

Economic Commentary

# Payments cost – but the costs vary

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# Introduction

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Payments are necessary for the functioning of the economy. At the same time, payments consume extensive resources. In the Riksbank's Cost Study, published today, the authors estimate that the social cost of payments in Sweden amounts to almost one per cent of GDP, or around SEK 5,000 per inhabitant and year. At the same time, the payment market has become more efficient over the past 10–15 years as a result of rapid digitalisation. In this Economic Commentary, we show that different digital payments have significant differences in costs. This indicates that it is still possible to further improve the efficiency even of a digital payment market like the Swedish. However, cost efficiency is not everything. A complete socio-economic assessment would also include the benefits of different payment instruments. This applies, for example, to important aspects of the payment market such as inclusion, sustainability and resilience.<sup>1</sup>

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## Payments consume a lot of social resources

In 2021, around 6 billion payments were made in Sweden.<sup>3</sup> These payments have no inherent value in themselves; instead, their value lies in the economic transactions they enable. This applies above all to the exchange of goods and services in the economy and transfers to and from the public sector and between private individuals. Payments are therefore a necessary cost for society to function.<sup>4</sup> However, making the payment market more efficient can reduce this cost.

The Riksbank's Cost Study published at the same time as this Commentary estimates that payments in Sweden in 2021 entailed a total social cost of 0.93 per cent of GDP. This corresponds to SEK 51 billion or almost SEK 5,000 per inhabitant in Sweden.

The cost study estimates that businesses, including the public sector, bear more than half – 55 per cent – of the social costs of payments. This includes the time spent by

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<sup>1</sup> Economic Commentaries are brief analyses of issues with relevance for the Riksbank. They may be written by individual members of the Executive Board or by employees at the Riksbank. Employees' commentaries are approved by their head of department, while Executive Board members are themselves responsible for the content of the commentaries they write.

<sup>2</sup> The authors would like to thank Carl Andreas Claussen, Gabriela Guibourg and Johan Schmalholz for valuable comments.

<sup>3</sup> See the Riksbank's payment statistics for 2021. Transactions between financial companies are not included in the statistics.

<sup>4</sup> In addition to costs, there are also benefits to certain payment methods. One example is credit cards, which give the cardholder access to credit and can provide bonus points, insurance, discounts, etc.

employees on payments and the cost of physical equipment and IT-systems needed to make and receive payments. Households bear 20 per cent of the total costs, which consist almost exclusively of the time spent by households on making payments. According to the Cost Study's estimates, this is about seven hours per Swedish inhabitant and year. Finally, payment service providers, mainly banks, bear the remaining 24 per cent of the costs. As with businesses and the public sector, these include time costs and other costs such as physical equipment and IT-systems.

This Commentary is structured so that in the next section we describe differences in the social unit costs of different digital payment instruments. We then illustrate the possibility of reducing the social costs of payments by making greater use of digital payments with the lowest social unit costs. Finally, we emphasise the importance of considering socio-economic benefits and not just costs when comparing different types of payments. This may include, for example, inclusion, sustainability and resilience in the payment market.

## How we pay affects the cost

Swedes prefer to pay digitally, for example by card or the Swish payment app. An important explanation for this is that the digital alternatives are perceived as simple and convenient.<sup>5</sup> Digital payments have also become more convenient in recent years. To pay in a shop, it is now often enough to tap your card on a payment terminal instead of inserting the card and entering a PIN. For online purchases, it is often possible to use the Swish app or enter your card number to easily make future card payments.

Non-digital payments such as cash and postal giro require a lot of manual handling, which means that they generally require significantly more time and other resources than digital payments. It is therefore not particularly surprising that the total social cost of payments has decreased as the use of digital payments has increased. This is also something that previous cost studies have shown.<sup>6</sup>

The Riksbank's Cost Study shows that the difference in the social unit cost of different payment instruments is considerable, even in the same payment situation.<sup>7</sup> This is an important result because it demonstrates the possibility of making the payment market more efficient. In general, payments with debit cards and instant payments such as Swish are both faster and require fewer resources than payments with, for example, credit cards and credit transfers initiated via mobile or online banking. The differences are illustrated in Figure 1 below. To a large extent, the differences relate to the fact that some digital payments take less time for the actors involved, but there are also differences in the number of actors involved in each type of payment. In addition, different payments require different types of physical equipment and IT systems.<sup>8</sup> A further factor is how many payments are made with each payment instrument. The payment market is generally characterised by high fixed costs combined with low

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<sup>5</sup> See, for example, the [Payment patterns in Sweden 2022](#) and the [Payment Inquiry's survey on payment habits in 2021](#) (in Swedish).

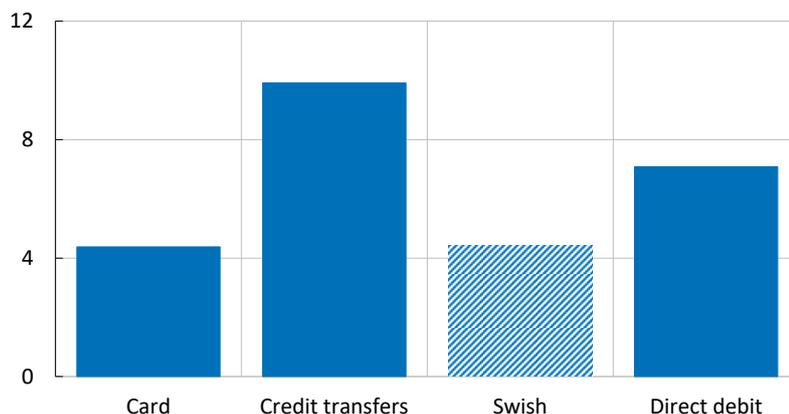
<sup>6</sup> See Bergman et al. (2007) and Jansson and Segendorf (2012).

<sup>7</sup> See the Riksbank (2023).

<sup>8</sup> For a more detailed description, see the Riksbank (2023).

marginal costs per transaction. This means that there are economies of scale that lead to a payment instrument with many transactions having a lower cost per transaction than a payment instrument with few transactions.

**Figure 1. Card and Swish payments have the lowest social cost per transaction**  
SEK per transaction, 2021



Note. The shaded bar for Swish is a subpart of credit transfers.

Source: The Riksbank (2023).

If we dig a little deeper and look at some individual payment situations, the difference in the social unit cost of the various digital payments becomes even greater. As we can see in Table 1, for example, the social unit cost of making an account transfer to a private individual via a mobile phone or online bank is more than twice as high – just over SEK 6 – compared with a Swish payment that costs just under SEK 3.

The social unit cost, that is the cost per transaction, for a Swish payment in a physical store is SEK 7.4. This is almost twice as much as for a payment by debit card. However, Swish has not yet had a full impact on physical trade. There are many shops and other businesses that do not accept Swish, and among those that do, Swish payments are often not fully integrated with the cash register system. Therefore, it often takes longer to make a Swish payment in a physical store than a card payment. This is an important explanation as to why Swish payments are still used to a low extent and have relatively high social unit cost compared with other digital payments in physical stores. With more efficient payment solutions at physical points of sale, the social unit cost of Swish payments could become lower than it is today.

For online purchases, however, Swish is most cost-efficient with a social unit cost of SEK 6 compared with a credit card payment that costs SEK 11. For paying bills and invoices, an e-invoice has a lower social unit cost – SEK 9.6 – compared with “ordinary” bill payments initiated via mobile phones or online banking, which cost SEK 12.4. For recurring payments such as subscription services, rent or monthly bills, recurring card payments are clearly the cheapest alternative with a social unit cost of just over

SEK 2.5, compared with direct debit and e-invoice, which cost SEK 6.9 and SEK 9.6 per transaction respectively.<sup>9</sup>

**Table 1. The social cost per transaction varies with payment instrument and payment situation**

SEK per transaction, 2021

Payment situation	Payment instrument	Social unit cost
Person-to-person payments (PSP)	Swish	2.8
	Account-to-account transfers	6.3
Person-to-business payments (P2B) in-store	Swish	7.4
	Debit card	3.7
	Credit card	5.9
Person-to-business payments (P2B) online	Swish	6.0
	Debit card	8.3
	Credit card	11.0
Person-to-business payments (P2B) bill payments and recurring payments	Recurring card payments	2.6
	Direct debit	6.9
	E-invoice	9.6
	Other digital credit transfers	12.4

Note. Card payments (P2B) also include payments between businesses (B2B). However, card payments initiated by businesses only constitute a small amount of the total number of card payments and will thus have a limited effect on the results.

Source: The Riksbank (2023).

## The cost to society can be reduced

In Sweden, more than 95 per cent of payments are digital. There is therefore potential to reduce the social resources spent on payments by making greater use of the most cost-efficient ways of making digital payments in different payment situations. We can illustrate this with a simple calculation example.<sup>10</sup> First, we assume that all people in Sweden use only the most cost-efficient payment instrument in each payment situation. This means that Swish is used for person-to-person payments and payments for online purchases, debit cards are used for person-to-business payments in shops and cards are used for recurring payments. In this simple calculation example, the total social costs of payments for 2021 would decrease by approximately SEK 8.5 billion from 0.93 per cent of GDP to 0.78 per cent of GDP.<sup>11</sup> This corresponds to a reduction in social costs of almost 17 per cent.

However, it should be emphasised that the simple calculation example above does not take into account all relevant factors. For example, investments in technical

<sup>9</sup> In recurring card payments card details are entered once and the payee can then initiate payments on an ongoing basis via the registered card.

<sup>10</sup> The calculation example is only intended to illustrate a tentative order of magnitude of potential efficiency and the detailed figures should be interpreted with great caution.

<sup>11</sup> For bills (e-invoices and other digital credit transfers) we do not make this kind of assumption because they offer different services. Therefore, they are not substitutes in all payment situations.

equipment and new IT-systems may be needed for businesses and payment service providers to handle so many payments with the most cost-efficient ways of paying in each payment situation. Furthermore, unit costs for each payment method are affected by redistributing the number of transactions between them. The cost per transaction normally decreases as the number of transactions increases, due to high and static fixed costs that give rise to economies of scale. Similarly, the costs per transaction increase for those payment instruments with fewer transactions. Additionally, in the short term, a lot of the costs for some payment instruments would remain even if no one uses it. Finally, it could be the case that we lose important socio-economic values if all payments are moved to one payment instrument.

If we study some individual payment situations based on the calculation example above, further interesting differences emerge. For example, the social costs of payments between private individuals could be reduced by 44 per cent if all payments were made using instant payments such as Swish or new services for instant payments. In turn, the social costs of payments in physical stores could be reduced by 27 per cent if all payments were made with debit cards. It is worth remembering that just a few years ago it took much longer time to pay by card in a physical store, because you had to insert or swipe your card and enter your PIN regardless of the amount of the purchase. Nowadays, it is often enough to tap your card to pay, which has contributed to card payments in shops being considerably faster. According to the Riksbank's current and most recent cost study, the time for a card payment in shops has fallen from 25 seconds in 2009 to 12 seconds in 2021. If all online payments were made using Swish, the social costs could be reduced by 25 per cent. Finally, the social costs of recurring payments from individuals to businesses would be reduced by 56 per cent if all direct debits (Autogiro) were replaced by recurring card payments.

At present, Swish is the only payment instrument in Sweden that offers instant payments. As of May 2022, the Riksbank has offered a system for settling instant payments – RIX-INST – which makes it possible for banks and other actors to offer services for instant payments. In the long term, we will therefore potentially be able to see a number of new actors and services, in addition to Swish, offering instant payments. However, this depends entirely on which services market participants choose to develop. One example of a new service could be paying bills with instant payments. Such a service could contribute to lower social costs as bill payments with digital credit transfers have a relatively high social cost per transaction.

One important benefit of instant payments is that they are made piecemeal and that fewer actors and systems are involved in the underlying payment process compared to card payments and other digital payments initiated via online or mobile banking. In other words, instant payments could increase efficiency and reduce costs for society as a whole, by scaling back costly steps in the payment process. Therefore, the promotion of instant payments by market participants, regulators and central banks is important for the continued efficiency of the payment market.

## Values beyond cost-efficiency

Finally, we would like to emphasise that both the cost studies and the reasoning in this Economic Commentary only deal with costs and cost-efficiency. We therefore only look at the time and resources that different payments require in the analysis. However, there are also other social values that need to be taken into account when comparing different payment instrument and analysing the payment market as a whole, not least the resilience of society in crises and wars, where different ways of paying may have different advantages and disadvantages.

For example, card payments are made possible by large global card networks that have significant economies of scale, which is positive because it makes them cheaper. At the same time, the fact that the networks are global can be problematic from an emergency preparedness point of view, as the infrastructure that enables the payments is not controlled from Sweden. Decisions regarding the card networks are therefore made outside Sweden's borders. On the other hand, the fact that the infrastructure is located abroad can be positive if the national payment infrastructure is knocked out during crises and wars.

There may also be value in redundancy in the payment market to strengthen resilience. Access to several different ways of paying in each payment situation makes it possible to pay even if there are disruptions in one system. One example is whether it is possible to pay with cash, cards and Swish in a shop. The number of players on the payment market offering the same payment method also plays a role. A monopoly situation, for example if only one bank were to offer bill payments, could be vulnerable and thus a problem from an emergency preparedness perspective.

Furthermore, inclusion in the payment market is an important value. A digitalised payment market makes it difficult for people to make payments if they are digitally excluded, and for people who do not have a payment account or a BankID (the dominant electronic ID in Sweden issued by banks) and therefore are not admitted into the digital payment market. Non-digital payments and payments that do not require access to a bank account and BankID are therefore needed. However, our conclusion is that it is possible to both improve inclusion in the payment market and at the same time reduce society's costs for payments by investing in digital inclusion, which makes it possible for more people to pay digitally.

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