BANCA D'ITALIA
EUROSISTEMA

Institutional Issues

The social costs of payment instruments in Italy

Surveys of firms, banks,
and payment service providers

November 2012

BANCA D'ITALIA
EUROSISTEMA

Institutional Issues

The social costs of payment instruments in Italy

Surveys of firms, banks, and payment service providers*

* *This report was drafted by Guerino Ardizzi and Paola Giucca of the Market and Payments Systems Oversight Department, who coordinated the various project activities. The participating firms were interviewed by the Bank's regional research units. Specific data on micro-enterprises and large-scale retailers were collected with the help of the trade associations (Confcommercio and Confesercenti).*

CONTENTS

Executive Summary

This report presents the results of the survey of the social costs of payment services in Italy conducted by the Bank of Italy in 2010 as part of a broader initiative promoted by the European Central Bank (ECB), in which national central banks participated on a voluntary basis. The survey concerns the social costs of payment instruments, i.e. the costs incurred by the general public for the resources used by the various economic operators for the settlement of transactions.

The survey focused on the costs incurred for the supply/use of payment services by the participants in the value chain: banks, Poste Italiane, merchants, and public service companies. Social costs are the sum of the costs borne by the individual participants (private costs) included in the survey, net of the intermediate flows between operators (i.e. the fees paid by merchants to banks). The data are compiled and illustrated separately for the various payment instruments: cash, cheques, debit and credit cards, credit transfers, direct debits. The survey analyzes the overall social costs and provides a breakdown of the "private costs" with reference to supply, on the part of payment service providers (in our survey, banks, Poste Italiane and card issuers),[1] and to acceptance at user firms.

The survey excludes:

a) the costs of banknote production and circulation for central banks. In order to calculate the overall social costs, it was assumed these were equal to 0.02 per cent of GDP, in line with the average data for several of the participating countries in the European survey.[2]

b) the costs to users/consumers relative to theft or the length of time required to procure cash or to execute a payment using the various instruments (cash, cheques and payment cards); this results in a partial underestimation of the overall social costs, in particular of cash, which is notable given the common perception on the part of users (especially consumers) that transactions settled in cash are at "zero cost".

The survey supplies a frame of reference for economic operators (banks, Poste Italiane, firms) and payment service providers/users, from which they can extract information useful for making decisions in order to increase the efficiency of firms' processes in the retail payments sector. For the Bank of Italy, the survey provides other opportunities for reflection that confirm – and to some extent strengthen – the policies being implemented at national and European level to enhance the efficiency of payment services and deliver savings on their social costs.

---

[1] At the date of reference the other operators on the payment services market envisaged by the Payment Services Directive (Dir. 2007/64/EC) were not active in Italy.

[2] The results of the European study were published recently by the ECB (ECB, 2012).

The survey's main findings are:

1. Total social costs for Italy amount to €15 billion, equal to about 1 per cent of GDP, in line with the (weighted) average of the thirteen countries that took part in the European survey. Forty-nine per cent of these are incurred by banks and infrastructures for the supply of payment services, while 51 per cent are borne by firms (compared with a European average of 54 per cent and 46 per cent, respectively). Costs totalling €8 billion or 0.52 per cent of GDP are attributable to the use of cash (0.40 per cent on average for the other European countries).

2. The findings on social costs per transaction reveal lower costs associated with cash (€0.33) compared with those for debit and credit cards (respectively €0.74 and €1.91). However, relative to the average amount per transaction, cash is the most expensive instrument (2 per cent).

3. In Italy the commercial sector bears the largest share (55 per cent) of the total social costs of cash and cheques. Even by comparison with other instruments requiring considerable human resources (such as traditional credit transfers), the internal costs for physical security and reconciliation activities are high, expenditure which greater recourse to electronic instruments could reduce significantly by improving the overall efficiency of the system.

4. Most of the costs associated with the use of cash are variable (64 per cent), in connection with transport services and security requirements. For debit and credit cards, instead, most of the costs are fixed, relative to the issue of instruments and the management of infrastructures. Data on the different composition of costs for cash and payments cards are vital for defining policies aimed at changing spending habits in favour of electronic instruments, which are potentially more efficient owing to the possibility of exploiting economies of scale.

5. In terms of the private costs incurred by merchants/firms, individual transaction costs suggest that cash is the least expensive payment instrument; however, when compared with the value of transactions (i.e. calculated as a proportion of firms' turnover) these costs are high (1.07 per cent), second only to credit cards (1.73 per cent), and double that of debit cards (0.54 per cent and the most likely cash substitute). For payments involving larger amounts (cheques, bank transfers, direct debits) cheques are more expensive (€1.90 per transaction) than a collected direct debit transaction (approximately €1) or incoming credit transfer (€0.80), owing to the greater administrative and security costs involved.

6. An analysis of the profitability of supplying the various payment instruments is not part of this survey. However, regarding the costs incurred by banks for handling cash, the share recovered through explicit fees debited to customers appears exiguous. It can be concluded that these costs are largely funded through fees charged for other services, including those for payments using electronic instruments. The picture that emerges is of a price policy that does not give users the indications they need in order to make a rational selection of which instruments to use.

1 Introduction

Over the last ten years economic literature and central banks have become increasingly interested in the issue of the social and private costs of payment services, owing to the significant impact they have on the fluidity of retail transactions and on economic growth.

Improving the effectiveness of payment services is an important objective of monetary authorities, which are responsible for promoting the proper functioning of payment systems and confidence in money and money equivalents. This has prompted a number of European central banks to conduct surveys of the costs of payment services in their countries.

The European System of Central Banks (ESCB) carried out a survey of the "social costs" of retail payment instruments designed to measure the relative efficiency of those most used (cash, cheques, credit transfers, payment cards, and direct debits).[3] The "aggregate" results at European level were recently published by the European Central Bank (ECB, 2012), those of the surveys conducted in the participating countries are forthcoming. The objective of the initiative is to share information useful for: a) measuring the main cost items of the payment services for the various participants (banks, infrastructures, merchants) along the "value chain"; b) making comparative analyses of the various payment instruments, including in respect of their differing technological content; and c) estimating the potential savings to the economy of policies to promote the use of instruments with lower social costs.

The analysis of the results of the survey conducted in Italy is based on various components of cost that together provide a framework of reference for assessing the levels of effectiveness of payment services in Italy.

The cost components analyzed reflect the various levels of efficiency implicit in the payment services market. The first component, which prompted the survey, measures the degree of allocative efficiency and is that which distinguishes between "social" and "private" costs: this enables attention to be drawn to the difference between the cost perceived by the various market operators through the price system and that which the general public actually incurs for settling commercial transactions (a classic example is the erroneous perception that cash is cost free). The second component is technical-productive efficiency, analyzed by distinguishing between "fixed" and "variable" costs (i.e. the underlying costs and production technology). This makes it easier to perceive efficiency gains though the exploitation of economies of scale (for example, for instruments with high fixed costs). The third component relates to technical-organizational efficiency based on the classification of costs by activity or allocation (the movement of funds, issuing of instruments, the electronic processing of transactions, etc.). This can be used to identify the phases with the largest consumption of resources towards which

[3] At the date of publication of this report thirteen national central banks had taken part, comprising around 40 per cent of the EU payments market. Together with the Bank of Italy, the other participant countries were: Denmark, Estonia, Finland, Greece, Ireland, Latvia, Netherlands, Portugal, Romania, Spain, Sweden and Hungary. Several have already released the national results.

interventions for greater rationalization and innovation should be channelled (for example, instruments involving a large number of manual operations).

The analysis of the overall results in terms of relative efficiency is based, finally, on a range of indicators, designed to compare and identify the specificities of the various payment services classified by type and underlying transaction (i.e. micro-payments or payments involving large amounts, transactions made in person at points of sale or remote purchases). For each instrument, these indicators are expressed in terms of cost per transaction (flat) or as a proportion of the amount transacted (ad valorem) or as total costs relative to GDP.

The survey's main findings were verified and discussed with the individual suppliers of payment services and with the participating trade associations. This activity was undertaken as part of a series of controls on the quality and robustness of data gathered at national level. A second step in the control procedure was to compare the findings for Italy with the countries that took part in the ECB survey (ECB, 2012).

This report presents the results of the survey carried out on Italy. Section 2 sets out the survey structure and methodology. Section 3 describes the results on the social costs for Italy, how these compare with the aggregate results for Europe and, where possible, with the data available for other countries. Section 4 analyzes the private costs for the supply and acceptance of the various payment instruments. A synthesis of the main results is contained in the Executive Summary that opens this report. The Appendix contains the Methodological Notes to the survey and a series of tables and figures illustrating the findings in greater depth.

2 Survey on the social costs of payment services: methodology

2.1 Scope: instruments, services, costs

Each of the payment instruments included in the survey account for at least 5 per cent of the total number of non-cash transactions made at national level.[4] Only payments of less than €50,000 are considered; those for a greater amount (so-called "wholesale" payments), which are mostly attributable to bank-to-bank or big business-to-business transactions, are instead excluded, given the desire to focus on "retail" payments.

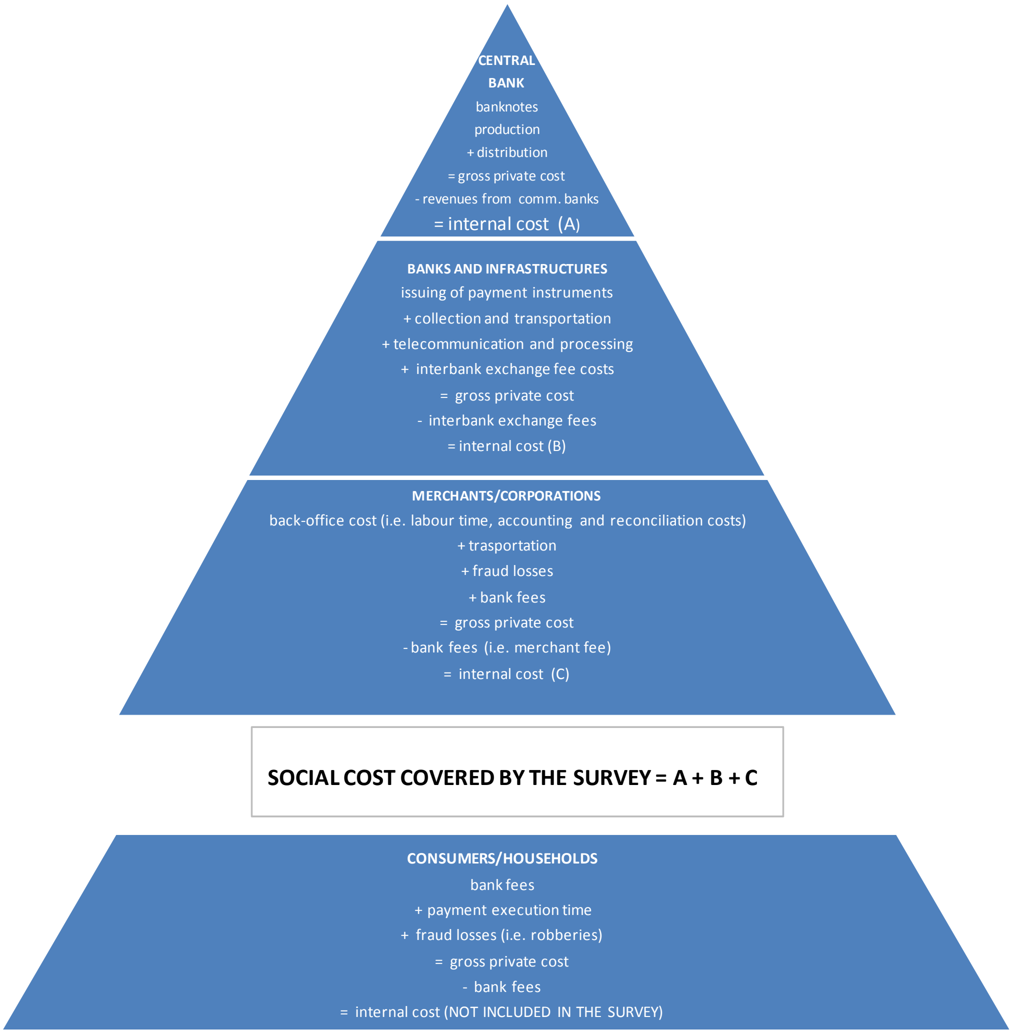
In addition to cash, the survey on Italy examined cheques and payment cards – used for face-to-face transactions; and direct debits and credit transfers – which conventionally include postal pre-printed bills and are primarily used for remote and large-value payments. Payments by banker's draft, automated bank receipts and pre-paid cards were excluded;[5] the latter, little used in other European countries, have recorded significant growth in Italy.

[4] For this reason pre-paid cards are excluded.

[5] Pre-paid cards are among the most dynamic instruments of recent years. In this paper the considerations on debit cards are also largely valid for pre-paid cards.

The survey focuses on the costs of supply by the payment service providers – in our survey banks, Poste Italiane, and card issuers[6] – to households and firms and of acceptance by commercial firms in the consumer-to-business segment.[7]

Figure 1 – The social cost of payment instruments (1)



(1) The social cost is equal to the sum of all internal costs incurred by different participants/stakeholders (net of intermediate revenue flows). Bank and infrastructures costs include all the cost of provision of payment services to their customers (including the households sector).

[6] At the date of reference of the survey other operators envisaged under the Payment Services Directive (Dir. 2007/64/EC) were not active in Italy's payment services market.

[7] The reference to consumer-to-business is made for reasons of simplicity. The underlying hypothesis is that the costs estimated can be applied to the entire retail world, including business-to-business payments (ECB, 2012).

2.2 Data collection

The data were collected via questionnaires defined at European level and differentiated by operator and payment instrument.[8]

Social costs were calculated as the sum of the "internal" costs incurred by the various stakeholders (banks and other payment service providers, commercial firms, public service companies) along the transaction "value chain" (Figure 1), i.e. "private" costs incurred net of the earnings of the payment service providers (fees).

Payment services production costs were broken down on the basis of the main spending factors,[9] including authorization and processing, back office costs, transport and telecommunications (for more details see the Appendix).

The survey did not focus on user-consumers directly, whose explicit costs are essentially the fees paid for utilizing the payment services – which, in turn, represent the earnings of the payment service providers excluded from the calculation of social costs. Also excluded are a series of implicit costs incurred by user-consumers that are not normally perceived or monetized, such as those relative to loss or theft, the opportunity cost of holding non-interest bearing deposits, and the time it takes to complete an in-branch transaction or to locate an ATM. By comparison with other (banking and postal) payment instruments, the costs of cash presented hereafter should accordingly be considered as underestimated.[10]

2.3 The "firms" sample

The survey featured questionnaires accompanied by interviews: 500 conducted at medium-sized firms throughout Italy and a further 40 with the help of the trade associations (Confesercenti and Confcommercio), designed to obtain more detailed data on micro-enterprises and large-scale retailing. Another was designed for operators representing businesses with considerable turnover in the "public utilities" sector.

Stratification was based on two variables: 1) sector of economic activity (for service firms: retail trade, transport and telecommunications, R&D and IT, other) and 2) firm size (gauged by sales). The sample data were extrapolated to the entire population taking account of the ratio of declared sales to GDP (Istat data) and of payments intermediated to the national total. The system-wide values were aggregated in three

---

[8] The questionnaires are available to interested parties on request.

[9] The survey of the costs of supplying the retail payment services (banking and postal) focused on both corporate and consumer clients, and on a breakdown of the structure of corporate costs according to the criterion of Activity Based Costing (ABC). This is a method for analyzing firms' costs based on information concerning the effective incidence of costs associated with each product/service sold by the firm, on the basis of the activities comprising the productive process and irrespective of how this is organized.

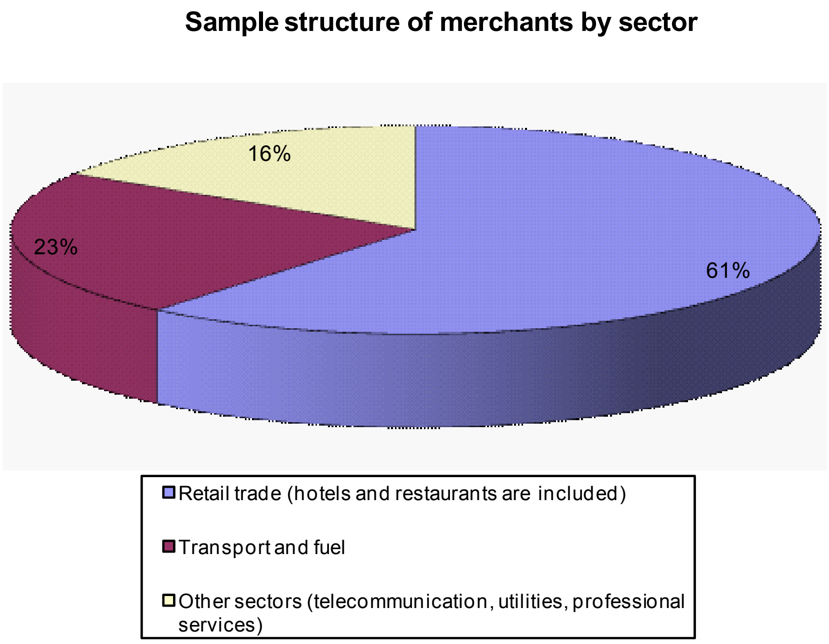
[10] All the implicit charges incurred by retailers are nevertheless included among the costs of cash, together with those relative to the movement of funds and security (i.e. cash deficits, robberies), as highlighted in Figure 1.

macro-sectors (retail trade, transport, other) in order to attenuate the sample variability due to the low number of observations in some sub-sectors. Further details on the sample design are contained in the Appendix (Box 1).

With reference to the macro-sectors, the sample of firms (Figure 2) is mainly comprised of retailers (61 per cent, including hotels and restaurants), followed by firms operating in the transport sector (23 per cent); the remainder comprises firms in the telecommunications and professional services sectors.

The sample covered more than 2,400 shops or sales outlets, with total declared sales equal to 1 per cent of GDP in the sectors surveyed. Table 1 illustrates the average (median) amount and the percentage composition of the transactions made at the sample of merchants interviewed.

Figure 2 – Sample of merchants – distribution by sector



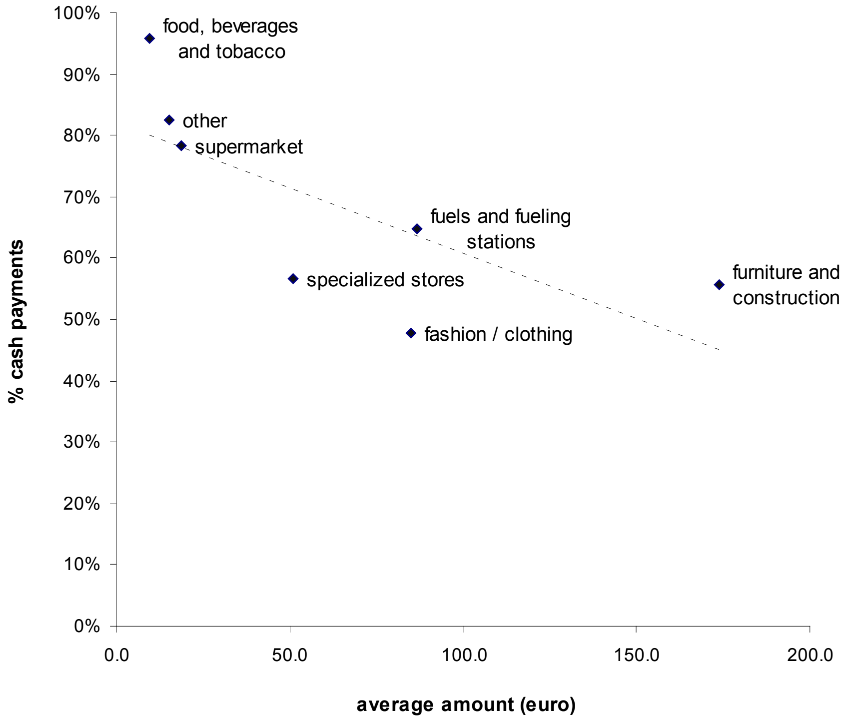
The sample survey data confirm that cash is by far the most used payment instrument in Italy for purchases at points of sale (almost 90 per cent of payments, for an amount per transaction ranging from €17-€21); payment cards (debit and credit) come next, with average amounts ranging from €50-€100. For payments of higher amounts (€500-€1000) or remote payments, the most common instruments are direct debits, credit transfers and cheques. Finally, as expected the survey found a negative correlation between the average amount per transaction and the share of payments settled in cash, confirming the heavy use of this instrument in transactions for small amounts and concentrated in particular product sectors (such as food products and tobacco; Figure 3).

Table 1 – "Firms" sample: synthetic data (1)

payment instruments	Mean transaction value	Median transaction value	% share on total number of payments at the point of sales	% share on total number of payments
Cash	€ 21.3	€ 16.7	87.1%	81.3%
Cards	€ 86.1	€ 83.7	12.9%	12.1%
			100.0%	
Cheques	€ 610.2	€ 420.7		1.5%
Credit transfers and direct debit	€ 500.5	€ 338.7		5.1%
				100.0%

(1) Only B2B transactions at points of sale and firms in the "merchants" sample are considered; transactions made via pre-printed bills are excluded. For the percentage composition of the payments with all the instruments considered in the official international statistics, see Table A4 in the Appendix.

Figure 3 – Correlation between average payment amounts, the share of cash, and product sectors
(average amounts and percentage of cash transactions – survey of retail merchants)



2.4 The “banks and infrastructures” sample

The survey of banks involved a representative sample of around 65 per cent of the market in payment services, comprising seven leading banking and financial groups, Poste Italiane and companies that issue and manage payment cards.

Table 2 presents the synthetic data on the volumes and amounts of the payment instruments managed by the intermediaries interviewed.

Table 2 – “Banks and infrastructures” sample: synthetic data

Transaction description	Volume (millions)	Average amount	% volume of total system
Cash withdrawals (ATM and traditional in-branch/OTC)	625	€ 428	62%
Bank cheques	129	€ 2,092	45%
Payment cards	963	€ 101	65%
Credit transfers (incl. postal pre-printed bills)	1002	€ 1,530	86%
Direct debits	233	€ 1,005	41%
Total	**2952**		**65%**

The survey results highlight how credit transfers (which include payment orders made via postal pre-printed bills) and payment cards (debit and credit) are the most frequently used instruments (around 1 billion transactions each). Cash withdrawals come next, followed by direct debits and, lastly, cheques. The data on the average amounts confirm the different types of underlying transaction: payment cards for low-value transactions, cheques and “remote” instruments (such as credit transfers and debits) for larger amounts. The average withdrawal exceeds €400 per transaction, including traditional in-branch withdrawals (around €1000) and from ATMs (less than €200).

3 The social costs of payment services: survey results

The total social costs of all the retail payment services in Italy is estimated at over €15 billion in 2009, equal to around 1 per cent of GDP – €260 per capita with respect to a total of 27 billion payment transactions – in line with the average reported for the European countries that took part in the survey. The share of the cost for supplying the payment services incurred by banks and infrastructures accounts for 49 per cent of the total social costs (as against a European average of 53 per cent); the remaining 51 per cent of costs (46 per cent in the European countries) are generated in the firms’ sector. The use of cash costs Italy’s economic system around €8 billion overall, or 0.52 per cent of GDP (€133 per capita). With the exception of Hungary (0.79 per cent), these results are above the European average (0.40 per cent; Table 3). There are significant differences compared with more virtuous countries such as Denmark and Sweden, where these costs account for less than 0.3 per cent of GDP.

Table 3 – The social costs of payment instrument at the point of sales

	Cash	Debit cards	Credit cards
ITALY 2009			
% of transactions	*90*	*6*	*4*
€ per transaction	0.33	0.74	1.91
€ per inhabitant	132.84	11.15	18.10
% of GDP	*0.53*	*0.04*	*0.07*
HUNGARY 2009			
% of transactions	*94*	*5*	*1*
€ per transaction	0.26	0.72	2.84
€ per inhabitant	73.71	10.80	6.98
% of GDP	*0.79*	*0.12*	*0.08*
DENMARK 2009			
% of transactions	*48*	*51*	*1*
€ per transaction	0.75	0.36	2.77
€ per inhabitant	106.56	54.27	8.28
% of GDP	*0.27*	*0.14*	*0.02*
NETHERLAND 2002			
% of transactions	*86*	*13*	*1*
€ per transaction	0.30	0.49	3.59
€ per inhabitant	132.49	32.74	10.32
% of GDP	*0.46*	*0.11*	*0.04*
BELGIUM 2003			
% of transactions	*84*	*15*	*1*
€ per transaction	0.53	0.55	2.62
€ per inhabitant	151.36	28.50	9.32
% of GDP	*0.57*	*0.11*	*0.04*
NORWAY 2007			
% of transactions	*24*	*76*	
€ per transaction	1.53	0.74	
€ per inhabitant	92.97	142.38	
% of GDP	*0.15*	*0.24*	
SWEDEN 2009			
% of transactions	*40*	*51*	*9*
€ per transaction	0.78	0.42	1.10
€ per inhabitant	67.60	49.40	23.40
% of GDP	*0.26*	*0.19*	*0.09*

Source: Based on studies carried out in these countries.

3.1 The cost of cash and of payment cards

Table 3 compares the social cost indicators for cash and for debit and credit cards – payment instruments common to all the surveys – relative to Italy and the other countries in the European System of Central Banks, in some instances based on previous surveys. When assessing the data it ought to be borne in mind that the indicators expressed as a proportion of GDP and of the population provide an initial picture of the consumption of the resources associated with the various payment instruments. The relative share of the cost reflects the different uses of the various instruments linked to payment habits as well as to the instruments' relative efficiency. Given the difficulty of making objective measurements, the analysis excluded "front office" costs related to the actual time it takes to execute payments at points of sale,[11] and internal costs to households related to the time it takes to locate a bank branch or ATM.

From international comparisons it transpires that in countries such as Italy, where the number of purchases made using cash is higher (percentage of transactions), the total social costs of payment services (relative to GDP) also tend to be higher.

From the GDP indicator it can be inferred that in Italy the costs of cash are thirteen times those of payments using debit cards and over seven times those of credit card payments. The same indicators are over 70 per cent lower in countries such as Denmark and Sweden, where the most recent analyses highlight a massive shift towards payment cards for retail purchases.

3.2 The social costs of the other payment instruments

A comparison of the relative effectiveness of the various payment instruments focuses on the two indicators of average cost – that per payment transaction and as a percentage of the amount settled using each instrument – analyzed above for social costs. The results for the two indicators tend to vary considerably, reflecting the different underlying payment patterns.

In particular, for individual transactions the results reveal lower costs associated with cash (€0.33) compared with €0.74 for debit cards and €1.91 for credit cards (Table 4). The indicator of the average value of transactions shows cash and credit cards are the most costly instruments. But their social cost components (which for cash are in any event underestimated) differ: for cash these are related to production, distribution and security; for credit cards they relate to the characteristics of the product which, in addition to the built-in payment function associated with high charges for security and adhesion to international circuits, has an intrinsic credit function (with implicit costs linked essentially to the interest-free period and to losses due to insolvency).

For payments via credit transfers[12] and automated direct debits which, in principle, can be considered equivalent for consumers, the various indicators show a greater efficiency associated with straight-though-processing (STP) transactions both in terms of cost per transaction (€0.82) and, above all, in relation to the value of the transactions made (€0.04). Cheques are the most onerous form of payment in terms of unitary cost (€3.50) in connection with high costs for processing and security (anti-fraud).[13]

---

[11] These costs should be calculated by multiplying the average time it takes to complete a transaction (15-20 seconds) by the total number of transactions made using a given instrument and then multiplying this number by the average hourly labour costs in the retail sector. The countries that included this component in the relative surveys estimate average transaction times of 22 seconds for cash and approximately 30 seconds for cards (ECB 2012, p. 34).

[12] Traditional credit transfers include postal pre-printed bills.

[13] With reference to cheques, production costs alone for banks amount to €1.90 per transaction.

Table 4 – Comparison of the social cost of the various instruments in Italy and in a selection of European countries

Social cost of payment services	Cash	Debit cards	Credit cards	Cheques	Paper credit transfers	STP credit transfers
Italy						
€ per transaction	€ 0.33	€ 0.74	€ 1.91	€ 3.54	€ 2.21	€ 0.82
% of the amount	*2.00*	*1.07*	*1.95*	*0.16*	*0.29*	*0.04*
% of GDP	*0.52*	*0.04*	*0.07*	*0.07*	*0.11*	*0.02*
Average for the countries participating in the European study (ECB 2012) (*) (**)						
€ per transaction	€ 0.42 (0.35)	€ 0.7 (0.65)	€ 2.39 (2.35)	€ 3.55 (3.3)		€ 0.42
% of the amount	*2.3 (1.89)*	*1.4 (1.29)*	*3.4 (3.34)*	*0.2 (0.19)*		*0.20*
% of GDP	*0.49 (0.4)*	*0.1 (0.09)*	*0.09 (0.09)*	*0.03 (0.03)*		*0.13*

(*) – In parentheses, the European values net of front office costs (our calculations).
(**) – The European values for credit transfers are not differentiated by technology channel.

A comparison of the indicators referring to the various channels of access to transactions highlights the possible efficiency gains of a shift to the electronic channel: the average unit cost of traditional credit transfers is almost three times that of STP orders, due to administrative costs arising from the large number of manual operations involved in credit transfers.[14] The divergence between ATM and over-the-counter cash withdrawals is even greater: the latter tends to be for much larger amounts (approximately 5 times) and costs up to 7 or 8 times more than an ATM transaction.

The cost of cash transactions in Italy (unitary costs and as a proportion of the transaction value) is in line with the euro-area average, while recourse to this payment method is above average (83 per cent of total payments compared with 69 per cent in the area).[15] The relative cost of debit cards (the most effective cash substitute) in Italy appears markedly higher, owing to a failure to exploit fully potential economies of scale in this segment (around 15 transactions per year with debit cards per inhabitant in Italy as against an average of almost 40 for the countries taking part in the survey). For credit cards, the lower costs recorded in Italy are in part owing to the lower incidence of fees linked to the credit component, relatively less developed in Italy. The costs of credit transfers and direct debits are more difficult to compare since, pending the switchover to harmonized standards in Europe within the Single Euro Payment Area (SEPA), systems will continue to differ significantly from one country to the next.

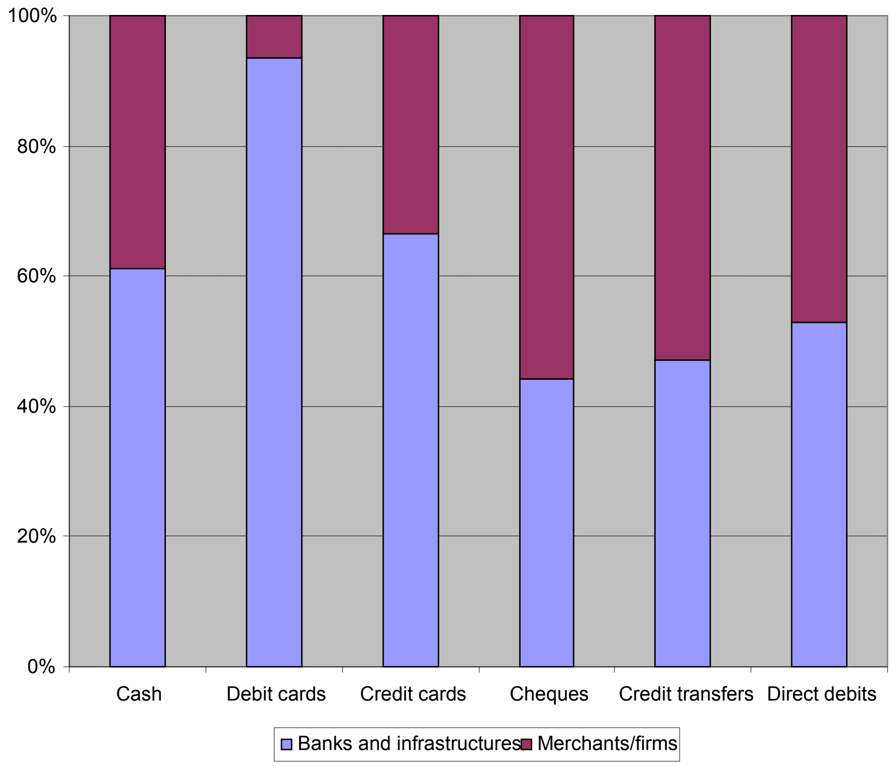
For cash and cheques, Italy's commercial sector (Figure 4) bears most of the system's social costs (55 per cent).[16] Including in relation to electronic instruments, firms

[14] These results are in line with previous analyses (Cetif, 2011).

[15] Based on ECB estimates (ECB 2012, p. 23). The data for Italy differs from the figure recalled previously (90 per cent) since this was for payments at points of sale only.

[16] The remaining 45 per cent is incurred by banks. The analysis does not include the internal costs borne by consumers (i.e. the time it takes to identify points of access to the payment system, theft, and loss).

Figure 4 – The distribution of social costs by banks and merchants/firms

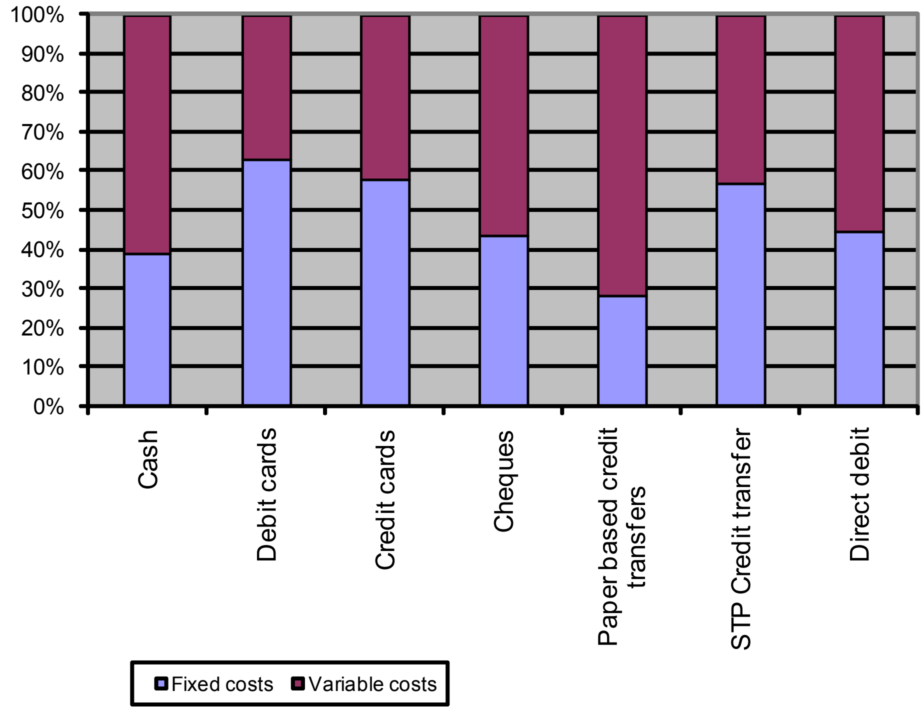


bear a significant portion of the costs (almost one third) owing to internal costs for the completion of manual accounting reconciliation procedures, especially for remote payments such as credit transfers.

For electronic payments, the productive phases of which are concentrated among payment service providers (banks and other intermediaries), the share of the total costs borne by the banking system is of the order of 80 per cent.

The analysis of the breakdown of social costs by type – i.e. fixed or variable – raises interesting considerations concerning the potential economies of scale associated with the productive processes underlying the various payment instruments. In particular, from Figure 5 it is possible to observe a predominant share of fixed costs for the most automated payment instruments (payment cards especially) – in keeping with the theory of network economies associated with payment networks. By contrast, non-automated paper instruments (cash, cheques, and traditional credit transfers), have a predominant share of variable costs stemming from the high cost of manual operations, including at firms. These fees, however, also represent part of the cost of STP orders and direct debits, even if the costs involved are much lower.

Figure 5 – Total social costs by fixed and variable components



4 The private costs of producing and using payment services

The data gathered in the survey make it possible to assess the effectiveness of the payment services, including with reference to the "private cost" by category of operator: for commercial firms, for example, the (internal) costs borne for the acceptance and management of the various payment services are added to the (external) costs in the form of fees paid to the various service providers (banks and Poste Italiane).

The payment cycle includes the various phases involved in transferring money, each of which absorbs productive resources. The overall effectiveness of the system depends on the behaviour of the various actors involved in each phase of the process.[17]

[17] The concept of efficiency comprises the monetary costs of the service but also the time it takes to complete it (the so-called float mechanism). However, in this survey, the "time" of execution is not explicitly considered. This is in order to concentrate the analysis on the strictly "industrial" aspects of the supply of services and not "skew" the results through considerations requiring a series of discretional hypotheses about: the choice of what interest rate to apply (i.e. debtor or creditor rate) when calculating the opportunity cost; the length of time involved (for example, whether or not to include the time it takes to locate a payment service); the quantification of the net benefit of those who would have an advantage, rather than a cost, in deferring payment times (i.e. the debtor). Moreover, as a rule the new European legislative framework requires that payments be executed not later than the day after the transaction date. In the future, therefore, the "float mechanism" will have increasingly little influence on the choice of which instrument to use.

4.1 The acceptance costs of merchants

4.1.1 *Cost levels*

The cost of cash for merchants is estimated at €4 billion or 0.28 per cent of GDP. Table 5 shows that while the cost per transaction suggests that cash is the least expensive payment instrument for operators, as a share of the value of transactions (i.e. relative to firms' turnover), in reality costs are high (1.07 per cent), second only to credit cards (1.73 per cent), and double that of debit cards (0.54 per cent and the most likely cash substitute).

In relation to the cost of instruments typically used for "remote" payments and/ or for larger amounts, cheques, which are associated with high unit costs per transaction (€1.88), remain competitive compared with the values settled.

Table 5 – Comparison of private acceptance costs

Private costs merchant/firm side (incl. banking fees)	Cash	Debit cards	Credit cards	Cheques	Paper credit transfers	STP credit transfers	Direct debits
EUR per transaction	€ 0.18	€ 0.37	€ 1.69	€ 1.88	€ 0.82	€ 0.56	€ 1.00
% of value settled	1.07%	0.54%	1.73%	0.09%	0.11%	0.03%	0.21%

Regarding traditional credit transfers, the greater costs associated with the material management of transactions produces a smaller cost differential than that observed in the analysis of social costs. Comparisons between the costs to merchants of revenues via credit transfers and direct debits are not completely uniform given the different tariff structures. For credit transfers, in fact, the banks charge the payer (i.e. the consumer, excluded from the survey, and not the merchants); in the case of direct debits, by contrast, the service cost is to a great extent borne by the beneficiary (in this instance the merchant).

4.1.2 *The structure of acceptance costs*

The analysis of the costs structure makes it possible to identify the components that absorb most resources in the acceptance phase of payment instruments (Table 6).

In the case of cash and cheques the main components of cost are those linked to the back office phase – in particular, to the costs associated with the management of operational and security risk (fraud, theft, cash deficits), the time it takes to manually process the instrument at checkout counters and points of sale – and the amortization and maintenance costs of cash registers. Moreover, a considerable share of fees (around one fourth) is attributable to transport and "warehousing" of the valuables. By contrast, the explicit commission fees applied by banks to these two instruments do not appear significant, in particular for cash, whose share of the private costs for merchants does not exceed 10 per cent.

In respect of the automated instruments, banking and postal fees are the main component for payment cards (80 – 90 per cent) while these instruments have lower internal management costs thanks to the fact that the transaction is settled at the same time as the receipt is issued. By contrast, three quarters of the costs of credit transfers and direct debits are internal back office and telecommunications costs (excluding banking fees) connected with the operational phases, which continue to be characterized by onerous manual procedures relative to accounting, billing, reconcilement, credit recovery, etc.

Table 6 – Structure of the acceptance costs of payment instruments
(percent)

Merchants/Firms	Cash	Cheques	Debit cards	Credit cards	Credit transfers	Direct debits
Back office	46.0%	70.8%	81.2%	83.5%	75.6%	84.8%
Warehousing, storage and transport	19.8%	25.3%	–	–	–	–
Telecommunications and acceptance terminals	34.1%	3.9%	18.8%	16.3%	24.4%	15.2%

Notes: each column totals 100%.

4.2 Private supply costs: banks and infrastructures

4.2.1 *Cost levels*

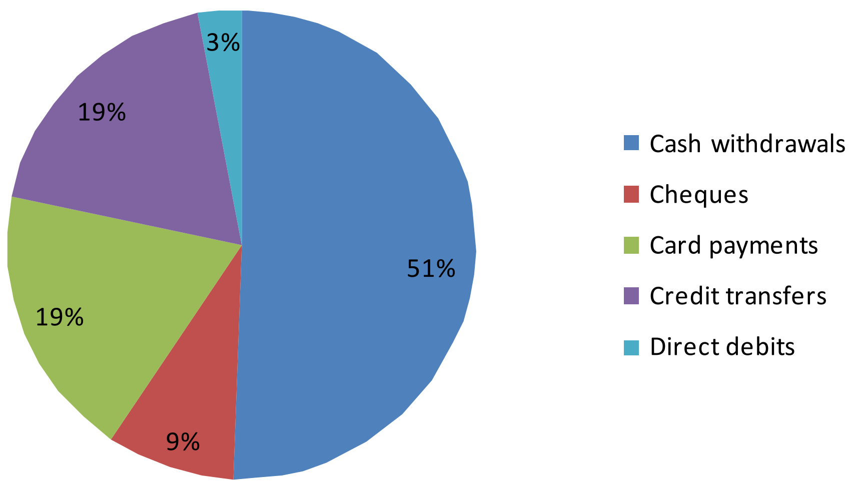
It is estimated that the costs of supplying retail payment services for the banking and postal system exceed €7 billion on an annual basis, equal to 15 per cent of the total operating costs. As already illustrated in the note to Figure 1, in this case the survey refers to the costs of all retail customers, irrespective of the sector of economic activity (firms, households, public administration). Cash alone costs €3.7 billion and represents 51 per cent of the overall costs of supplying all the payment services. Traditional credit transfers (which in Figure 6 account for around 15 per cent of the total costs and are included in the "credit transfers" segment together with STP transactions) and cheques drain resources amounting to a further 24 per cent, confirming that the low automation of procedures represents a major obstacle to the delivery of gains in efficiency.

From a comparison of the unit costs of supplying the payment services (Figure 7) cash and cheques emerge as the most costly instruments, above all owing to the hefty costs for the management and handling of the paper documents. In the case of cash, the unitary cost 18 was commensurate with average withdrawals from ATMs (approximately €200) and traditional over-the-counter withdrawals (€1,000).

Debit cards are the least costly instrument for banks, followed by direct debits and credit transfers. The share of costs of the traditional credit transfers compared with electronic ones appears especially large (at least 4 times the latter), reflecting the greater

[18] The total cost of cash includes all movements (withdrawals and deposits). The median value of a cash withdrawal operation (from ATM or OTC) is around €400.

Figure 6 – Bank private costs by payment services



fees linked to the management of material processes.[19] These results confirm the importance of the initiatives related to the transition to SEPA standards for credit transfers and direct debits, instruments whose supply is highly efficient owing to the intrinsic nature of automation (from an STP perspective). For these instruments it should also be borne in mind that the costs reported by banks in 2009, when the survey was first launched, were affected and continue to be affected by the fees for managing the dual platform for the simultaneous supply of domestic payment services which will remain operational until the complete migration to the SEPA standards fixed for February 2014.

4.2.2 *The structure of production costs*

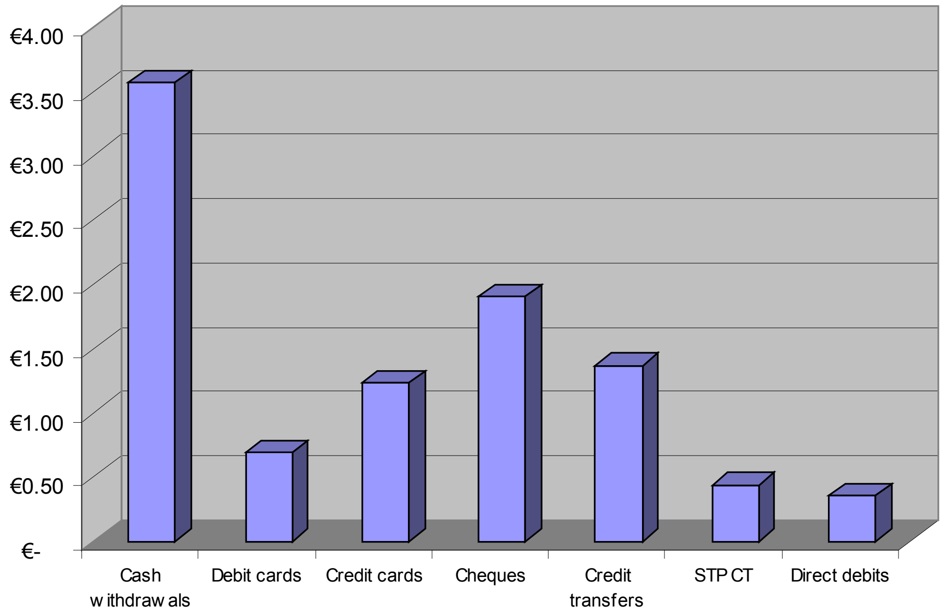
Figure 8 presents the breakdown of the aggregate productive phases into four macro-areas: instrument issue and distribution; paper handling (cash and cheques); initiation, processing, exchange of instructions; and operational activities (accounting, administration and controls) including security costs.

The Appendix describes the phases of the payment cycle (for the various instruments) considered in the “banks” survey and the percentage share in terms of the resources absorbed (costs).

For cash, the distribution and movement of funds (deposits and withdrawals) alone accounts for over 80 per cent of the relative total cost. With reference to the electronic payment instruments, telecommunications, processing and clearing costs account for just 20 per cent of the total; the remainder goes towards activities for issuing instruments, customer management, security, administration and control.

[19] Recent research on the business models of the payment services for Italian banks conducted by Cetif reached similar conclusions (2011).

Figure 7 – Unit cost of supplying payment services (bank costs)

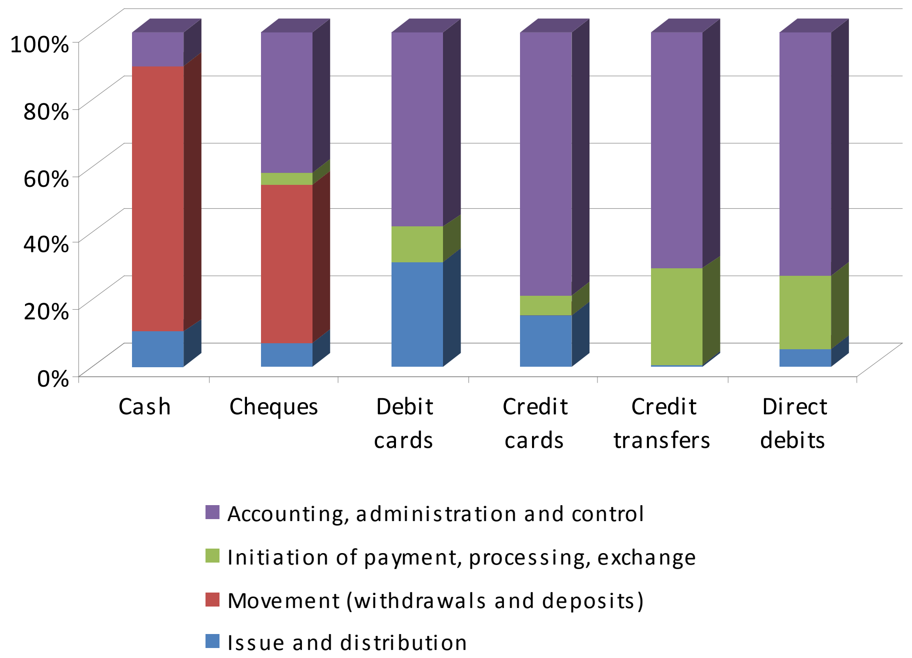


An analysis of the profitability of the various payment instruments is not part of the European survey. This, moreover, is a very ambitious objective in view of the complexity of banking organization and the multi-product nature of supply itself. The information contained in the responses to the survey provides, however, interesting elements for an initial valuation of the contribution margin, expressed as the difference between the explicit profits (fees) and costs attributable to each payment transaction. In particular, for cash and cheques the fees applied cover a very low amount (around 10 per cent)[20] of the costs sustained for their supply, generating a very significant net loss. This loss for cheques is at least in part counterbalanced by the implicit profits from floats while for cash this is largely subsidized by the net gains made on the other payment instruments.

As underlined also in the literature (Van Hove, 2004), a tariff system which does not aspire to the full recovery of costs for each instrument is unjust and inefficient. Unjust because the costs are not necessarily transferred in a transparent manner to those who receive the actual benefits: this is the case of those who, by making heavy use of electronic payment instruments, subsidize those who primarily use cash. Inefficient because, without explicit prices, customers do not choose instruments based on their utility (or added value) but rather according to their "perceived" gratuitousness: this is why the process of replacing cash with innovative instruments can be a very slow one.

[20] For these two payment instruments the explicit tariff component is marginal. In addition to the explicit profits there are the implicit ones linked above all to the float and currency mechanism as well as to the other profits connected with the management of current accounts, not considered in the survey.

Figure 8 – Structure of banking supply costs by activity (% composition)



Bibliography

Banca d'Italia (2012), Relazione annuale sul 2011, Considerazioni Finali, Maggio.

Banco de Portugal (2007) "Retail Payment Instruments in Portugal: Costs and Benefits".

Banque Nationale de Belgique (2005) "Coûts, avantages et inconvénients des différents moyens de paiement".

Bergman, M., Guibourg, G., and B. Segendorf (2007) "The Costs of Paying – Private and Social Costs of Cash and Card Payments", Sveriges Riksbank Working Paper Series, No 212.

Brits, H. and C. Winder (2005) "Payments are no free lunch", De Nederlandsche Bank Occasional Studies, Vol. 3, No 2.

Carbo Valverde S., Humphrey D.B., and Lopez del Paso R. (2004), "Electronic Payments and ATMs: changing technology and cost efficiency in banking", paper presented at SUERF Colloquium, October 14-16, 2004, Madrid.

Cetif (2011) "La valutazione economica e strategica del business dei pagamenti", Presentazione al convegno SIAEXPO, Centro di Ricerca su Tecnologie, Innovazione e servizi Finanziari (CeTIF) dell' Università Cattolica di Milano Università Cattolica del Sacro Cuore, 9 ottobre 2011.

Danmarks Nationalbank (2011) "Payment Costs in Denmark", December.

European Central Bank (2012) "The Social and Private Costs of Retail Payment Instruments. A European Perspective", Occasional Paper n. 137, September.

Gresvik, O. and G. Øwre (2003) "Costs and Income in the Norwegian Payment System 2001. An application of the Activity Based Costing framework", Norges Bank Working Papers, No 2003/8.

Gresvik, O. and H. Haare (2008) "Payment habits at point of sale", Norges Bank Staff Memo, No 6.

Humphrey, D., Willesson, M., Lindblom, T. and G. Bergendahl (2003) "What Does it Cost to Make a Payment?", Review of Network Economics, Vol. 2, Issue 2, pp.159–174.

Jansson, T. and B. Segendorf (2012), "The cost of Consumer Payments in Sweden", working paper series, Sveriges Riksbank.

Takala, K. and Viren, M. (2008) "Efficiency and costs of payments: some new evidence from Finland", Suomen Pankki – Finlands Bank Research Discussion Papers, No 11.

Turján, A., Divéki, É., Keszy-Harmath, É., Kóczán, G. and K. Takács (2011) "Nothing is Free: A Survey of the Social Costs of the Main Payment Instruments in Hungary", MNB Occasional Parers 93.

Van Hove, L. (2004) "Cost-based Pricing of Payment Instruments: The State of the Debate", De Economist, Vol. 152, no. 1, pp. 79-100.

Appendix

Box 1 – Methodological notes to the survey of merchants in Italy

An ad hoc survey of merchants on the costs of accepting payment instruments was carried out between April and October 2010, via questionnaires and interviews conducted by researchers at the Bank of Italy's regional research units. The initial reference population was the 47,000 service firms that had registered more than €2 million in sales in 2009 according to ASIA-Istat data or that had more than 10 employees. The survey excluded monetary and financial intermediation, the manufacturing sector, extraterritorial organizations and bodies, and, in the service sector, wholesale trade.

Stratification was based on two variables: 1) sector of economic activity (for service firms: retail trade, transport and telecommunications, R&D and IT, other) and 2) firm size (gauged by sales).

The survey was conducted nationwide on a regional basis, with a sample of 500 service firms. Of these, 334 – distributed substantially like the entire sample – were interviewed successfully. Further, in order to make the sample more representative of smaller firms (with sales of less than €2 million or fewer than 10 employees) and of large retail chains, an additional 42 interviews were conducted with homogenous groups of retailers[1] with the cooperation of the major retail merchants' trade associations, Confcommercio and Confesercenti. Overall, the 376 interviews successfully concluded covered more than 2,400 shops or affiliated sales outlets nationwide, with total declared sales equal to 1 per cent of GDP. Counting the smaller firms as well, the reference population becomes larger than the initial 47,000, extending to 1.7 million service firms in the various sectors. The reference population used for gauging sample representativeness is drawn from Istat's ASIA database of Italian firms.

In terms of number of firms (or affiliated outlets), sales and number of employees, the breakdown of the firms interviewed by sector of activity was basically in line with that of the entire population (Table a1). By type of activity, firms in retailing and the restaurant sector accounted for 60 per cent of the total interviewed; the remaining 40 per cent were transport and communications or "other service" firms.

[1] The grouping was done by trade associations, in view among other things of the need for anonymity.

To obtain a system-wide value for total costs, the sample data were extrapolated to the entire population taking account of the ratio of declared sales to GDP (Istat data) for each of the three macro-strata (retail trade, transport, other); this division into macro-sectors served to attenuate the distortions deriving from sample variability and the reduced granularity of the smaller domains. Robustness checks of the extrapolation procedure and sample representativeness were run, taking account of the total number of payments intermediated by retail merchants according to sector of activity using the information in the payment services section of the automated prudential returns submitted by banks and other intermediaries to the Bank of Italy.

In any case the usual caution in extending the sample data to the entire system is called for.

Table a1– Sample of merchants – Sample structure

Sector	Sample: No. firms (shops)	Sample: % composition	Sample: *Sales (%)*	Sample: *No. employees (%)*	Reference population: No. firms (shops)	Reference population: % composition	Reference population: Sales (%)	Reference population: No. employees (%)
Retail trade: supermarkets Retail trade: food, drink, tobacco Retail trade: Fashion, clothing Retail trade: medicines and social/medical assistants Retail trade: construction, furnishings Retail trade: specialty shops Retail trade: other Hotels and restaurants Fuel and service stations Telecommunications	214 (1702)	58% (71%)	*59%*	*55%*	1.184.140	67%	62%	51%
Arts, entertainment, recreation Utilities	75 (344)	19% (14%)	*24%*	*36%*	276.016	16%	25%	29%
Other services (e.g. professional services) Other services (e.g. professional services)	87 (359)	23% (15%)	*17%*	*9%*	298.179	17%	13%	20%
Total	**376 (2405)**	**100%**	**100%**	**100%**	**1.758.335**	**100%**	**100%**	**100%**

cont'd

cont'd

	No. employees per firm: 84.9		No. employees per firm: 82.6
Size class:	No. firms (shops)	Sample: % composition	Reference population: % composition
1 2 - 4 5 - 9	123 (1062)	32% (44%)	39%
9 - 19	82 (614)	22% (26%)	23%
20 - 49	83 (493)	22% (20%)	17%
49 - 99	35 (115)	9% (5%)	9%
100 -249 > 259	53 (122)	14% (5%)	12%
Totale	**376 (2405)**	**100%**	**100%**

	Median	Mean
Average hourly labour cost over year (sample)	15.41	17.77

Table. a.2 – “Retailers” sample; structure of acceptance costs of payment instruments by activity
(per cent)

Merchants/Firms	Cash	Cheques	Debit cards	Credit cards	Credit transfers	Direct debtis
Back office	46.0%	70.8%	81.2%	83.5%	75.6%	84.8%
Warehousing, storage and transport	19.8%	25.3%	.	.	.	.
Telecommunications and acceptance terminals	34.1%	3.9%	18.8%	16.5%	24.4%	15.2%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
of which: operational risk (i.e. frauds)	20.5%	45.6%	0.0%	0.9%	14.4%	5.0%

Figure a1 – Sample of merchants – Costs by type of activity (%)

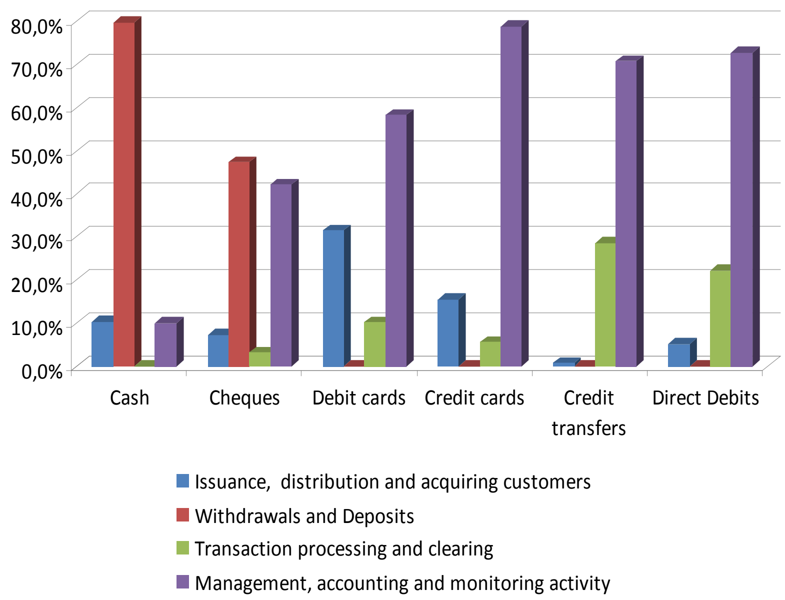


Table a.3 – Estimation method for no. of cash transactions

1) "Cash withdrawals" (*) and "merchant" survey (**) method	
Total amount of ATM and in-branch cash withdrawals (millions of €)	€ 405,000
by average value (**) of cash purchases (€21.29): no. transactions (millions)	19,023
by median value (**) of cash purchases (€16.73): no. transactions (millions)	24,208
2) "Household consumption" method (***)	
Total annual household consumption (millions of €)	€ 905,390
Annual cash spending by households (millions of €) (Bank of Italy Survey of Household Income and Wealth)	€ 398,370
by average value (**) of cash purchases (€21.29): no. transactions (millions)	18,712
by median value (**) of cash purchases (€16.73): no. transactions (millions)	23,812
% no. of cash/total payments, 2009	85.2-87.9%
% no. of cash/total payments by households, 2009	88.9-91.1%

(*) - Source: Banca d'Italia, statistical reports, 2009.
(**) - Source: Banca d'Italia, Survey of merchants on cost of payment instruments, 2009.
(***) - Source: Banca d'Italia, Survey of Household Income and Wealth, 2008

Table a4 – International comparison of use of different payment instruments (% of total no. of transactions)

	cash	cheques	cards	Credit transfers	Direct debit	other
Italy	82.7	1.3	6.4	5.2	2.5	1.9
EU-27	66.6	1.9	13.2	9.2	8.5	0.6

Note: Each row totals 100%.
Sources: ECB and Banca d'Italia

Table a5 – Sample of banks – Incidence of costs by type of instrument and activity (%)

Cash	
Activity	% incidence
1. Collection and transport	10.3
2. Withdrawal, of which:	38.4
ATMs	3.8
In-branch	34.6
3. Deposits, of which:	41.3
In-branch	40.9
Night deposit box	0.5
4. Additional costs of custody and manual operations	1.3
5. Management and monitoring of activities	8.4
6. Other	0.2
Total	**100.0**

cont'd

cont'd

Cheques	
Activity	% incidence
1. Collection and transport	5.3
2. Deposit	47.3
3. Custody	1.0
4. Production	2.0
5. Request	0.0
6. Issue and delivery	0.7
7. Presentation at clearing house	1.4
8. Return	0.7
9. Handling of post-dated cheques	0.0
10. Cheque imaging	0.5
11. Overdue credits	0.6
12. List of risky customers	0.2
13. Management and monitoring of activities	22.9
14. Customer services	0.9
15. Other	16.5
Total	**100.0**

cont'd

cont'd

Debit cards	
Activity	% incidence
1. Customer acquisition/merchant conventions	6.3
2. Issuing	25.2
3. Authorization processing	6.1
4. Settlement processing	4.1
5. Fraud control	3.7
6. Card-holder costs	0.1
7. Licence (Visa/MasterCard/Amex)	0.7
8. Customer services	4.2
9. Management and monitoring of activities	1.2
10. Advertising and marketing	1.8
11. Card acceptance	10.5
Total	**100.0**

cont'd

cont'd

Credit cards	
Activity	% incidence
1. Customer acquisition/merchant conventions	4.7
2. Issuing	10.8
3. Authorization processing	5.1
4. Settlement processing	0.6
5. Account statements	4.5
6. Fraud control	2.8
7. Card-holder costs	2.2
8. Licence (Visa/MasterCard/Amex)	5.9
9. Customer services	5.8
10. Management and monitoring of activities	5.5
11. Advertising and marketing	1.6
12. Handling POS purchases	34.3
13. Other	16.2
Total	**100.0**

cont'd

cont'd

Credit transfers	
Activity	% incidence
1. Service contract	0.7
2. Credit transfer orders	15.9
3. Processing of transfers	12.4
4. Reversals and cancellations	0.3
5. Fraud prevention	3.2
6. Filing procedures	2.1
7. Anti-money-laundering controls	0.1
8. Customer services	1.1
9. Advertising and marketing	0.2
10. Management and monitoring of activities	3.2
11. Other in-branch activities	60.7
Totale	**100.0**

cont'd

cont'd

Direct debit	
Activity	% incidence
1. Service contract	2.1
2. Authorization of direct debit and movement on debit and credit accounts	3.0
3. Filing procedure	0.6
4. Payment collection and processing procedures:	46.1
from creditor's standpoint	
from debtor's standpoint	
5. Analysis of creditworthiness	5.9
6. Customer services	13.0
7. Advertising and marketing	0.1
8. Management and monitoring of activities	1.0
9. Other	28.2
Total	**100.0**

Sample of banks
Distribution of costs by type of activity and instrument

Figure a2

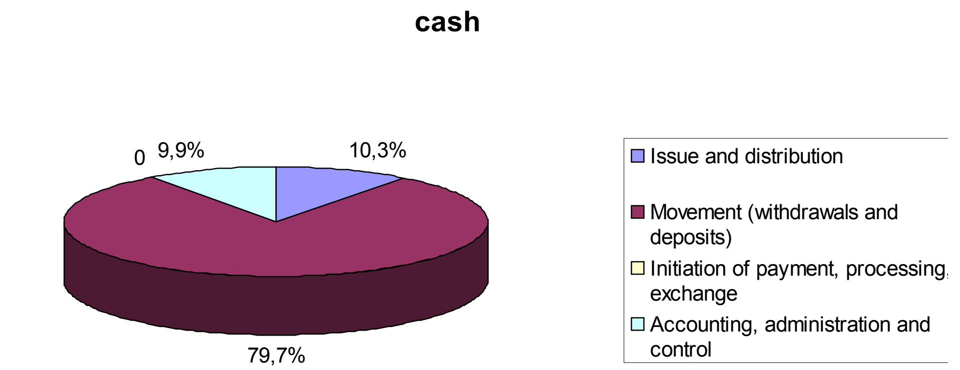


Figure a3

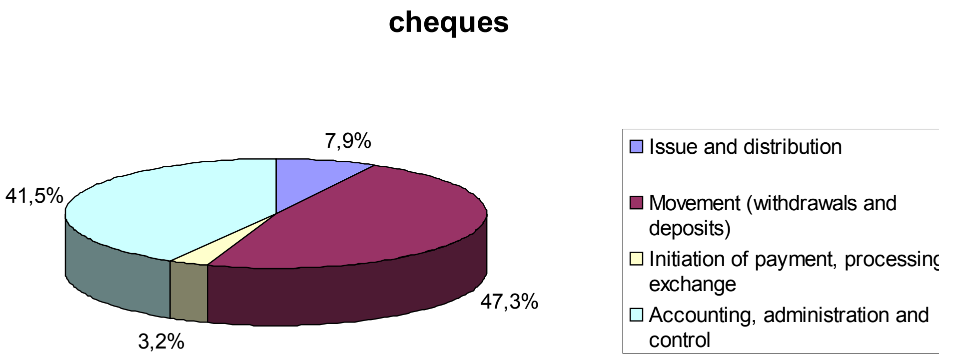


Figure a4

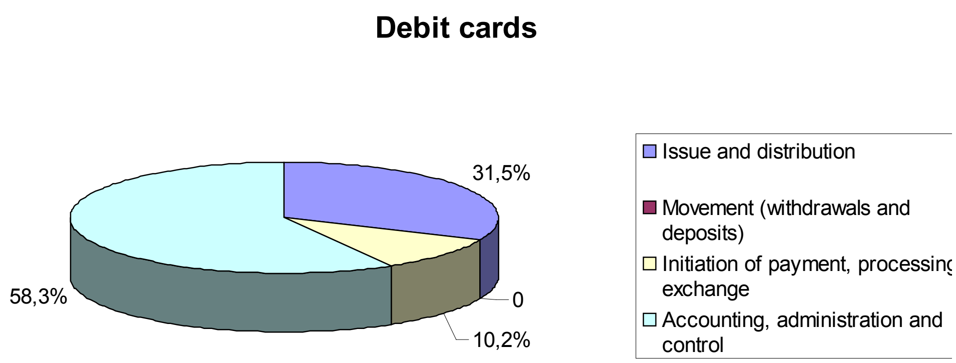


Figure a5

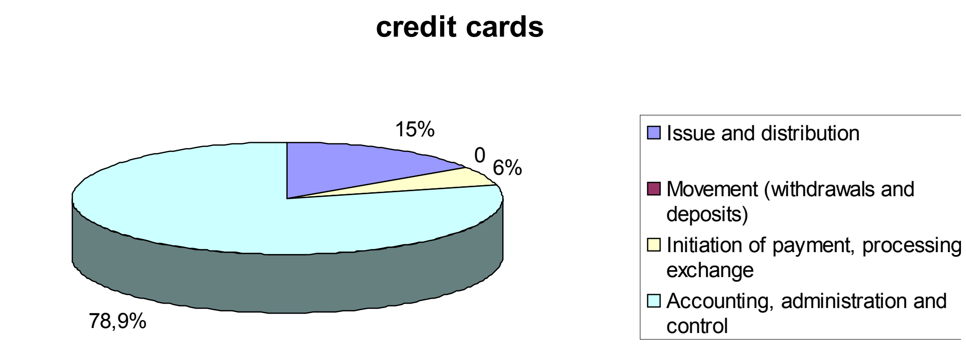


Figure a6

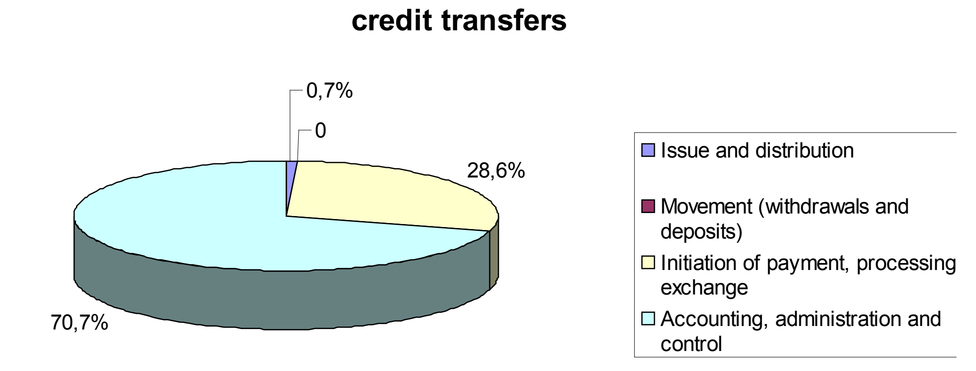
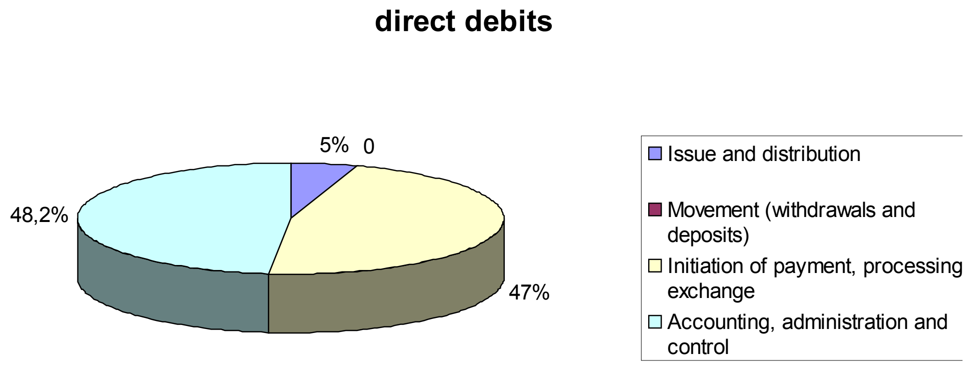


Figure a7



Printed by the
Printing and Publishing Division
of the Bank of Italy