

Lars Nyberg: It costs to pay – do we use too much cash?

Speech by Mr Lars Nyberg, Deputy Governor of the Sveriges Riksbank, at the Finansförbund congress, Bålsta, 28 May 2008.

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Who pays the price?

When we pay for goods we have bought at the supermarket or for the hamburger we eat for lunch we rarely wonder what the actual payment costs. This applies both to when we pay by card and pay in cash. And why should we care what it costs to pay? This is not a cost we ever see.

But of course it costs to pay. It uses resources in the economy.

Why are there costs in cash? Well, ATMs cost money to fill. And banknotes and coins are transported around the country by cash-in-transit firms which naturally want remuneration for this. Moreover, the costs for the safety of their personnel have increased rapidly in recent years.

Card payments also cost money. They require terminals in shops and other places that accept such payments. And card payments require complex computer systems, which must be maintained and developed. Credit cards also involve credit, and credit is never free of charge. If a shopkeeper pays a charge of 3 per cent to the credit card company, which is not unusual, this means an effective annual interest rate of 20 per cent in round figures, given a credit period of 30 days.

What a relief, one might think, that we consumers don't have to pay for all this. But who is it that has to pay? Because someone ultimately has to bear the costs.

It is easy to initially assume that it is the retail trade and the banks that benevolently pay for payments. But it is not that simple. The merchants need to have their costs covered; otherwise they will not be able to run their businesses. And the same applies to the banks. The costs of all payments therefore gradually arise as the markups on the prices of the goods and services we buy. Milk and vegetables may become a little more expensive in the shop and the interest on our deposits at the bank may be a little lower than would otherwise have been the case.

It is thus we consumers and bank customers who ultimately pay the costs of all payments. But we do not see them. We are therefore led to believe that they do not exist – or that someone is paying them.

Shouldn't the actual costs be visible?

Is this a good system? Normally, we want to be able to see what various goods and services cost. The price helps us decide how much we will buy. We do not have any such price signals regarding the different methods of payment. The real prices are hidden.

And this raises the question: If we knew what it actually costs, would we change our method of payment? For instance, would we use cash less and cards more, or vice versa? Perhaps we are using methods of payment that require an unnecessarily large use of resources? This could mean higher costs than necessary and thereby higher price increases in the retail trade or less favourable interest from the bank.

We at the Riksbank have devoted considerable time and effort to analysing what different forms of payment cost and how we as consumers affect the efficiency of the Swedish payment system when we choose our method of payment.

Today I intend to describe some interesting results from this research. Firstly, what are the social costs of using cash and cards respectively? Secondly, what is in our estimation the better choice between card and cash payments, from a welfare perspective? Thirdly, how does the general public choose between cash and cards in practice?

One result of our analysis is that we as consumers probably use more cash and fewer card payments than we would do if we realised what cash management costs – and if we had to pay for it.

Why is cash used more in Sweden than in other Nordic countries?

In Sweden, card payments have increased substantially since the mid-1990s. But seven years ago Swedes still appeared to be using card payments less than other Nordic residents. At the beginning of the 2000s the number of card payments per capita in Sweden was only half as high as in the other Nordic countries. This implied that Swedes used more cash.

In recent years the use of cards has accelerated. With regard to both the number of terminals and use of cards per capita, the Nordic countries are now very close to one another. The differences in card use between Sweden and the other Nordic countries – particularly with regard to Denmark and Finland – declined rapidly after 2001. Nevertheless, cash is still used to a greater extent in Sweden than in other Nordic countries. If one suspects that cash may be a relatively expensive payment service, the more widespread use of cash in Sweden in relation to the rest of the Nordic countries could mean that the Swedish payment system is less efficient in this aspect.

But why do we use more cash in Sweden? We do not have a good answer to this. However, experiences from both Sweden and Norway show that demand for payment services is price-sensitive.¹ In Norway, electronic payments, including card payments, increased very rapidly after the banks changed their pricing towards charges based to a greater extent on actual costs. For instance, they began by making a small charge for ATM withdrawals.² It is possible that our pricing of card and cash payments respectively – the price the consumers see – lies behind the fact that we use more cash?

When it comes to card and cash payments, it turns out that it is only the retail trade which the banks subject to charges.³ Swedish consumers do not usually pay any charges to the banks for cash withdrawals and pay only an annual charge for holding a card. The retail trade pays charges to the banks for cash and for card payment services, but does not explicitly price these services to its own customers. The costs the retail trade has to bear in connection with payments are instead transferred to the consumers by means of general markups on goods prices. This means that nor does the retail trade give any signals to consumers regarding the costs of one form of payment or another.

¹ See Humphrey, D., Kim, M., Vale, B., (2001) "Realizing the gains from electronic payments: Costs, pricing and payment choice", *Journal of Money, Credit & Banking* 33, 216 -234 and Nyberg, L., Guibourg, G., (2003) "Card payments in Sweden", *Economic Review* 2003, vol.2, Sveriges Riksbank, 29-39.

² According to information from Norges Bank this was partly due to a combination of changed pricing and mergers of different card systems.

³ Guibourg, G. and Segendorf, B., (2007), "A note on the price and cost structure of retail payment services in the Swedish banking sector 2002". *Journal of Banking & Finance* 31, 2817-2827.

When are cash payments cost effective?

But are cash payments more expensive to produce than card payments? Our study shows that this is often the case.⁴ In the year 2002 the costs to society for managing cash were SEK 6.6 billion or 0.3 per cent of Sweden's GDP.⁵ This includes an estimated cost for the time the general public spends on fetching cash and managing it. Almost half of the costs to society arose within the banks and Svensk Kassaservice. Almost an equally great percentage arose in the retail trade, among transport companies and among the general public together, with costs distributed fairly evenly between the three groups. The Riksbank's and the cash depots' shares of the total costs to society were modest. The same study estimated the number of payments with cash made in one year at SEK 1.4 billion. This means that each cash payment made in 2002 led to a cost to society of on average SEK 4.6.

The costs to society for cash payments in 2002 were estimated at SEK 1.9 billion, which corresponded to almost 0.1 percentage of GDP. That year, 589 million card payments were made.⁶ This means that each card payment cost society an average of SEK 3.0. An average card payment is thus around 35 per cent cheaper than a cash payment. Around 2.3 billion transactions were made by card or cash 2002. We estimated that more than 70 per cent of these were paid in cash. There thus appear to be evident cost savings to be made through a reduction in the use of cash.

At first glance it would appear that card payments – which are 35 per cent cheaper for society to produce – should replace cash completely. But it is not quite so simple.

There are major differences in how cards and cash are produced. Card payments require an extensive infrastructure of terminals, computers and lines of communication and have substantial fixed costs. But the cost of a card payment is always the same, regardless of whether one uses the card to pay for a purchase amounting to SEK 50 or SEK 50,000.

For payments made in cash the variable costs are substantial. Cash payments require considerable physical management such as transport, counting, storage of banknotes, etc. The larger the transaction amount, the more expensive the actual cash payment will be, as it involves a larger share of this management. For payments of small amounts the cost of cash is therefore lower than the cost of a card payment. This means that from society's point of view, cash may be preferable for making small payments.

To obtain an idea of what the size of a transaction may mean, we estimated the costs to society of a cash payment and a card payment respectively as functions of the transaction amount. In this way we could also calculate when it was profitable to pay in cash. The results show that – at least in 2002 – it was most cost-efficient to pay in cash for purchases amounting up to almost SEK 70.⁷ Above this, card payments were always preferable.

And how do consumers make their choice?

The next question is how cards and cash are actually used. How does the Swedish consumer make this choice? To find out, the Riksbank ordered a survey of the consumer's

⁴ Bergman, M., Guibourg, G., Segendorf, B., (2007), "The Costs of Paying – Private and Social Costs of Cash and Card Payments". Sveriges Riksbank Working Paper Series No. 212.

⁵ The study uses Swedish cost data from 2002.

⁶ The Swedish Financial Market 2007, Sveriges Riksbank.

⁷ Bergman, M., Guibourg, G., Segendorf, B., (2007), "The Costs of Paying – Private and Social Costs of Cash and Card Payments". Sveriges Riksbank Working Paper Series No. 212.

choice between cards and cash.⁸ In addition to the actual choice of means of payment, the individuals were asked about the size of their most recent purchase.

We were able to use data from this survey to estimate the actual cut-off point in the choice between cards and cash. This was defined as the amount at which the probability that a consumer would choose to pay by card was as great as the probability that the consumer would choose to pay by cash. The survey showed that an average consumer chooses to pay by card when the amount exceeds SEK 123.⁹ Neither gender nor region appears to play any major role in the choice. But the educational level of the consumer and above all his or her age, does have a substantial effect on the result. A 60-year old consumer will only choose a card over cash when making a purchase of, on average, SEK 179, while a 20-year old consumer would choose to pay by card for a transaction as low as SEK 60. It would appear that young people's choice is fairly close to a cost-efficient choice from society's point of view.

The study is based on data from 2002, but there is nothing to indicate that consumers' methods of payment have changed radically since then, although cards have continued to grow in importance. Use of cash is still at a high level in Sweden. The cost of cash management has probably risen more than the cost of card management, calculated per transaction. The costs for increasing security for cash-in-transit and ATMs have been substantial. There are many indications that the gap in socioeconomic costs between cards and cash has widened further and that the cut-off point will therefore occur at an amount lower than SEK 70. In this case, society would benefit even more from a reduction in the use of cash.

Make the costs visible

An important basic insight is that the costs of different types of payment exist, even if they are not visible. They affect the consumers in that goods and services become more expensive. If these choose less efficient instruments of payment to a greater extent, then the price increases will be greater. There is thus reason to choose a method of payment that saves resources in society. As in other contexts, the consumers benefit most if we receive correct information about the price of the services we buy.

The Riksbank's studies of the Swedish card and cash market indicate that we use cash too much and cards too little from a socioeconomic point of view. On the other hand, the results also depend on age, in that the young people's choice is fairly close to the choice they would make if the costs were visible and not hidden. Perhaps payment behaviour will become more socioeconomically efficient in future generations?

I believe that we have all gained a greater insight into the fact that payments cost money. The discussion of cash-in-transit robberies has drawn attention to both the costs of cash management and the rising risks of human tragedy. The best means of reducing cash management – and the means that appears most reasonable given the Riksbank's study – is to openly price payments.

How should this be done? To begin with, the banks could make a charge for withdrawals from ATMs. Experiences from other countries show that even a small charge can have significant effects on the consumers' choice between card payments and cash. Then the banks could use the income from the ATMs to reduce the fees for card administration that

⁸ Synovate Temo, 2006. "Survey of banknotes, coins and use of cash and cards", December 2006.

⁹ The average consumer was defined as a 41-year old man with upper secondary school education and an annual income of SEK 350,000-400,000 and who lives in a two-person household.

they charge the retail trade.¹⁰ In the long term this would benefit us consumers in the form of lower goods and services prices. Perhaps the retail trade could also discuss charging a fee of those of us who insist on using the most expensive credit cards – that is where the hidden cost of the payment is highest.

Charges on ATM withdrawals have been a hot political topic in Sweden. Should we have to pay to take out our own money from our own accounts? But isn't it time to defuse the question of ATM charges? It costs money to manage cash. And isn't it better that we can see the costs than that we pay a hidden price in some other way at the bank or the supermarket?

¹⁰ According to an earlier study made by the Riksbank, the loss made by an average major bank in 2002 in connection with cash management was approximately equal to the profit it made on the card market. There is evidently some subsidising between the card and cash markets. See Guibourg and Segendorf (2007).