THE ROUTE TOWARDS A CASHLESS SOCIETY – THE CASE OF SWEDEN

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• Associate Professor at the Royal Institute of Technology (KTH)

• Research on innovation and change (in industrial systems and organizations) focusing on the payment system via projects like:
  – Effects on retail industries from new payment services
  – Swish - a disruptive mobile payment service?
  – MBT MBT – Mobile Payments – More than Transactions
  – Part in proof of Concept-test of a mobile payment service in Sweden
  – The cashless society
  – The Future of the Payment System

• Ph.D. Stockholm School of Economics  1999

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CONCLUSIONS

• The development in Sweden has a long tradition from the middle of the 20th century where actions and cooperation between critical actors have promoted electronic payment services.
  – The backbone of this system is bank accounts into which wages and salaries are paid.
  – The last years show a strong substitution effect where mobile payment services – like Swish – replace cash payments.

• Politicians have generally left the development of payment services to the market, i.e. it is banks, card operators, payment receivers, payment service providers, telecom operators, automated clearing houses, payers, etc. that determine the development of the system.

• Sweden may well become a cashless society, but not before the year 2030. The actual use of cash, however, can become marginal in 5-10 years, i.e. after 2020.
  – Sweden is in a "tipping point" in a slow decrease in the use of cash is turning into into a quicker decrease.

• Consumers put high trust in the payment system and its actors which in combination with a strong technology-interest among Swedes lead to a willingness to use electronic payment services.
SWEDEN – TOWARDS A CASHLESS SOCIETY?
CRITICAL EVENTS IN SWEDEN

• **1960s**: companies started to pay wages and salaries directly to employees’ bank accounts (electronically) instead of via cash. This laid the foundation for an electronic banking system. The employers saved costs, the banks got new customers, unions agreed as long as banks did not charge consumers for cash withdrawals, and employees liked it.

• **1990s**: the system for card payments was built and checks were phased out via new fees. Again, banks, merchants and consumers saw benefits from this.

• **Mid-2000s**: unions in public transportation, banking and merchants became active to reduce the use of cash from a work environment perspective. Too many, too brutal and too costly robberies of buses, banks and merchants motivated unions to take action (Tryggare rörelsen, Kontantfritt.nu)
CRITICAL EVENTS IN SWEDEN

• **Mid-2000s**: banks, telecom operators and new firms say business potential in launching new payment services and intensified their efforts to develop such services.

• **December 12, 2012, at 00.12**: the new mobile payment service Swish was launched in Sweden. It is a service that initially enabled real-time transactions between consumers (person-to-person payments) without fees and became a natural and efficient substitute to cash.

• **2010s**: E-commerce grows which means that payments increasingly become electronic and new actors are strong in the area of mobile payments and Internet-payments (Apple, Google, Paypal, Klarna, Seamless, Izettle, etc.) which is attractive for young people that are active on the Internet.

• *....the story continues on a daily basis with new actors, innovations and regulations*
SWEDEN HAS FEW CASH TRANSACTIONS AND MANY CARD TRANSACTIONS

Around 20% of proximity payments (in stores) are made with cash and close to 80% are card payments.
## CASH-IN-CIRCULATION RELATED TO GDP (2014)

<table>
<thead>
<tr>
<th>Countries / regions</th>
<th>Cash-in-circulation as share of GDP (M₀/GDP; %)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chile</td>
<td>30,2</td>
</tr>
<tr>
<td>Bulgaria</td>
<td>12,2</td>
</tr>
<tr>
<td>Colombia</td>
<td>12,2</td>
</tr>
<tr>
<td>Hungary</td>
<td>10,8</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>10,1</td>
</tr>
<tr>
<td>Euro-zone</td>
<td>9,7</td>
</tr>
<tr>
<td><strong>Poland</strong></td>
<td>7,4</td>
</tr>
<tr>
<td><strong>USA</strong></td>
<td>7,1 (2010)</td>
</tr>
<tr>
<td>Romania</td>
<td>5,9</td>
</tr>
<tr>
<td>Croatia</td>
<td>5,6</td>
</tr>
<tr>
<td>Lithuania</td>
<td>3,7</td>
</tr>
<tr>
<td>UK</td>
<td>3,5</td>
</tr>
<tr>
<td>Denmark</td>
<td>3,0</td>
</tr>
<tr>
<td><strong>Sweden</strong></td>
<td>2,0</td>
</tr>
</tbody>
</table>

Sources: European Central Bank (ECB), Sveriges Riksbank and [www.knoema.com](http://www.knoema.com)
HISTORY OF CASH IN SWEDEN

Chart 30. Value of banknotes and coins in circulation, 1950-2014
(annual average, banks' holdings excluded)
Percentage as a proportion of GDP and SEK billion

Value of cash-in-circulation:
77 BSEK in 2015 (around 9.2 BUSD)

Cash / GDP: < 2.0 % in 2015
## SWEDISH BILLS AND COINS IN CIRCULATION

<table>
<thead>
<tr>
<th></th>
<th>December 31, 2014</th>
<th>December 31, 2015</th>
<th>Change in 2015 (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Value of bills and coins in circulation (billion SEK)</td>
<td>83,2</td>
<td>73,5</td>
<td>-11,7 %</td>
</tr>
<tr>
<td>Value of bills in circulation (billion SEK)</td>
<td>77,9</td>
<td>68,2</td>
<td>-12,5 %</td>
</tr>
<tr>
<td>Value of coins in circulation (billion SEK)</td>
<td>5,3</td>
<td>5,3</td>
<td>0</td>
</tr>
<tr>
<td>Number of bills in circulation (billion)</td>
<td>335</td>
<td>317</td>
<td>-5,4 %</td>
</tr>
<tr>
<td>Number of coins in circulation (million)</td>
<td>1 926</td>
<td>1 905</td>
<td>-1,1 %</td>
</tr>
</tbody>
</table>

Source: Sveriges Riksbank

Note: 1 EURO = 8.40 SEK in 2015
WILL SWEDEN BECOME CASHLESS?

<table>
<thead>
<tr>
<th></th>
<th>PAYMENT SERVICE PROVIDERS (PSP)</th>
<th>MERCHANTS</th>
<th>BANKS</th>
<th>CASH-IN-TRANSIT SERVICE COMPANY</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>BEFORE 2020</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>BETWEEN 2020 AND 2030</td>
<td>5</td>
<td>2</td>
<td>4</td>
<td>1</td>
<td>12</td>
</tr>
<tr>
<td>BETWEEN 2030 AND 2050</td>
<td>16</td>
<td>4</td>
<td>5</td>
<td>4</td>
<td>29</td>
</tr>
<tr>
<td>NEVER</td>
<td>4</td>
<td>0</td>
<td>2</td>
<td>9</td>
<td>15</td>
</tr>
</tbody>
</table>

Answers from participants in four workshops and one survey

Source: Arvidsson, N. 2013. Det kontantlösa samhället (The cashless society)
WILL SWEDEN BECOME CASHLESS?

• These are the answers from a study of 1000 Swedes

• Do you think Sweden will become a cashless society?
  – Yes, after 40 years from now: 3 percent
  – Yes, after 30 years from now: 6 percent
  – Yes, after 20 years from now: 22 percent
  – Yes, after 10 years from now: 23 percent
  – Yes, it is already cashless: 2 percent
  – No, never: 39 percent

Source: Det kontantlösa samhället (undersökning Insight Intelligence m fl; hösten 2013)
THE FUTURE OF CASH IN SWEDEN

• We expect a slow decrease of the use of cash – unless critical events lead to a more rapid development.

• ...the question is if there exists a tipping point after which the decrease of the use of cash speeds up as there will be fewer and fewer that accepts cash as a means of payments.

  – **Tipping point:** “that magic moment when ideas, trends and social behavior cross a threshold, tip and spread like wildfire” (Malcolm Gladwell)
THE CRITICAL FACTOR: A TIPPING POINT

“...three characteristics – one, contagiousness; two, the fact that little causes can have big effects; and three, that change happens not gradually but at one dramatic moment – are the same principles that define how measles moves through a grade-school classroom or the flu attacks every winter. Of the three, the third trait – the idea that epidemics can rise or fall in one dramatic moment – is the most important, because it is the principle that makes sense of the first two and that permits the greatest insight into why modern change happens the way it does. The name given to that one dramatic in an epidemic when everything change all at once is the Tipping Point”.

(From: “The Tipping Point – How little things can make a big difference”, Malcolm Gladwell, p. 9).
TIPPING POINT

• We expect a slow decrease of the use of cash – unless critical events lead to a more rapid development.
  – The bankruptcy of Panaxia (cash in transit service company) led to lost trust in cash and increased fees for cash services as the competition decreased
Panaxia ansöker om konkurs

Uppdaterad 2012-09-05 23:30. Publicerad 2012-09-05 08:35

Foto: Jesper Frisk
TIPPING POINT

• We expect a slow decrease of the use of cash – unless critical events lead to a more rapid development.
  – The bankruptcy of Panaxia (cash in transit service company) led to lost trust in cash and increased fees for cash services as the competition decreased
  – Social costs of cash payments are higher than social costs of card payments (since the fixed costs of cash are split on few transactions)
ECONOMIC COSTS – CASH AND CARDS

The social costs of a card payment was estimated to be 5,55 SEK while the social costs of a cash payment was estimated to be 8,32 SEK (2013)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Cash</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social costs per transaction (SEK)</td>
<td>8.6</td>
<td>10.5</td>
<td>3.5</td>
<td>8.3</td>
<td>2.8</td>
</tr>
<tr>
<td>Cards (proximity and remote payments; all cards)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social costs per transaction (SEK)</td>
<td>7.2</td>
<td>5.9</td>
<td>12.6</td>
<td>5.6</td>
<td>10.8</td>
</tr>
</tbody>
</table>

The economic cost of cash payments is higher than that of card payments, and if this concern becomes critical, politicians could initiate action to get rid of cash.

TIPPING POINT

• We expect a slow decrease of the use of cash – unless critical events lead to a more rapid development.
  – The bankruptcy of Panaxia (cash in transit service company) led to lost trust in cash and increased fees for cash services as the competition decreased
  – Social costs of cash payments are higher than social costs of card payments (since the fixed costs of cash are split on few transactions)
  – New bills and coins
    • Economic life of bills and coins – which is decided by risk of forgery
    • Temporary increase and long-term decrease
    • Critical test of the system – will it succeed or not? This will affect credibility.
    • Banks and merchants decide to stop accepting cash before the introduction of new bills and coins in order to avoid work and potential problem related to this event
NEW BILLS AND COINS IN SWEDEN

Launched in October 2015

Launched in October 2016

Not valid after June 30 2016

Not valid after June 30 2017

- 20-kronor
- 50-kronor
- 100-kronor
- 200-kronor
- 500-kronor
- 1-krona
- 2-krona
- 5-krona
TIPPING POINT

• We expect a slow decrease of the use of cash – unless critical events lead to a more rapid development.
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    • Critical test of the system – will it succeed or not? This will affect credibility.
    • Banks and merchants decide to stop accepting cash before the introduction of new bills and coins in order to avoid work and potential problem related to this event
  – Banks and merchant activities aiming at reducing the use of cash in Sweden (Tryggare rörelsen av Sparbanken, SL, Kungsängen, Telia, osv.)
  – The introduction of substitutes to cash (Swish)
# THE PAYMENT SERVICE SWISH IS A SUBSTITUTE TO CASH

<table>
<thead>
<tr>
<th>Date</th>
<th>Providers</th>
<th>Users</th>
<th>New Users Each Month</th>
<th>Monthly Transactions Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>September 26, 2014</td>
<td>Danske Bank, Handelsbanken, Länsförsäkringar, Nordea, SEB, Skandia, Sparbanken Syd, Sparbanken Öresund och Swedbank och Sparbankerna.</td>
<td>1.6 million users</td>
<td>130,000</td>
<td>1.1 Billion SEK per month</td>
</tr>
<tr>
<td>May 12, 2015</td>
<td>Danske Bank, Handelsbanken, ICA Banken, Länsförsäkringar, Nordea, SEB, Skandia, Sparbanken Syd, Sparbanken Öresund och Swedbank och Sparbankerna.</td>
<td>2.6 million users</td>
<td>222,000</td>
<td>2.6 Billion SEK per month</td>
</tr>
<tr>
<td>February 11, 2016</td>
<td>Danske Bank, Handelsbanken, ICA Banken, Länsförsäkringar, Nordea, SEB, Skandia, Sparbanken Syd, Sparbanken Öresund och Swedbank och Sparbankerna.</td>
<td>4 million users</td>
<td>113,000</td>
<td>4.8 Billion SEK per month</td>
</tr>
</tbody>
</table>

Source: www.getswish.se
TIPPING POINT

• We expect a slow decrease of the use of cash – unless critical events lead to a more rapid development.
  – The bankruptcy of Panaxia (cash in transit service company) led to lost trust in cash and increased fees for cash services as the competition decreased.
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    • Critical test of the system – will it succeed or not? This will affect credibility.
    • Banks and merchants decide to stop accepting cash before the introduction of new bills and coins in order to avoid work and potential problem related to this event.
  – Banks and merchant activities aiming at reducing the use of cash in Sweden (Tryggare rörelsen av Sparbanken, SL, Kungsängen, Telia, osv.).
  – The introduction of substitutes to cash (Swish).
Many indicators show that Sweden is in the middle of a tipping point where the decrease of cash is strong

- More bank offices are not offering cash handling services
- More merchants are not accepting cash – which is possible
- More consumers turn to alternatives to cash
- If more and more payers and payees act to stop using cash there will be a reduction of the benefits with cash and a self-reinforcing spiral toward a cashless society can be set in motion
IN THIS TIPPING POINT; INTEROPERABILITY OF CASH IS DECREASING, WHICH MAKES CASH LESS ATTRACTIVE.
THE LEGAL SITUATION OF CASH

• Central bank law\(^1\) stipulates that cash is legal tender and should be accepted by those receiving a payment.

• Commercial law (Avtalsrätten) states that two parties – a merchant and a consumer – can enter an agreement where the central bank law is set aside.
  
  – If a store has a sign saying that cash is not accepted as a way to pay in this store, the consumer is assumed to have entered this agreement if he/she steps into the store and wants to buy something.

• If should be noted that this situation has not been tested and tried in the Supreme Court of Sweden and we are therefore not entirely certain on this.

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ACTORS IN THE PROCESS TO A CASHLESS SOCIETY

• Government/authorities and consumers have potentially strong power to influence the development of the use of cash use but it is in practice banks and merchants that drives the process.

• Merchants, banks and card companies are likely to be the main winners from a transition to a cashless society.

• The losers will be industries that has business services connected to cash (cash-in-transit services, cash registers, ATM-machines, etc.) and consumers who depend on cash to make payments and/or to receive money.
The Government has the following objectives for cash handling in the society:

- **Everybody in the society should have access to basic payment services.** It is primarily the market that should provide such services and the Government should oversee this. The responsibility of the state should only cover those towns and areas where basic payment services are not provided by the market.

- **Companies, organizations and persons should have good accessibility to services like withdrawals and deposits of cash.**

- **The state has a responsibility for these services if the market does not provide them.**
THE ROLE OF SVERIGES RIKSBANK IN CASH HANDLING

• The Riksbank:
  – Does not govern how much cash is in circulation in society; this is instead determined by demand from the general public.
  – The Riksbank is responsible for providing Sweden with banknotes and coins. The Riksbank's tasks include
    • issuing banknotes and coins
    • destroying worn-out banknotes and coins
    • redeeming invalid banknotes

• Printing cash (SEK) is outsourced to a private company

• The banks' cash depots and cash-in-transit services provide society with cash
  – The Riksbank issues cash to banks and bank-owned companies. Acting together, the five largest banks have formed Bankernas Depå AB (BDB) to provide cash to society. When cash is needed by society, BDB collects it from the Riksbank. The cash is then transferred from BDB to the banks and the retail trade by means of cash-in-transit services. ATMs, bank accounts and the retail trade provide the public with access to cash.
  – When the cash becomes worn out, it is returned (via the banks, the retail trade and cash-in-transit services) to BDB, which then returns it to the Riksbank for destruction.

• The Riksbank formed the Cash Handling Advisory Board in 2006. The Cash Handling Advisory Board is a forum for the discussion of issues in the field of cash handling in society.
Ingves pressar bankerna om kontanter

Allt färre bankkontor hanterar kontanter, trots att många fortfarande behöver den tjänsten. Det är inte rimligt, skriver Riksbankens chef Stefan Ingves på onsdagens DN Debatt där han kräver att bankerna tar ansvar för kunderna.

Antalet kontanthanterande bankkontor har halverats den senaste fem åren, skriver Ingves, och under den perioden har över 150 kontor stängts helt. Han konstaterar att många – allt från privatpersoner till företag – upplever det som ett problem, inte minst att sätta in.

Med hänvisning till den pågående betaltjänstutredningen kräver Ingves att bankerna tar ansvar för problemet. Han föreslår ett lagkrav på en rimlig nivå för människors tillgång på bankkontor med kontanter, inte minst äldre och glesbygdsboende påverkas av bristen.

Eftersom banker fungerar som ett slags mellanhand i gränslandet hushåll, näringsliv och offentlig sektor är de utsatta för särskilda risker. För dessa har bankerna försetts med den så kallade insättningsgarantin som försäkrar majoriteten av kundernas kapital.

Garantin är naturligtvis en trygghet också för småsparare, men även bankernas verksamhet skyddas av den. ”En rimlig motprestation är att bankerna säkerställer att deras kunder kan betala och ta betalt på ett någorlunda enkelt sätt”, skriver Stefan Ingves.

The Governor Sveriges Riksbank Stefan Ingves is arguing that banks should provide cash handling services

(www.dn.se on March 16, 2016)
A CASH REBELLION IN SWEDEN

• The companies in the cash handling system (cash-in-transit service companies, guard companies, etc.) has launched a campaign arguing that cash must remain in Sweden. It is led by the former chief of police Björn Eriksson.

• They say that banks promote a cashless society simply because they would earn higher profits if cash is replaced by electronic services.

• They argue that cash must be kept since: they guarantee integrity for persons; they reduce segregation in our society; smaller companies and people in rural areas are dependent on cash; the payment system would be more vulnerable if cash disappears; and electronic money tend to increase debt and poor financial control by consumers.

http://www.kontantupproret.se/
ARGUMENTS AGAINST A CASHLESS SOCIETY

• **Efficiency**: Cash is the most efficient payment service for low-value payments.

• **Integrity**: Many do not want all payments to be traced (No Big Brother society!)

• **Access**: Not all will be able to access and use card and/or mobile payments – what will happen to homeless people, temporary immigrants, those without bank accounts and/or mobile phones?

• **Effects / implications**:  
  – There are questions whether crime will be reduced or increased if cash disappears? Some say it will increase.  
  – There are many – including journalists – arguing that a cashless society only would benefit banks and card operators.  
  – Some argue that a cashless society will create unemployment since some of the cash-related jobs will disappear. There are business models that will fail.  
  – A 100 percent electronic payment system (including mobile payment services) may be vulnerable. What if systems for electricity and/or Internet breaks down?
CRITICAL CHALLENGES ON THE ROUTE TOWARDS A CASHLESS SOCIETY

• To create reliability and trust in new services that substitute cash
• To develop emergency plans for a payment system without cash
• To develop business models and business systems that provide potential business opportunities and possibilities for entrepreneurial firms and competitive services
• To realize high interoperability for new services
• To make sure laws, regulations, public procurement, governmental support etc. lead to open and competitive markets
• To have transparent plans and ideas for how societal gains from an improved payment system are shared and invested
• To engage consumers in the change process
SOME POSSIBILITIES

• Invest in infrastructure for electronic banking – payments, savings and loans – with the central bank as a key actor. Make electronic accounts for all the backbone of the system. Also include features as identification, security, speed, availability, costs/fees, easiness in this process.

• Use public procurement to build demand for advanced payment services that can substitute cash. And make sure it includes services for all (incl. elderly, unbanked, etc.).

• Make sure actors – banks, card operators, payment service providers, merchants, consumers, etc. – have incentives to reduce the use of cash.

• Ensure a level playing field for payment services – each service (cash, cards, mobile payment services, etc.) should stand on it’s own feet.
CONCLUSIONS
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• The development in Sweden has a long tradition from the middle of the 20th century where actions and cooperation between critical actors have promoted electronic payment services.
  – The backbone of this system is bank accounts into which wages and salaries are paid.
  – The last years show a strong substitution effect where mobile payment services – like Swish – replace cash payments.

• Politicians have generally left the development of payment services to the market, i.e. it is banks, card operators, payment receivers, payment service providers, telecom operators, automated clearing houses, payers, etc. that determine the development of the system.

• Sweden may well become a cashless society, but not before the year 2030. The actual use of cash, however, can become marginal in 5-10 years, i.e. after 2020.
  – Sweden is in a "tipping point" in a slow decrease in the use of cash is turning into into a quicker decrease.

• Consumers put high trust in the payment system and its actors which in combination with a strong technology-interest among Swedes lead to a willingness to use electronic payment services.
THANK YOU!

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