sup>

This survey includes far more transactions made by city dwellers than small town inhabitants, which means the figures shown might be distorted toward higher levels of payment card acceptance. This is why card acceptance was also analyzed by size of a respondent's home town. Although the data suggest that payment card acceptance is somewhat lower in small towns than in cities, the difference is relatively small.

It can be summarized therefore that the high propensity for cash payment is on average unlikely to be attributable to a low level of payment card acceptance even if this factor is certainly important

<sup>23</sup> This finding is also evident in Walter (2010), with merchants being asked in this study which payment instruments they would accept. Walter (2010) shows that payment card acceptance is positively correlated with the average payment amount.

in some sectors such as restaurants/hotels or for small-value amounts. Von Kalckreuth et al. (2009) reach a similar conclusion in their study for Germany. Using data derived from a similar survey for Germany, they show that the availability of alternative payment options reduced the share of cash by some 9 percentage points, a reduction which does nothing to change the dominance of cash.

Indirect evidence as to the effect increased payment card acceptance is likely to have in the short term can be derived from answers to the following question asked in the survey: “If cashless payments were possible everywhere – even for small-value amounts and at businesses which currently accept cash only – how would you pay?” Only some 19% of respondents stated that they would settle a higher share of their expenditure by cards. Walter (2010) also arrives at a similar result, albeit from a different angle. In a survey of consumers at Viennese shopping centers, respondents who had paid in cash for their most recent purchase specified a 75% probability that they would pay cash again even if other payment instruments were accepted.

An additional factor, which was excluded in the previous analysis, is the costs incurred by the use of payment instruments and, above all, by the use of cash. Cash usage depends on the costs of withdrawing cash, e.g. the travel time to an ATM. In this respect, Austria stands out for its relatively high ATM density,<sup>24</sup> and for the fact that most bank customers in Austria do not incur direct fees for ATM withdrawals. Both these factors favor the use of cash relative to the use of payment cards.

However, it is worth restating that the direction of causality remains unclear (are there many ATMs because cash usage is high, or vice versa?).

#### 4.2 Preferences

A second important explanatory approach focuses on consumer preferences. To explore this aspect, the survey included questions relating to the characteristics of payment instruments. An initial question relating to this matter asked respondents which attributes of payment instruments they considered to be important. A follow-up question then elicited information about the extent to which cash, debit cards and credit cards satisfy these characteristics.

Table 11 summarizes the importance ascribed by respondents to the different attributes of payment instruments. The results reveal a consumer preference for payment transactions that are easy, quick and cost-effective for the consumer. In addition, potential consequences in the event of theft and the degree to which payment instruments allow consumers to keep track of expenditure play a role as well.

Based on these results, chart 8 shows the extent to which cash, debit cards and credit cards have those six payment instrument attributes that were rated most important by respondents.<sup>25</sup> The chart shows that cash is always better rated than the two card payment alternatives, although the gap between cash and debit cards is not large as regards ease of payment transaction. While 94% of respondents stated that cash payments were easy and practical, the comparable figure for debit card payments was 86%. The gap as regards speed of transaction was some-

<sup>24</sup> Austria: 960 ATMs per 1 million inhabitants; Germany: 1,008; the Netherlands: 475; Canada: 1,749 (all figures refer to the year 2010, source: BIS and ECB).

<sup>25</sup> This question was also answered by respondents who do not possess the relevant payment card to be assessed.

Table 11

**Importance Attached to Payment Instrument Attributes**

	% of respondents
The payment process is easy and practical	79.4
The payment process is fast	76.4
The payment instrument does not entail additional costs, e.g. account fees	69.8
The payment instrument allows me to keep track of my expenditure (e.g. through account statement entries)	67.8
The payment instrument offers the least possible inconvenience in the event of fraud or theft	66.9
The payment instrument is accepted by the greatest number of merchants possible	65.6
The payment instrument ensures my anonymity	56.8
The payment instrument keeps me from spending more than I planned	49.8
I don't need to pay attention to whether I can pay by card	49.3
I don't need to pay attention to whether I have enough cash on me	49.0
I receive discounts and/or rewards on payment	40.8
Delayed debit option for larger-value payments	32.8

Source: OeNB (2011 payment survey).

Note: This table shows the share of respondents to whom the relevant feature is "very important."

what wider (94% versus 82%). In analogy to the above, debit cards are better rated than credit cards in terms of every feature, which probably also reflects the fact that the latter are not very widespread.

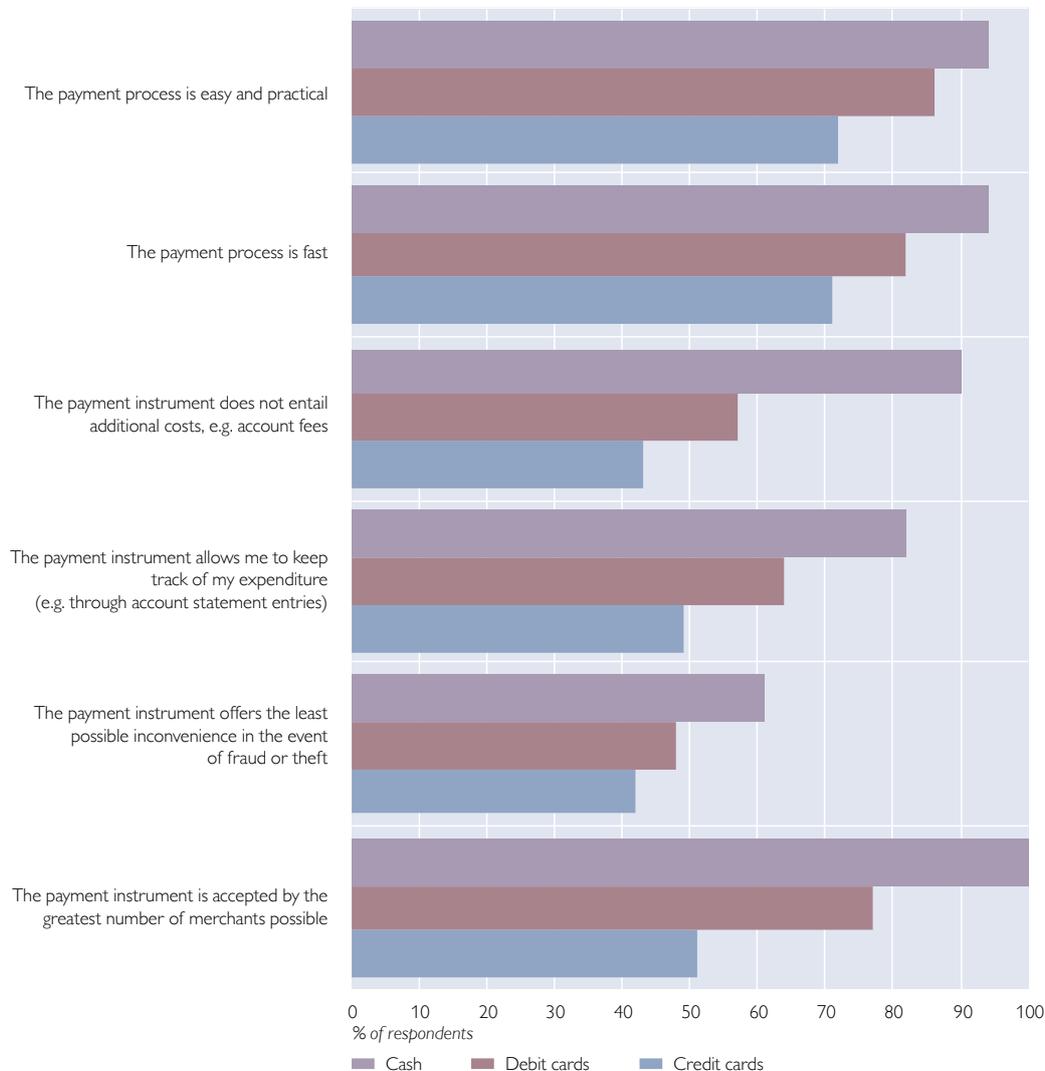
In summary, the results indicate that cash best satisfies users' expectations regarding those attributes of payment instruments that consumers rate most important.

Finally, consumers' behavioral persistence may represent another important explanation in this context. However, a conclusive assessment of this factor using cross-sectional data is rather difficult. For this purpose, data relating to the behavior of individual consumers over time would be necessary. At the very least, however, indirect evidence can be used for an assessment. Preliminary evidence was already furnished in the course of the cohort analysis (section 2.4). The results pointed to the existence of habit persistence. In addition, respondents were also asked directly whether their use of payment instruments today differs from their use ten years ago. Overall, about 40% of respondents answered in the negative. While we

cannot exclude that these answers suffer from memory bias, we also find, reassuringly, that answers are largely consistent if we compare them with current payment practices: most respondents who always pay cash today answered they have not altered their behavior in the previous ten years. By contrast, the overwhelming majority of respondents who were already using payment cards ten years ago (provided they had one in the first place) have altered their behavior and currently make card transactions more frequently than they did at that time. It can thus be concluded that there exists a certain behavioral persistence in the group of exclusive cash payers, who account for roughly one-quarter of respondents. However, it should be noted that the existence of habit persistence does not necessarily mean that agents act irrationally. Von Kalckreuth et al. (2011) show for instance that it can be rational for certain people to rely on cash transactions and to possess few payment cards. This behavior makes sense primarily for people who have strong incentives to keep track of their expenditure.

Chart 8

### To What Extent Do Cash, Debit Cards and Credit Cards Have the Attributes Favored by Respondents?



Source: OeNB (2011 payment survey).

Note: The table only includes those six attributes of payment instruments that were rated most important by respondents. It shows the share of respondents who consider a payment instrument to have satisfied the relevant requirement "well" or "very well." With regard to payment instrument acceptance, we assumed that cash satisfies the latter requirement "very well" for every respondent.

## 5 Summary and Conclusions

The results of the OeNB's 2011 methods-of-payment survey, which are presented in this study, permit a detailed insight into which payment instruments are used by Austrian households. The comparison of four surveys, which were carried out from 1996 to 2011, provides an overview of the changes

that have taken place within this period. This comparison over time is important as cashless payment options have developed rapidly and payment cards have become more widespread in the 15-year period spanned by the surveys.

The results reflect this development and confirm, as expected, that the use of payment instruments by consumers

has undergone considerable changes. Debit cards have gained in importance significantly and check payments have disappeared completely, while credit card payments continue to play a role for larger-value amounts only. Although these changes have brought about a significant decline in the use of cash, it still remains the dominant payment instrument. Innovations such as mobile phone payments or online payment solutions play only a minor role in an aggregate perspective. All in all, therefore, a cashless society in Austria – as in many other developed countries – still looks to be a very distant prospect.

This picture is also confirmed in a more detailed analysis. The use of payment instruments correlates with education, income and age. Be that as it may, more than 50% of expenditure is still processed with cash in each of these sociodemographic subgroups. Next to education, income and age, there are two further determinants that have a significant effect on the use of payment instruments. The first is the sector in which the purchase is made. In this regard, results proved heterogeneous over time. In the clothing and shoes sector and at gas stations, for instance, there are now more cashless transactions than cash payments. However, cash still plays a central role in restaurants/hotels and the services sector. The second determinant, which is connected to the first, is the size of the payment. Here, the results show that debit cards have gained shares primarily for payments starting from EUR 10. Transactions ranging from EUR 100 and upward were mostly processed in cashless form in 2011. In the range below EUR 10, however, cashless payment alternatives continue to play an insignificant role. In order to assess future developments, the fact that most direct payment transactions made by

consumers comprise small-value amounts (50% of all payments were less than EUR 15 in 2011) is important. It therefore remains to be seen what impact the introduction of contactless payment systems for small-value amounts (using cards or mobile phones) will have. The present study shows that consumers appreciate payment instruments that are fast, easy and practical to use. Moreover, the acceptance of cashless payment instruments by merchants seems to be limited for small-value amounts. For these reasons, contactless payment systems probably have the potential to replace cash in small-value transactions. However, survey evidence also reveals that consumers tend to use only a small number of different payment options (cards and cash) on average.

Why cash remains of such importance will be the subject of further more in-depth studies. The literature has shown that consumers do react to changes in relative costs. Seen from this angle, it can be deduced that cash must continue to offer an edge over payment cards. Likely explanations could lie in the (lack of) acceptance of payment cards by merchants, in the density of the ATM network and in the preferences of households. In addition to pure cost considerations, some consumers may also use payment instruments out of sheer habit. Although we find some evidence for habit effects, they are unlikely to be the main drivers of the persistent importance of cash.

To sum up: cash as a payment instrument has lost ground, as expected, and will continue to do so in future. However, cash remains so dominant that even a future decline in usage will do little to challenge its position as an important payment medium. Furthermore, the results presented show that changes in payment habits do not occur

suddenly. We thus stand by the assessment of our study from the year 2006 (Mooslechner et al., 2006: “From a monetary policy perspective (...) the impact of structural changes on Austrian households’ payment habits can be expected to remain minor in the medium term.”)

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## Appendix

Table A1

### Sociodemographic Structure of the Samples

	1996	2000	2005	2011
<b>Age</b>				
Aged 15–24	17.5	15.3	15.2	12.3
Aged 25–44	35.3	38.7	36.4	33.9
Aged 45–59	21.7	20.3	24.0	26.8
Aged 60+	25.4	25.6	24.4	27.0
<b>Gender</b>				
Female	53.2	53.8	51.5	52.4
Male	46.8	46.2	48.5	47.6
<b>Secondary education</b>				
Compulsory secondary education	60.5	52.8	52.8	58.3
Vocational schooling	18.9	19.0	20.9	13.4
High school leaving certificate or higher	20.5	28.2	26.3	28.3
<b>Personal net income</b>				
1 <sup>st</sup> income tercile	45.3	49.6	33.5	35.3
2 <sup>nd</sup> income tercile	27.5	22.1	32.4	32.2
3 <sup>rd</sup> income tercile	27.2	28.3	34.0	32.4
<b>Size of place of residence</b>				
Up to 2,000 inhabitants	20.1	19.8	27.3	16.2
Up to 5,000 inhabitants	20.9	27.6	25.9	21.7
Up to 20,000 inhabitants	16.9	14.2	15.5	18.6
Over 20,000 inhabitants	42.2	38.4	31.3	43.5

Source: OeNB (payment surveys).

### Statistical Background Information

**Survey institute:** Institut für empirische Sozialforschung GmbH (IFES, Institute for Empirical Social Research)

**Survey period:** September 2011 to January 2012, with 91.4% of the payment diaries maintained between September and November

**Survey population:** Persons aged 15+ who reside in Austria and speak German

**Survey sample:** 3,992 (less neutral nonresponses<sup>26</sup>; adjusted sample 3,802) persons

**Interviews held with:** 2,271 persons

**Response rate** (based on the adjusted sample): 59.7%

**Number of completed payment diaries returned:** 1,165

**Sample design:** Stratified multistage clustered random sampling. Stratification is by federal province, political district and size (category) of municipality.

**Weighting:** By age, gender and federal province

**Survey method:** Computer-Assisted Personal Interviewing (CAPI). Following the interview, respondents who had not already indicated their unwillingness to complete a payment diary were given the payment diary together with a reply envelope (handed over to some 75% of respondents)

<sup>26</sup> False addresses, clearly unoccupied flats/houses and people who do not speak German or who are mentally unable to answer are designated as neutral nonresponses.

## **Glossary**

### **Debit card**

A debit card (ATM card, bank card, savings bank card) is a card that can be used for cashless payment purposes and for withdrawing cash at ATMs. The payer's account is directly and immediately debited following payment (unlike with credit cards).

### **POS terminal**

A Point-Of-Sale (POS) terminal is a payment system infrastructure facility, which is used to carry out cashless transactions with a payment card at a physical (nonvirtual) point of sale. Actual credit card acceptance may however differ from POS terminal density.