

# Mercati, infrastrutture, sistemi di pagamento

(Markets, Infrastructures, Payment Systems)

Report on the payment attitudes of consumers in Italy: results from the ECB SPACE 2022 survey





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# REPORT ON THE PAYMENT ATTITUDES OF CONSUMERS IN ITALY: RESULTS FROM THE ECB SPACE 2022 SURVEY

#### Abstract

This report presents findings for Italy from the 'Study on the payment attitudes of consumers in the euro area (SPACE) – 2022', conducted by the European Central Bank between the end of 2021 and the first half of 2022. The primary aim of the report is to provide updated information on the prevailing trends in the use of payment methods in Italy. Additionally, where applicable and useful, the report compares Italy's results with those of the euro area and with data from the previous run of the survey, conducted in 2019, and from the 'Study on the use of cash by households in the euro area' (SUCH), conducted in 2015-16. The data show that, while cash remains the dominant payment method at the Point of Sale (POS), especially for low-value purchases (up to  $\in$ 50), its overall usage has declined in comparison with the findings of the previous editions of the survey. In terms of value of transactions, non-cash payments have gained importance, accounting for more than half of total expenditures at POS. Cashless payments are increasing overall, supported also by an uptake in e-commerce purchases. Specifically, cards, besides being the greatest competitor of cash for POS transactions, continue to be the most used means of payment both in terms of number and value of transactions for online purchases.

#### JEL Classification: EL41, D12, D14.

Keywords: payment instruments, cash, payment habits, consumers' payment behaviour.

#### Sintesi

Il rapporto presenta i risultati italiani dell'indagine sui comportamenti dei consumatori dell'area dell'euro condotta dalla Banca Centrale Europea tra la fine del 2021 e la prima metà del 2022 (Study on the payment attitudes of consumers in the euro area - SPACE 2022). Lo scopo principale del documento è fornire informazioni aggiornate sulle tendenze nell'utilizzo degli strumenti di pagamento in Italia. Inoltre, ove possibile e utile, il rapporto confronta i risultati italiani con quelli dell'area dell'euro e con quelli della precedente edizione, condotta nel 2019, e dell'indagine Study on the use of cash by households in the euro area - SUCH, condotta nel 2015-16. I dati mostrano che, sebbene il contante rimanga lo strumento di pagamento principale presso il Punto Vendita (POS) fisico, specialmente per gli acquisti di valore ridotto (fino a €50), il suo utilizzo è diminuito rispetto ai risultati delle indagini precedenti. In termini di valore delle transazioni, i pagamenti con strumenti alternativi al contante hanno acquisito maggiore importanza e rappresentano oltre la metà delle spese totali presso il POS. I pagamenti con strumenti elettronici stanno complessivamente aumentando, supportati anche dalla crescita del commercio elettronico. Le carte, oltre a rappresentare il principale concorrente del contante per le transazioni al POS, continuano a essere lo strumento di pagamento più utilizzato, in termini sia di numero sia di valore, per le transazioni relative ad acquisti online.

This report was edited by Gabriele Coletti, Alberto Di Iorio, Emanuele Pimpini and Giorgia Rocco of the Retail Payment Instruments and Services Directorate at Banca d'Italia.

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### **Executive summary**

The objective of this statistical report is to update the information on consumer payment attitudes in Italy – already presented in the previous 'Report on the payment attitudes of consumers in Italy: results from ECB surveys' – based on the new SPACE survey of the European Central Bank (ECB). The new survey was conducted between the end of 2021 and the first half of 2022 and, in the case of Italy, it collected information from a sample of 4,483 respondents. Whenever possible and meaningful, the Italian results are compared with those for the euro area and with the results of previous surveys in order to facilitate international comparisons and to identify possible trends.

The new SPACE 2022 study shows that in Italy:

- cash is the most used payment instrument at the physical point of sale (POS), although its share has declined in recent years: cash payments represent 69% of the total payments (86% in 2016; 82% in 2019), compared to 26% of transactions with cards (13% in 2016; 16% in 2019) and around 4% with other instruments (1% in 2016; 2% in 2019) of which 2% with mobile apps (negligible in previous surveys). In a cross-country comparison Italy still remains one of the countries with the highest reliance on cash in the euro area;
- in terms of value of transactions, non-cash payments have increased, reaching 51% (32% in 2016; 42% in 2019) of total purchases at the POS and narrowing the gap with the euro area;
- cash remains by far the prevailing instrument for low-value purchases (up to €50), although with different nuances as it accounts for 76% (89% in 2016 and 2019) of transactions up to €30 and 54% (63% in 2016; 61% in 2019) of payments between €30 and €50. Cash ceases to be the dominant instrument for purchases between €50 and €100 accounting for 45% (51% in 2016; 54% in 2019) of all payments in this range. Cards remain an instrument most frequently involved in high value purchases as they are used in 53% (42% in 2016; 45% in 2019) of purchases above 100€. In the euro area the cash at the POS is less used in all value ranges than in Italy;
- the acceptance of cashless instruments at the POS has improved, as cash is the only accepted instrument in only 26% of cash-settled transactions (40% in 2019) in line with the euro area figures;
- the share of online payments has increased significantly over time, reaching 16% of total non-recurring payments<sup>1</sup> (6% in 2019) and confirming the trend observed in the whole euro area;

<sup>&</sup>lt;sup>1</sup> Non-recurring day-to-day payments refer to payments at the physical point of sale (POS), person-toperson payments (P2P) and online payments, defined as good and services ordered and paid for online.

- for person-to-person transactions (P2P), cash payments has remained stable at 85% of total P2P payments (86% in 2019), in contrast to the euro area, where cash usage has declined particularly in favour of mobile payments;
- as in the euro area, for recurring payments<sup>2</sup>, direct debit is the most used instrument, while cash is not very used;
- despite cash is still the most widely used instrument at the POS, consumers strongly confirm their preference for cashless payment instruments if they are free to choose how to pay in a shop without any constraint; in other words, there is still a discrepancy between respondents' stated preferences and their actual behaviour at the POS, as also emerged in SPACE 2019. In a cross-country perspective, Italy is one of the countries with the strongest preference for cashless in the euro area;
- the main perceived advantages of using cards are the convenience (no need to carry cash), as well as the security and speed of such transactions. The advantages of cash, on the other hand, relate to the perception of better control over the amount spent and to a higher level of acceptance by merchants. Anonymity and privacy protection are perceived as less important in Italy than in the euro area;
- 77% of respondents obtain cash by withdrawing from the ATM network, compared with 11% from their own reserves and 7% from a bank or post office counter. As in 2019, 93% of Italian respondents are satisfied with their access conditions to cash. Italy is one of the countries in the euro area with the lowest rate of people stating the access to cash as difficult;
- the share of consumers who report the ownership of crypto-assets is stable at 2% (as in 2019), the lowest figure in the euro area. People hold these assets mainly for investment purposes (55%) and to a lesser extent as a means of payment (15%).

<sup>&</sup>lt;sup>2</sup> Recurring payments are made on a weekly, monthly, annual or other basis and include several categories: rent or mortgage, utility bills, insurance, telephone or internet bills, taxes and public charges, subscriptions (e.g. magazines, sports club, streaming TV), season tickets for transport and loans.

# **1. Introduction**

In view of the continuing evolution in the payments' market towards a more digital payment landscape, the Eurosystem is committed to carefully monitoring new trends and the nature and extent of the changes in consumers' payment preferences.

For this purpose, since 2016 the ECB has been conducting a survey every two (or three) years focusing on payment behaviours. The first survey was the 'Study on the Use of Cash by Households' (SUCH 2016), which focused on the euro-area consumers' payment behaviour at the point of sale (POS) and for person-to-person (P2P) transactions. The results, deeply described in Esselink and Hernandez (2017), suggest that cash was the most used instrument at the POS, especially for low-value payments, but with marked heterogeneity across euro-area countries.

In 2019, the ECB launched a new survey to investigate the payment behaviour of euroarea citizens, largely reviewing the scope of the previous SUCH study to a large extent: the Study on the Payment Attitudes of Consumers in the Euro area (SPACE 2019). Follow-up SPACE studies have been carried out regularly to continue research on payment trends and the new SPACE survey was conducted in 2021 and 2022.

Results from SUCH are only comparable to the SPACE studies to a limited extent, because the survey methods were different and the output variables only partially overlap.

The results of the SPACE studies make it possible to estimate the share of different payment instruments used by consumers at the point of sale (POS), for person-to-person (P2P), online and recurring payments in various ways, including by demographics and payment patterns. In addition, the survey gives an insight into consumers' access to and acceptance of cash and other payment instruments.

Compared to SPACE 2019, SPACE 2022 additionally looks at: (i) changes in payment behaviour since the onset of the pandemic; (ii) recent trends in digital payments, such as the availability and perceived cost of instant payments; (iii) crypto-assets, including information on respondents' ownership and usage patterns.

In this report, we focus on payment habits in Italy, using the rich and granular information from the new SPACE 2022 survey. We describe recent trends offering a comparison, where possible, with the previous SUCH (Rocco, 2019) and SPACE 2019 (Coletti *et al.*, 2022) surveys. In addition, to give an international view of consumer behaviour, we compare the Italian results with those of the euro area (Esselink and Hernandez, 2017; ECB, 2020; ECB, 2022). Moreover, we provide an assessment of Italians' payment behaviour by investigating the most relevant factors driving the payment choice in Italy such as the socio-demographic characteristics of the respondents, as well as a number of transaction-related features, such as the amount of the transaction, the adoption of technology, etc, as found in Di Iorio and Rocco (2022).

The report is structured as follows: Section 2 briefly summarises the methodology of the ECB consumer payment surveys and describes the data; Section 3 analyses non-recurring diaries, while Section 4 describes recurring payments; Section 5 assesses consumers' payment preferences; Section 6 explores access to cash, while Section 7 describes access

to alternative instruments and the ownership of crypto-assets. Finally, the report also includes a list of charts in the Appendix that complement the view on the phenomena described in Sections 3 to 7.

# 2. Methodology and data

The SPACE 2022 survey largely confirms the methodology of the previous SPACE 2019 study. A sample of euro-area residents older than 18 years was asked to fill in three payment diaries and a questionnaire on their behaviour and attitudes towards cash and cashless payment instruments. The diaries cover non-recurring payments, namely (i) POS and P2P payments and (ii) online payments, for which a one-day diary is used as in SPACE 2019, and (iii) recurring payments, for which respondents have to report a selection of bill payments made in the last 30 days, rather than the last 7 days in the previous edition. Compared to its predecessor, the questionnaire has been expanded to include, for example, questions on the ownership of certain financial instruments and a module on the impact of the pandemic on payment habits.

As in the previous ECB payment consumers surveys (SUCH and SPACE 2019), the SPACE 2022 sample covers 17 of the 19 euro-area countries,<sup>3</sup> with the exception of Germany and the Netherlands. Indeed, the Deutsche Bundesbank (DBB) and De Nederlandsche Bank (DNB) and the Dutch Payments Association (DPA) carry out their own surveys on payment behaviour and their data have been integrated in the ECB reports where possible.

Data for all countries, except Germany and the Netherlands, are collected using an identical questionnaire translated into the national language. In order to prevent panel bias, half interviews are conducted online (computer-assisted web interviewing – CAWI) and half over the telephone (computer-assisted telephone interviewing – CATI) using a mix of mobile and fixed lines. For both sub-samples, quotas are set for country, age, gender and day of the week. To capture the potential seasonality in consumers' payment behaviour, interviews are conducted in two waves: the first one in Q4 2021 and the second between mid-March and early-June 2022.

The total sample size achieved in Italy is 4,483 individuals out of a total of 39,765 in the 17 euro-area countries. Overall, Italian payment diaries data, that refer to non-recurring payments, consist of 9,376 transactions for POS, 383 for P2P and 1,948 for online shopping. On the other hand, recurring payments, consisting of a selection of bill payments made in the 30 days prior to the interview date, amount to 12,120.

<sup>&</sup>lt;sup>3</sup> At the time of the survey (2022) Croatia was not yet a member of the euro area.

## 3. Non-recurring payments

Non-recurring day-to-day payments refer to payments made to purchase goods and services at the physical point of sale (POS), person-to-person payments (P2P) not connected to the purchase of goods and services, and online payments, defined as good and services ordered and paid for online.<sup>4</sup>



Figure 1

Source: authors' calculations based on ECB SPACE 2019 and SPACE 2022 data.

The share of online payments in consumers' non-recurring purchases has increased considerably since 2019, while the share of payments at the POS has declined. The incidence of P2P payments has remained modest. Data show a sharp increase in the share of online payments in day-to-day transactions in Italy in 2022 (Fig. 1), reaching 16% in terms of number (6% in 2019). In terms of value, the share of online payments reaches 26% (16% in 2019), indicating that online payments are more frequently used for larger payment amounts. This trend is in line with the euro area, where online transactions account for 17% in terms of number (6% in 2019), and 28% in terms of value (14% in 2019). Interestingly, the share of Italian respondents who have made at least one online transaction has almost tripled in recent years, reaching 26% in 2022 (9% in 2019). Furthermore, the breakdown of online payments by purpose and location has changed with a strong increase in food purchases accounting for 21% of total online purchases (9% in 2019), mainly at the expenses of durable goods having the largest contraction at 27% (40% in 2019).

In Italy, POS payments still represent the bulk of the daily retail payments market, albeit decreasing compared to the previous survey, accounting for 81% of total non-recurring purchases in terms of number (90% in 2019) and 69% in terms of value (76% in 2019). Italian figures are in line with the euro area: of all day-to-day payments, 80% are made at

<sup>&</sup>lt;sup>4</sup> Differently from SPACE 2019, in SPACE 2022 the transactions ordered online but paid at the point of sale (e.g. paying a courier at the door) are not considered as online transactions; therefore, cash is not among means of payment available for online transactions.

the POS in 2022 (88% in 2019) accounting for 68% in terms of value (79% in 2019). This evidence suggests that POS payments are, on average, made for low-value purchases. The data show no relevant changes in the breakdown of POS payments by purpose and location, in contrast to online purchases.

Finally, the incidence of P2P transactions has remained stable at 3% of all non-recurring transactions (as in 2019), but has declined to 5% in terms of value (8% in 2019). In the euro area, the share of P2P transactions in the number non-recurring payments has decreased slightly to 4% (5% in 2019), while the incidence of P2P payments in terms of value has declined a little more, to 5% (7% in 2019).

The increase in online purchases has been mainly at the expense of POS purchases, reflecting potential new consumption habits as a result of the COVID-19 pandemic, as well as some mobility constraints present in late 2021 and early 2022. The shift towards online shopping is also confirmed by the direct questions on changes in payment behaviour since the onset of the pandemic with 41% of consumers buying goods online more often than before the pandemic.

# 3.1 Payments at POS

The data confirm a downward trend in the use of cash at the POS, which is coupled with an increasing use of cards. However, cash remains the most frequently used method. In terms of number of transactions, the share of cash payments at the POS in Italy has decreased significantly in recent years, falling to 69% in 2022 (86% in 2016; 82 in 2019), while the share of card payments has reached 26% (13% in 2016; 16% in 2019) of total POS transactions (Fig. 2a). A similar trend has occurred in the euro area, where cash payments account for 59% of total POS payments (79% in 2016; 72% in 2019) and card payments account for 34% (19% in 2016; 25% in 2019). However, in a cross-country comparison Italy still remains one of the countries with the highest reliance on cash.

In terms of value of transactions (Fig. 2b), for the first time since ECB surveys have been conducted, in Italy the share of non-cash payments at the POS (51%) is higher than those in cash (49%). The reduction in the share of cash payments (-19 p.p. between 2016 and 2022) and the concomitant increase in the share of card payments over time have been more pronounced in Italy (+14 p.p. between 2016 and 2022) than in the euro area (-12 and +7 p.p., for cash and cards, respectively). As a result, the gap with the euro area in the use of non-cash instruments has narrowed.

Mobile payments, although on the rise, are still not very popular at the POS, with a small share of payments (around 2% in terms of both number and value of transactions) as in the euro area (around 3% in terms of both number and value of transactions).





Source: authors' calculations based on ECB SUCH (2016), SPACE 2019 and SPACE 2022 data.

Notes: 'Other' includes mobile payments, bank cheques, credit transfers, loyalty points, vouchers and gift cards and other payment instruments.

**These changes in payment habits have largely occured over the last three years as the pandemic has accelerated the substitution of cash for non-cash payments.**<sup>5</sup> A key issue is whether this behaviour may prove temporary once the pandemic is over. Interestingly, when asked specifically about the impact of the pandemic, 57% of respondents declared to have not changed their use of cash at the POS, while 27% said that they use it less often than before the pandemic. People using cash less frequently also indicated, from a given list, some prevailing reasons for this change, pointing first to the increased convenience of electronic payments (46%), followed by government recommendations to use cashless instruments (39%).

The choice of payment instrument at the POS is significantly influenced by the value of the transaction: cash is most frequently used for small payments, while as the value of transactions grows, cards and other means of payment become more competitive. Both for Italy and the euro area, cash usage at the POS is decreasing over time for both high and low-value payments; however, some differences still persist. In Italy (Fig. 3a and 3b), cash remains by far the dominant instrument for payments up to  $\epsilon$ 30 accounting for 76% of these transactions (89% in 2016 and 2019); cards play only a minor role. This also contributes to the understanding of the overall dominant role of cash in POS payments, as small value payments account for 75% of all POS transactions.

When considering transactions between  $\notin 30$  and  $\notin 50$ , the weight of cash decreases to 54% (63% in 2016; 61% in 2019) and the weight of cards becomes non-negligible, accounting for 41% of all the transactions in this value range (35% in 2016; 38% in 2019).

<sup>&</sup>lt;sup>5</sup> See Ardizzi *et al.* (2020, 2021) for empiricial analysis regarding the effects of the pandemic on payment habits in Italy using high-frequency transaction data from clearing and processing systems.

Differently from previous surveys, cash is no longer the most used instrument for transactions between  $\notin$ 50 and  $\notin$ 100, accounting for 45% of all payments in this range (54% in 2019; 51% in 2016).

Finally, for payments over  $\in 100$ , cash plays a progressively smaller role, in favour of cards, accounting only for 35% of payments (40 % in 2019; 46 % in 2016).

In the euro area (Fig. 3c and 3d) the cash at the POS is less used compared to Italy in all value ranges. In particular, despite being the most used payment instrument for transactions up to  $\in$ 30, the share of cash payments is lower if compared to Italy. Furthermore, the threshold for which cash is no longer the dominant instrument ( $\in$ 30) is lower than in the Italian case. However, Italy is experiencing an ongoing process of convergence of the share of cash used at the POS with the euro area. In fact, even if some differences persist for small payments, the gaps in all value ranges greater than  $\in$ 30 are narrowing.



Source: authors' calculations based on ECB SUCH 2016, SPACE 2019 and SPACE 2022 data.

Notes: 'Other' includes bank cheques, credit transfers, mobile payments, loyalty points, vouchers and gift cards and other payment instruments.

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**Heterogeneity in the use of means of payments has decreased at regional level, especially in terms of value of transactions.** Although the estimates should be treated with caution, as the sample design is not conceived to capture regional differences properly, the use of cash, but also of other instruments, appears to have become more homogenous across Italian regions in recent years. In terms of number of transactions, the use of different payment instruments appears to be quite similar across regions, with the North using slightly less cash (around 69%) and more cards (around 28%) than the South (cash around 71%; cards around 24%). This evidence is in line with findings from SPACE 2019, where the regional heterogeneity in terms of volume was rather small, although more pronounced than in SPACE 2022.

The use of different payment instruments in terms of value also appears to be rather homogeneous across regions, with northern regions showing a share of cash in POS transactions of around 49% and southern regions just over 50%. The largest difference is observed between Lombardy (48%) and Puglia-Basilicata-Calabria (55%). However, the north-south differences has significantly attenuated from 2019. The picture is similar for cards.

**Differences in payment habits among different population groups has attenuated, both in terms of volume and value.** Since 2019, the gender gap has narrowed, with women and men broadly reporting the same incidence of cash and card payments. Older people continue to show a high fraction of cash payments (73% and 51% in terms of number and value of transactions, respectively), while younger people show a decreased share of cash payments, now in line with other age groups, in contrast to the 2019 data. In addition, people aged 18-39 use instruments other than cards and cash more often than others. Significant differences remains when looking at the level of education and income distribution with less educated and low-income people relying more on cash at the POS (the share of POS payments stands around 70% for the former and more than 73% for the latter in terms of number of transactions; around 50% and 55% in terms of value of transactions).

**Payment habits differ considerably across locations and for different purposes.** In terms of value of transactions, cash is largely used for charity (80%), for purchases on the street (75%) and at vending machines (68%), for household services (59%) and for food (65%), which together accounts for about 25% of total POS expenditure. The value of card payments overtakes cash ones for travel purposes (68%), for purchase of durable goods (55%) and for services (56%), which combined accounts for 27% of total POS expenditures.

According to respondents' perception, the acceptance of cashless payment instruments at the POS has improved. Cash is the only accepted instrument in 26% of the all cash-settled transactions (40% in 2019), similarly to the euro area. Supermarkets and petrol stations has the highest rate of non-cash instruments acceptance (around 90%) immediately followed by durable goods shops (81%). On the opposite, the acceptance is the lowest in charity transactions (24%).

# **3.2 Online payments**

**For online payments, cards continue to be the most widely used payment method both in terms of number and value of transactions**. In terms of number (Fig. 4a), the share of card payments has declined slightly to 50% of total online payments (54% in 2019), in line with the 51% of the euro area (54% in 2019). The incidence of e-payment solutions, which includes PayPal and other online or mobile payment methods, has also slightly declined to 27% (29% in 2019), while the proportion of credit transfers has nearly doubled at 5% (3% in 2019). Over the last years the use of other online payment methods – such as direct debits, loyalty points, vouchers and gift cards, crypto assets, and other method not identified in the questionnaire – has increased to some extent, reaching 17% of total online payments. Overall, this picture is confirmed also in terms of value of transactions (Fig. 4b).

The average value of transactions differs considerably across the means of payment, standing at  $\in 148$  for credit transfers,  $\in 61$  for card transactions and and  $\in 46$  for e-payments, thus confirming that credit transfers are mainly used for high-value payments.



#### Figure 4

Source: authors' calculations based on ECB SPACE 2019 and SPACE 2022 data.

**Payment cards are the most commonly used instrument across all the different purchase purposes, while the importance of non-card instruments varies.** The share of payment cards varies widely across purchase purposes; in terms of volumes it ranges from 37% for charity transactions to 61% for food transactions. Credit transfers are generally little used, but have a non-negligible share of use more for charity (24%) and travel (13%) transactions, while e-payments, which are generally the most widely used instruments after cards, are used in more than one in three payments for all purchase purposes except for food (15%) and charity (20%).

# 3.3 P2P payments

**For P2P payments, cash continues to be the dominant payment instrument; unlike the euro area, there is no significant use of mobile instruments.** Cash payments have remained stable at 85% of total P2P payments (86% in 2019), higher than 73% of the euro area, which has experienced a decline (86% in 2019). In terms of value, these trends are confirmed even if the share of cash is around 60% both for Italy and the euro area, thus confirming that also for P2P transactions cash is mainly used for low-value payments. Cards play a minor role, as private individuals rarely have the opportunity to accept card payments. The share of mobile payments, both in terms of volume and value, stands at 3%, thus showing low usage in Italy compared to 10% in the euro area.

# 4. **Recurring payments**

In addition to day-to-day payments, consumers make recurring payments on a weekly, monthly, annual or other basis. Specifically, recurring payments are most frequently used for telephone and internet bills and utilities (50% of the overall recurring payments), followed by subscriptions (12%), rent or mortgage (10%), insurance (9%), taxes and public charges (7%), tickets for transport (6%), paying back debt or consumer loans (6%).

**Cash is not very used in recurring payments.** Direct debit is the most frequently used instrument (51% of reported payments), followed by cards (22%) and credit transfer (12%). Cash plays a minor role (10%). In particular, direct debits are widely used to pay utilities (60%), telephone bills (66%) and rents or mortgages (51%). Cards show an above-the-average share, for subscriptions (39%) and tickets for transport (47%). In terms of value of transactions, the picture remains broadly unchanged. However, credit transfer payments represent 23% of total recurring transactions, thus confirming also in this case that this instrument is primarily used for high value transactions. On the opposite, cards (16%) and cash (7%) are used for low-value payments. In the euro area, the direct debit is confirmed as the most widely used instrument, while, unlike in Italy, the credit transfer weighs more, both in terms of volume and value.

## 5. Preferences for payment instruments

**In Italy people prefer to pay with cashless payment instruments.** As in 2019, Italians strongly confirm their preference for cashless payment instruments. In fact, the majority of respondents report that they would pay with cards or other cashless methods (58%; Fig. 5a) if they were free to choose how to pay in a shop without any constraint; being one of the countries with the strongest preference for cashless in the euro area (55%). Cash is the preferred means of payment for only 18% of Italian respondents, a little lower than in the euro area (22%).

Asked on the perceived main advantages of cash and cards, Italian respondents report that the main advantages of using cash are that it gives a clear overview of expenses (41%) and that it is widely accepted (32%), similary to the euro area (Fig. 5b). However, only a limited number of respondents in Italy report anonimity and privacy protection among advantages (22%) compared to the euro area (40%). On the other hand, the main reasons

for using cards are related to convenience (respondents do not need to carry cash with them; 66%), fast use (40%) and safety (31%).





Source: authors' calculations based on ECB SPACE 2022 data.

**Preferences for different payment instruments exhibit small variability at territorial level, while some relevant differences among population groups remain**. The preference for cashless instruments is lower in the South (around 50%) than in the North (more than 60%). Both younger and older people report a share of preference for cash (26% and 21%, respectively) slightly above the national average as well as low-educated and low-income groups (20% and 34%, respectively).

Taken together, there is still a discrepancy between respondents' stated preferences and their actual behaviour at the POS, as also emerged in SPACE 2019. In a recent paper, Di Iorio and Rocco (2022) found that an important explanatory factor is the lack of acceptance of alternative instruments by merchants, especially for low-value transactions.

## 6. Access to cash

**In Italy, access to cash remains largely satisfactory and still dependent on the ATM network.** People obtain cash from various sources, with ATMs representing the main channel (77%) similarly to the euro area (74%), followed by their own reserves (11%) and bank counters (7%). Cash provision in physical shops and from retailers, such as cashback and cash-in-shop services, are still not common neither in Italy and in the euro area (below 3%; Fig. 6a).

In Italy, 93% of respondents perceive access to the cash withdrawals as very or fairly easy (Fig 6b) while only 6% of them report difficulty in access to cash, being one of the countries in the euro area with the lowest rate of people stating the access to cash as difficult. Moreover, compared to a worsening trend in the difficulty of obtaining cash from ATMs in some countries, for Italy, perceived ease of access has remained stable since 2019.

Replies to a specific question on the use of cash as a store of value suggest that 40% of respondents keep cash at home for precautionary reasons. This figure is more pronounced for younger people (54%) and students (55%). Almost all respondents hold less than  $\notin$ 1,000 euros for precautionary purposes.



Source: authors' calculations based on ECB SPACE 2022 data.

### 7. Access to non-cash means of payment

Access to non-cash means of payment is widespread. The survey also investigates consumers' access to an account for payments and access to non-cash means of payment, which are relevant for financial inclusion considerations. The possession of an account for payments is widespread in Italy (86%; Fig. 7a), although slightly lower than in the euro area (91%). The gap narrows when looking at the possession of a payment card (92% and 94%, respectively).



Figure 6



Source: authors' calculations based on ECB SPACE 2022 data.

**The north-south gap in payment card ownership has narrowed.** In the northern regions, the proportion of inhabitants with at least one payment card is 93% (91% in 2019), while in the southern regions it is 90% (85% in 2019). When looking at socio-demographic characteristics, low-income people report the lowest rate of card possession (82%), followed by young people, housepersons and the unemployed (about 88%).

**More than one in two respondents report to have access to instant payments**. The SEPA Instant Credit Transfer (SCT Inst) enables pan-European credit transfers with the funds made available on the account of the recipient in less than ten seconds, 24 hours a day, 365 days a year. According to the survey, instant payments are available to 57% of respondents in Italy, compared to 51% in the euro area (Fig. 7b). However, 38% of Italian respondents report to pay a higher fee for instant credit transfers than for credit transfers (20% in the euro area).

## 7.1 Ownership of crypto-assets

**The ownership of crypto-assets is not widespread in Italy**. Notwithstanding the increased attention paid to crypto-assets by policy makers, uptake among the general population in Italy has remained stable at 2% (as in 2019), slightly below the 4% of the euro area (as in 2019), being the country with the lowest share. Those who reported holding crypto-assets were also asked whether they used them for payments, investment purposes or both. Overall, significance is clearly placed on holdings for investment purposes (55%) and a only to a limited extent for payments (15%).

The possession of crypto-assets is more pronounced among the inhabitants of the northern regions (about 3%), males (4%) and students (5%). Older people tend to hold such assets less than youngers, while possession increases with the education level and income. In addition, the percentage of crypto-asset ownership almost doubles among those who own other financial investments (5%). Where comparable, these results are consistent with those reported in Bank of Italy (2023).

# References

Ardizzi, G., A. Nobili and G. Rocco (2020), A game changer in payment habits: evidence from daily data during a pandemic, Bank of Italy Occasional Papers no. 591, December 2020.

Ardizzi, G., A. Gambini, A. Nobili, E. Pimpini and G. Rocco (2021), L'impatto della pandemia sull'uso degli strumenti di pagamento in Italia, Bank of Italy Markets, Infrastructures, Payment Systems, no. 8, July 2021.

Bank of Italy (2023), Economic Bulletin n. 1-2023, January 2023.

Coletti, G., A. Di Iorio, E. Pimpini and G. Rocco (2022), Report on the payment attitudes of consumers in Italy: results from ECB surveys, Bank of Italy Markets, Infrastructures, Payment Systems, Institutional Issues no. 21, March 2022.

Di Iorio, A. and G. Rocco (2022), Easier said than done: why Italians pay in cash while preferring cashless, Bank of Italy Occasional Papers no. 731, November 2022.

Esselink, H. and L. Hernandez (2017), The use of cash by households in the euro area, ECB Occasional Paper Series no. 201, November 2017.

European Central Bank (2020), Study on the payment attitudes of consumers in the euro area (SPACE), December 2020.

European Central Bank (2022), Study on the payment attitudes of consumers in the euro area (SPACE), December 2022.

Rocco, G. (2019), The use of cash in Italy: evidence from the ECB Study on the use of cash by households, Bank of Italy Occasional Papers no. 481, January 2019.

## **Appendix: Detailed Charts**

This part of the paper is aimed at providing the reader with a comprehensive set of graphs in order to draw a detailed outline of Italians' payment habits.

Following the same path as Sections 3 to 7 of the main text, the sequence of the figures starts from the use of payment instruments in Italy in POS payments (Section A1) and then continues dealing with online payments and P2P transactions (Sections A2 and A3, respectively). A picture of recurring payments is outlined afterwards (Section A4), followed by an overview of consumers' payment preferences (Section A5). Access to cash in Italy is the core of the following part (Section A6). The appendix concludes with a focus on the access to payment instruments such as cards or crypto-assets (Section A7).

Note to the reader:

- percentages may not add up to 100 per cent due to rounding,
- the subdivision into macro-regions is aimed to achieve representativeness of the population of the sample.

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# A1. Use of payment instruments in Italy – Point of sale (POS)

Source: authors' calculations based on ECB SPACE survey data (2022). Note: the 'Others' cathegory includes credit transfers, bank cheques and direct debits.



Fig. A1.2

Source: authors' calculations based on ECB SPACE survey data (2022).



Note: the 'Others' cathegory includes credit transfers, bank cheques and direct debits.

	0%	20%	40%	60%	80%	100%
	Piedmont - Liguria - Valle d'Aosta	49.0%	)	42	.7%	
÷	Lombardy	48.2%		45	.0%	
North	Autonomous Province of Bolzano/Trento - Veneto	49.3%		48.0%		
	Friuli-Venezia Giulia - Emilia-Romagna	49.6%		40.1%		
tre	Tuscany - Umbria - Marche	42.8%		43.6%	0	
Centre	Lazio	50.8%		40.3%		
ands	Abruzzo - Molise - Campania	48.9%	)	42	.6%	
South and Islands	Puglia - Basilicata - Calabria	54.6	%	3	5.7%	
outh	Sicily - Sardinia	51.0%	6	4	3.9%	

Source: authors' calculations based on ECB SPACE survey data (2022).

Note: the 'Others' cathegory includes credit transfers, bank cheques and direct debits.

27



Source: authors' calculations based on ECB SPACE survey data (2022). Note: the 'Others' cathegory includes credit transfers, bank cheques and direct debits.

	0%	20%	40%	60%	80%	100%
ਚੁੱ Fem	ale	49.3%		42.	4%	
Fem 9 V	lale	49.1%		43.	.0%	
18	-24	48.3%		43.	7%	
25	-39	45.6%		42.7%	ó	9.2%
аб Ч	-54	50.6%		43	3.2%	
	-64	49.2%		42.	0%	
(	65+	51.4%		42	2.2%	
E Primary/Lower Second	lary	46.8%		43.9	%	8.0%
Upper/Post Second	lary	52.8%		3	9.8%	
University/F	hD	45.3%		46.9	%	
E RI	ural	46.4%		44.5	%	
Ri Lipau Urb	ban	50.4%		41	.9%	

Fig. A1.6

Source: authors' calculations based on ECB SPACE survey data (2022).



Note: the 'Others' cathegory includes credit transfers, bank cheques and direct debits.



Source: authors' calculations based on ECB SPACE survey data (2022).



Note: the 'Others' cathegory includes credit transfers, bank cheques and direct debits.



Source: authors' calculations based on ECB SPACE survey data (2022).



Note: the 'Others' cathegory includes credit transfers, bank cheques and direct debits.



Source: authors' calculations based on ECB SPACE survey data (2022).



Fig. A1.14

Fig. A1.13



Source: authors' calculations based on ECB SPACE survey data (2022).





# A2. Use of payment instruments in Italy – online payments

Source: authors' calculations based on ECB SPACE survey data (2022). Note: the 'Others' cathegory includes bank cheques and other payment methods.

Fig. A2.2



Source: authors' calculations based on ECB SPACE survey data (2022).



Source: authors' calculations based on ECB SPACE survey data (2022). Percentages may not add up to 100% due to rounding. Note: The 'E-payment solutions' cathegory includes PayPal and other online or mobile payment method (e.g. Klarna). The 'Others' cathegory includes direct debits, bank cheques, loyalty points, vouchers and gift cards, crypto assets and other payment instruments.







Source: authors' calculations based on ECB SPACE survey data (2022). Percentages may not add up to 100% due to rounding. Note: The 'E-payment solutions' cathegory includes PayPal and other online or mobile payment method (e.g. Klarna). The 'Others' cathegory includes direct debits, bank cheques, loyalty points, vouchers and gift cards, crypto assets and other payment instruments.


# A3. Use of payment instruments in Italy – P2P payments

Source: authors' calculations based on ECB SPACE survey data (2022). Note: the 'Others' cathegory includes credit transfers, bank cheques and direct debits.



## A4. Use of payment instruments in Italy – Recurring payments

Source: authors' calculations based on ECB SPACE survey data (2022). Note: the 'Others' cathegory includes bank cheques and mobile phone payments.



Note: the 'Others' cathegory includes bank cheques and mobile phone payments.



Source: authors' calculations based on ECB SPACE survey data (2022). Percentages may not add up to 100% due to rounding. Note: the 'Others' cathegory includes bank cheques and mobile phone payments.

# A5. Consumers' payment preferences in Italy

	(percen	itages)		
	0	% 20%	40% 60%	80% 100%
	Piedmont - Liguria - Valle d'Aosta	13.1%	62.3%	24.1%
f	Lombardy	16.5%	62.2%	21.1%
North	Autonomous Province of Bolzano/Trento - Veneto	16.8%	57.4%	25.2%
South and Islands Centre	Friuli-Venezia Giulia - Emilia-Romagna	16.5%	63.6%	19.9%
	Tuscany - Umbria - Marche	18.3%	58.1%	23.4%
	Lazio	17.0%	60.6%	21.6%
	Abruzzo - Molise - Campania	22.2%	52.7%	24.5%
	Puglia - Basilicata - Calabria	25.2%	53.7%	20.4%
South	Sicily - Sardinia	19.2%	51.1%	29.0%

Source: authors' calculations based on ECB SPACE survey data (2022).

0'	% 20%	40% 60%	80% 100
	20.9%	56.2%	22.5%
bus			
ගී Male	15.7%	60.0%	23.7%
18-24	25.6%	54.9%	19.1%
25-39	19.1%	59.2%	21.3%
86 40-54	15.6%	61.4%	22.9%
55-64	14.9%	56.0%	28.2%
65+	20.6%	55.3%	23.3%
Primary/Lower Secondary	20.1%	56.4%	23.0%
Upper/Post Secondary	18.1%	57.5%	23.9%
University/PhD	15.7%	62.4%	21.5%
E Rural ₽ ⊃ Urban	18.8%	57.0%	23.4%
ୟ ⊃ Urban	18.1%	58.4%	23.1%

#### Fig. A5.2







### Ease of access to cash withdrawals at an ATM or a bank in Italy: 2019 vs 2022 data (percentages) 0% 20% 40% 60% 80% 100% SPACE (2019) 41,7% 47,0% SPACE (2022) 49,4% 43,9% Very easy Fairly easy Fairly difficult Very difficult Don't know

Source: authors' calculations based on ECB SPACE survey data (2019 and 2022).

#### Fig. A6.2

		0%	20%	40%	60%	80%	100%
	Piedmont - Liguria - Valle d'Aosta		49.3%		43	.0%	
ţ	Lombardy		51.2%	,	41	1.8%	
North Vorth	utonomous Province of Bolzano/Trento - Veneto		51.8%			41.5%	
	Friuli-Venezia Giulia - Emilia-Romagna		46.5%		45.	4%	
tre	Tuscany - Umbria - Marche		53.2%	/ 0	4	1.7%	
Centre	Lazio		47.6%		46	.1%	
ands	Abruzzo - Molise - Campania		47.7%		45	.4%	
South and Islands	Puglia - Basilicata - Calabria		50.8%		4	4.7%	
south	Sicily - Sardinia		45.4%		46.9	9%	

41

Source: authors' calculations based on ECB SPACE survey data (2022).

Fig. A6.1









#### Fig. A6.6



Source: authors' calculations based on ECB SPACE survey data (2019 and 2022).

Fig. A6.7



#### Fig. A6.8



Source: authors' calculations based on ECB SPACE survey data (2019 and 2022).

Fig. A6.9





Note: the category "Up to EUR 500" is not shown in the graph, as it would be out of scale.

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	м	٠		υ.			

		0% 20	% 40%	60% 80	% 100%
	Piedmont - Liguria - Valle d'Aosta	15,4%	36,3%	31,8%	16,0%
井	Lombardy	17,5%	30,9%	36,3%	15,3%
North	Autonomous Province of Bolzano/Trento - Veneto	21,5%	28,6%	35,8%	14,1%
	Friuli-Venezia Giulia - Emilia-Romagna	19,4%	31,9%	36,0%	12,6%
South and Islands Centre	Tuscany - Umbria - Marche	22,1%	30,4%	33,0%	14,6%
	Lazio	16,4%	34,9%	35,9%	12,4%
	Abruzzo - Molise - Campania	20,4%	35,3%	30,9%	<mark>13,3%</mark>
	Puglia - Basilicata - Calabria	18,9%	36,4%	30,9%	13,7%
	Sicily - Sardinia	19,3%	37,2%	31,0%	12,4%
	ITALY	18,9%	33,5%	33,6%	13,9%

#### Fig. A6.12

	0%		20%	40%	60%	80%	100%
Gender	Female	20.0%		35.8%	31.	.3%	12.8%
Ger	Male	17.7%		31.0%	36.0%		15.1%
	18-24	16.8%		36.4%	34.2	2%	12.3%
	25-39	18.1%		33.0%	35.09	%	13.9%
Age	40-54	20.9%		33.8%	30.8	3%	14.4%
	55-64	19.6%		32.3%	35.7	%	12.1%
	65+	17.1%		33.0%	34.2%	, · · ·	15.3%
u	Primary/Lower Secondary	21.4%		30.0%	32.4%	<b>6</b>	6.0%
Education	Upper/Post Secondary	18.3%		34.0%	34.9	9%	12.7%
Еd	University/PhD	15.8%		38.1%	32.8	3%	13.1%
an	Rural	18.1%		30.4%	34.8%	1	6.5%
Urban	Urban	19.1%		34.5%	33.2	2%	13.0%

Source: authors' calculations based on ECB SPACE survey data (2022).



Fig. A6.13

#### Fig. A6.14





### A7. Access to payment instruments in Italy

Source: authors' calculations based on ECB SPACE survey data (2019 and 2022).

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i ig.	<i>л</i> ,	~



A7. Access to payment instruments in Italy



Source: authors' calculations based on ECB SPACE survey data (2019 and 2022).







Source: authors' calculations based on ECB SPACE survey data (2019 and 2022).





Source: authors' calculations based on ECB SPACE survey data (2019 and 2022).





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