The Economic Impact of Interchange Fee Regulation in the UK

Final Report

28 June 2013
Headline findings and impacts for the UK if interchange fee regulation is introduced:

- In Spain and Australia the regulation of interchange fees (IFs) resulted in a transfer of costs from retailers to consumers. Retailers’ costs fell as they paid lower merchant service charges (MSCs), but this cost reduction was not passed on to consumers in the form of lower retail prices. Consumers ended up paying higher cardholder fees and interest charges as issuers sought to make up for reduced revenues from IFs.

- It is estimated that the introduction of IF regulation in the UK would result in:
  - A reduction in card issuers’ revenues of up to £2.4 billion.
  - An increase in cardholder fees of up to £11 per year for debit cards and £25 per year for credit cards.
  - A reduction in retailers’ costs of up to £2.2 billion. This saving would not be passed on to consumers.

- Even if retailers passed on these savings to consumers, prices would fall by only £0.003–£0.08 per debit card transaction and £0.40–£0.59 per credit card transaction. Small businesses could also see their card acceptance costs rise, potentially distorting competition in favour of larger firms.

- Interchange regulation in the UK could also have wider impacts across the economy. These include:
  - Impeding the recovery in bank lending.
  - Creating financing problems for small businesses and the self-employed.
  - Increasing uncertainty in monetary policy.
  - Causing problems for the implementation in Universal Credit and wider financial inclusion efforts.
  - Adverse consequences for R&D and Innovation.
  - Negative consequences for the UK’s e-commerce industry.
This report has been commissioned by MasterCard from Europe Economics, and was produced in conjunction with Professor Sheri Markose of the University of Essex. The study assesses the impacts of introducing interchange fee (IF) regulation charged by card issuers to acquirers in the UK. In the box above we present the key points made in this report, followed by a comprehensive summary of each section.

Interchange Fees and the Four Party System

*The importance of cards in the UK*

The increased use of digital money in the place of cash has been of significant benefit to society. The advantages of digital money include:

- greater efficiency, since they are generally a cheaper and faster payment method than cash;
- greater convenience, speed and security than cash;
- increased transparency through recorded transactions, which help to prevent fraud and tax evasion, and thus counteract the effect of the underground economy.

The UK is one most the most advanced economies with respect to plastic card use. Migration away from cash and cheques resulted in card payments accounting for 74.7 per cent of the value of all retail expenditures in December 2012.

The key development in the last decade in the UK payments industry has been the increasing importance of debit cards. Of the 12 billion card transactions in 2011 in the UK, credit cards accounted for about 2 billion of them while debit card purchases number 10.18 billion. In value terms, in 2011, £527 billion of the total value of about £683 billion card purchases were debit card purchases.

Moreover, the credit card industry has been held back by recent tight regulatory capital requirements associated with credit card loans and the deleveraging of the household sector, diminishing growth in both the supply and demand sides of this industry.

*Interchange Fees and Merchant Service Charges*

Interchange fees (IFs) are paid by acquiring banks to card issuers every time a payment card is used to make a purchase. They serve partly to compensate issuers for the higher risks and costs they entail for the commensurate benefits that merchants receive from accepting electronic payment (in the case of credit cards, the payment guarantee against fraud and cardholder default, the free-funding period, and the processing of incoming transactions). At the same time, IFs serve to balance the demands of consumers and merchants, so as to maximise the number of transactions, but also to allow issuers to invest in innovation, security, efficient payments administration, etc.

Merchants pay a fee to acquirers known as the merchant service charge (MSC), of which interchange is one component. The MSC covers the provision of services such as connectivity to the card network, terminal hardware and software, customer support and so on.

Figure 1 summarises the fees and charges in a four-party system. Besides providing the payment service, issuing banks give cardholders additional benefits, such as loyalty rewards, cash-back or travel insurance. The latter pay a combination of cardholder fees, interest rates and charges in return. Interchange therefore maximises market participation and utilisation of the payment system by both consumers and merchants.
As yet, interchange fees have not been subject to per se price regulation within the UK. However, the Office of Fair Trading (OFT) has been relatively active in this field during the past decade. As part of its ongoing investigation, it has analysed evidence and market data relating to the interchange fees of Visa and MasterCard, however it has not made any finding of an infringement of competition law and has not issued a Statement of Objections to any of the parties under investigation. This investigation is currently suspended pending the outcome of an appeal by MasterCard to the European Court of Justice.

Past experiences regulating interchange fees

The two most extensive interventions took place in Australia in 2003 and in Spain in 2005 when the respective regulatory authorities introduced caps on interchange fees.

The Spanish experience

In December 2005, Spanish card networks and merchants reached an agreement by which yearly caps were set on IFs with the objective of progressively lowering MSCs. Consumers were intended to be the main beneficiaries of the policy, with lower IFs translated into lower costs to merchants, through lower MSCs. The latter reduction would be passed on to consumers as lower retail prices and higher quality of products and services available. In this way, the cap on IFs was intended to transfer surplus away from monopoly card issuers to consumers and society as a whole.

Although the reduction in IFs did translate into lower MSCs, no evidence was found of it having been passed through by retailers in the form of lower prices. What is more, as issuing banks saw their revenues fall due to lower income from IFs, they raised cardholder fees and reduced benefits in order to compensate for the lost income. In addition, average interest rates were found to have increased during the time the cap was in place.

The Australian experience

In 2003, the Reserve Bank of Australia’s (RBA) capped IFs on four-party credit cards by reducing them from 0.95 to 0.55 per cent per transaction, and prohibited no-surcharge rules. The main goal was to induce consumers to use debit cards instead of credit cards as the cost of the latter payment method increased. Also, merchants were intended to be the main beneficiaries of the regulatory intervention through lower
MSC and a more transparent market, which would put them in a better, more informed, position when negotiating with acquiring banks.

However, as issuing banks suffered from a reduction in revenues from IFs, they responded by increasing the level of other fees and reducing cardholder benefits. Moreover, the number of merchants imposing a surcharge increased significantly, with the level of surcharges being greater than that of MSCs.

RBA expected the decrease in IFs to result in a reduction of MSCs, to be passed through to consumers as lower prices, thanks to “vigorous competition” at the retail level. However, no evidence was found neither of a reduction in retail prices nor of an improvement in the quality of products.

Potential impacts of interchange regulation in the UK: Scenario analyses

We model the impact of regulating IFs in the UK.

Our starting point is to calculate the approximate revenues for issuers and acquirers for the current levels of IFs and MSCs in the UK. Our estimated IF revenues for issuing banks are £2,300m, while UK merchants paid £3,221m in card service charges to acquirers, so that the ratio of IF revenues to MSC revenues is currently 71 per cent. This confirms the 2012 ratio estimated by the OFT as opposed to the BRC ratio of 90 per cent. This ratio shows a substantial decline when compared to the 1998 HMT study, which estimated the MSC for the then average transaction value of £50 to be about 86 per cent.

To model the impact of a cap, we estimate the difference between issuing banks’ current IF income and their IF income if fees were regulated. We then use data from Spain to estimate the extent to which issuing banks would be able to recoup lost interchange revenue through higher cardholder fees, and the extent to which acquiring banks would pass through the saving in interchange fees in the form of lower MSCs.

We studied the following three scenarios.

Table 1: Summary of scenario analyses

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Debit IF</th>
<th>Credit IF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scenario 1</td>
<td>£0.04</td>
<td>0.30%</td>
</tr>
<tr>
<td>Scenario 2</td>
<td>0.20%</td>
<td>0.30%</td>
</tr>
<tr>
<td>Scenario 3</td>
<td>0.00%</td>
<td>0.00%</td>
</tr>
</tbody>
</table>

Conclusions from the Spanish experience

In the Spanish case, the progressive cap on IFs led to a 40 per cent fall in IF revenues for issuers in comparison to the pre-regulation revenues. MSC revenues fell by 26 per cent, which leads to the conclusion that the fall in the latter revenues for acquirers as a proportion of the reduction in issuers’ revenues from IFs was 65 per cent over the period.

Furthermore, IFs per transaction fell by nearly 70 per cent as a result of the cap, while MSCs per transaction were reduced by 62 per cent. This implies a pass-through rate from IFs to MSCs of 90 per cent, on a per transaction basis, over the period 2004 to 2010.

Conclusions from the scenario analyses

The fee cap options examined would reduce issuing banks’ interchange revenues between £1 and £2.5 billion. On the basis of the Spanish experience, although this would reduce MSCs by £1.4 to £2.2 billion, it would also increase fees paid by consumers by between £1 and £2.5 billion pounds. The average annual fees for debit cards would increase by between £0.33 and £10.53, depending on the scenario, while average credit card fees would increase by either £16.84 or £24.56. As in the case of Australia, one could expect
the annual fees for different types of cards, i.e. rewards-based cards, premium cards, etc., to be affected in different ways.

If the reduction in IFs and MSCs were to be fully passed through to consumers by means of lower retail prices, the impact on the price paid per transaction for each scenario would be:

Table 2: Comparison of hypothetical fall in prices given full pass-through under scenarios 1-3

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Fall in prices of debit transactions</th>
<th>Fall in prices of credit transactions</th>
<th>Relative fall in prices in debit + credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scenario 1</td>
<td>£ 0.04</td>
<td>£ 0.40</td>
<td>0.20 %</td>
</tr>
<tr>
<td>Scenario 2</td>
<td>£ 0.003</td>
<td>£ 0.40</td>
<td>0.14 %</td>
</tr>
<tr>
<td>Scenario 3</td>
<td>£ 0.08</td>
<td>£ 0.59</td>
<td>0.32 %</td>
</tr>
</tbody>
</table>

Potential impacts of interchange regulation in the UK: Additional risks

Besides the modelled impacts on issuers, acquirers and card users, an interchange fee cap could potentially also lead to a number of additional, more complex, adverse consequences in the UK.

Retarding the Recovery in Bank Lending

The impacts on acquiring institutions are likely to be limited since reductions in IFs are near-precisely offset by reductions in MSCs. In respect of issuers, there is a revenue effect that in direct terms is transitional but material. Such an effect on revenues is likely to have wider impacts for the UK economy. Any decrease in issuers’ revenue streams is likely to decrease lending, as banks that are less profitable will take longer to rebuild their currently distressed balance sheets, and in the meantime will have less available to lend, while increases in the uncertainty of their revenue streams could also potentially slow the recovery in lending growth.

Financial Problems for Small Businesses and the Self-Employed

One important feature of the current crisis has been a fall in lending to businesses across the economy. As traditional bank lending channels have dried up, the importance of credit card lending has, if anything, increased. Small businesses, and the self-employed in particular, are more likely to be reliant on business credit cards as a source of finance than are larger businesses, which typically raise more of their capital through bank loans or corporates bonds.

To the extent that an interchange cap increases the cost of holding cards and reduces credit card use, it would also therefore constrain finance to small businesses in particular.

Uncertainty in Monetary Policy

The relationship between changes in broad money and changes in nominal GDP depends (either via the money multiplier or via the velocity of circulation), inter alia, on how widespread is the holding of credit cards and how they are used. If fewer consumers have credit cards, then (other things being equal) for a given monetary base, nominal GDP will be expected to be lower.

Quantitative easing (QE) involves the Bank of England purchasing government bonds with newly-created money. This process expands the monetary base. If the relationship between the monetary base and nominal GDP were stable, then such an expansion in the monetary base would have a predictable effect upon nominal GDP. Regulation that has the effect of reducing credit card use (as the Spanish experience suggests an interchange fee cap might do) could affect the relationship between QE and nominal GDP. This
could make it very difficult for the Bank of England to calibrate the appropriate amount of QE to engage in (a difficult task even under ideal condition), and mean that the medium-term impacts were unpredictable.

Problems for the Implementation of Universal Credit

As part of its welfare reform programme, the UK government is introducing Universal Credit to replace six existing benefits. The changes will mean that claimants will receive one monthly payment, paid electronically into a bank account in the same manner as a monthly salary, and support for housing costs will go directly to the claimant in their monthly payment. We understand that in combination with a Basic Bank Account, prepaid cards now constitute a viable and cost effective alternative.

Because Universal Credit will be paid into bank accounts, to the extent that an interchange fee cap would increase charges to card users, this would increase costs to claimants and eliminate the hoped-for option of offering a bank account at low or no cost for these purposes, as is currently the case with prepaid cards. Also, to the extent that an interchange cap causes card users to withdraw larger amounts of money in a smaller number of withdrawals, this may affect the ease of claimants’ adjustments to the new system.

Adverse Consequences for R&D and Innovation

The fall in IFs revenues for issuing banks is expected to have a negative impact on innovation through two mechanisms. First, as issuers see their revenues fall, provided they do not manage to recoup them through other means, they would have fewer resources available to invest in R&D and innovation. The lower investment would mean that the development of new payment technologies (e.g. for e-commerce), improved security and fraud prevention in the UK would slow down progress in the field.

Second, as illustrated in the Spanish case, regulatory intervention may increase uncertainty for players in the market, in particular with regards to future regulatory interventions. Such perceived uncertainty may have a negative effect on innovation in the market.

As a result, the most direct consequence on consumers from a reduction in investment for innovation is that they may perceive that issuers are failing to develop new payments technology, improve security and protect consumers (and retailers) from fraud. This may lead consumers to associate card payments with reduced functionality, higher risk, or non-decreasing risk, and thus choose not to switch to plastic cards. In this way, the displacement of cash with cards would be negatively impacted because increasing security of the system is seen as key to the adoption of cards as a payment method. In relation, a greater use of cash is associated with boosting the shadow economy because cash payments are anonymous and are not as easily traceable as card payments, therefore making it easier to participate in the underground economy.

Conclusions

The introduction of interchange fee regulation across the European Union as a means to create a Single Payment Area would imply, based on the Spanish experience:

- Losses in issuers’ revenues of up to £2.5 billion.
- Issuers could aim to recoup such revenue loss by raising cardholder fees by up to £11 for debit cards and £25 for credit cards. A fall in funds available to invest in the security of the system.
- A reduction in the incentives to innovate for four-party card issuers.
1 Introduction

This report has been commissioned by MasterCard from Europe Economics, and was produced in conjunction with Professor Sheri Markose of the University of Essex. MasterCard asked Europe Economics to consider the potentially adverse effects in the UK of regulating interchange fees paid by acquiring banks to card issuing banks in the UK, in the light of the impacts experienced when interchange fee caps were introduced previously in Spain and Australia.

The report is structured as follows:

- Chapter 2 discusses interchange fees and their role in the credit and debit cards industry.
- Chapter 3 examines the regulation of interchange fees internationally.
- Chapter 4 details the impacts of caps on interchange fees in Spain and Australia.
- Chapter 5 estimates the effects of interchange fee regulation in the UK.
- Chapter 6 examines possible wider economic effects resulting from regulating interchange fees.
- Chapter 7 presents the conclusions.
2 Interchange Fees and the Four Party System

In this section, we describe the structure of payment card networks and analyse the role of interchange fees in this structure.

2.1 The Role of Digital Money

The increased use of digital money in the place of cash has been of significant benefit to society. The advantages of digital money include:

- greater efficiency since they are generally a cheaper and faster payment method than cash;
- greater convenience, speed and security than cash;
- increased transparency, through recorded transactions which help to prevent fraud and tax evasion, and thus counteract the effect of the underground economy.

While consumers enjoy the convenience of widely accepted debit cards that provide easy access to their deposit accounts and obviate the use of cash, credit cards also have a number of advantages to cardholders and retailers (sometimes referred to hereafter as “merchants”). Credit cards, once authorised, offer revolving credit to card holders, enhancing the retail experience for consumers by combining ease of payments with increased consumer purchasing power. Further, credit card users enjoy insurance against faulty goods and non-fulfilment of services by merchants (as in travel and hotel bookings) under the umbrella of the UK Consumer Credit Act.¹ There is also limited liability to the credit card account holders which is protection against fraudulent access to card holder funds.

Likewise, there are considerable advantages to merchants for accepting credit card payments and to credit card issuers. The latter include increased revenues from sale of goods on credit without incurring the full credit risk from card users who may default on repayments, see Zywicki (2010). Credit card issuers are known to expend large sums of money to attract and retain consumers, as this opens the door to other revenue streams. Interest rate revenues accrue to issuing banks on outstanding credit card balances that debit card users do not provide.

2.2 Card Payments in the UK

The UK is one of the most advanced economies with respect to plastic card use. Migration away from cash and cheques resulted in card payments accounting for 74.7 per cent of the value of all retail expenditures in December 2012.² This is 2.9 per cent above the level recorded in December 2011.

The two main four-party card schemes, Visa and MasterCard are the predominant brands in the UK, with competition from other providers including American Express, PayPal, JCB and China UnionPay. The key development in the last decade in the UK has been the increasing importance of debit cards. The number of credit cards issued (Figure 2.1) peaked at the end of 2004 at about 70 million cards and has since fallen

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¹ Note by Section 75 of the Consumer Credit Act, if consumers pay for items between £100 and £30,000 on a credit card the card issuer can be jointly liable with the retailer if something goes wrong with the transaction.
to about 50 million in 2011. In the same period from 2005 to 2011, debit card numbers have increased to 80 million, accounting for about half of all the 160 million cards issued in the UK.

Figure 2.1: Number of existing UK payment cards, in million

![Chart showing the number of existing UK payment cards from 2001 to 2011. The chart indicates a steady increase in the number of cards issued, with a peak of approximately 160 million in 2011. The chart is divided into two sections: Credit+Charge and Debit.](source)

This trend is also reflected in the volume and value of card transactions (see Figure 2.2 and Figure 2.3). Of the 12 billion card transactions in 2011 in the UK, credit cards accounted for about 2 billion of them while debit card purchases number 10.18 billion. In value terms, in 2011, £527 billion of the total value of about £683 billion card purchases were debit card purchases. The average transaction value (ATV) for debit cards was approximately £51.75. Although the number of credit cards issued has fallen, the total value of credit card purchases grew by 6 per cent from 2010 to 2011 and with it the ATV of credit cards, which has risen to £67.64 from £59.12 in 2010. On the other hand, credit cards have been held back by recent tight regulatory capital requirements associated with credit card loans and the deleveraging of the household sector, retarding growth in both the supply and demand sides of the credit card industry. In December 2012, approximately 59 million credit cards were in issue in the UK and 66 per cent of these were active. The number of cards in issue has fluctuated around this figure since late 2010 following a decline of 10 million between January 2009 and December 2010. The average number of credit cards per account has remained at approximately 1.2 between January 2009 and December 2012.³

³ All statistics in this paragraph are taken from the British Bankers Association (February 2013) “Credit Card Monthly Release Tables - December 2012”.
Although the share of credit cards has fallen relative to debit cards, the number of purchases using credit cards has increased. As shown in the figure below, the number of credit card purchases has exhibited an upward trend since December 2008. During 2012, an average of 6 million transactions per day were made using a credit card and this led to total annual credit card spending of £136bn in 2012, a two per cent increase on 2011.4

4 All statistics in this paragraph are taken from British Bankers Association (February 2013), “Credit Card Statistics December 2012”.
However, the importance of credit cards in the UK should not be understated. E-commerce is an increasingly important section of the economy, and credit cards accounted for 51 per cent of on-line spending in 2011. The figure below shows the growing trend in internet card purchases. In 2011, 37.6 million adults purchased goods and services over the internet, equating to 75 per cent of the population. This involved 836 million card payments being made online by UK consumers with a total spend of £63 billion. These online payments accounted for 8.5 per cent of purchases made using UK cards. Of these payments, 56 per cent were made using debit cards and 44 per cent using credit or charge cards. The average value of a consumer internet debit card transaction was £65.86, and for credit or charge card transactions it was £88.12.

Moreover, the fall in the share of credit cards may reflect that, although credit card lending is lucrative in low default, this is not the case when the regulatory capital cost of funding credit card loans has gone up, along with high defaults on outstanding credit card loans in the recent period. It has not been possible to untangle the impact of the 2007 recession on the demand and supply of credit card use and also to ascertain the extent to which the credit card share will stabilize in the UK, with its advanced card penetration and growing e-commerce. With growing internet card not present purchases, the advantages of credit cards in this context may counter some of the retrenchment in credit card use seen, especially during the 2007/2008 recession.
2.3 Network structure

Payment networks are the textbook case of what economists refer to as “two-sided markets”.\(^5\) So-called “two-sided markets” are characterised by: (i) the presence of one or more intermediaries through which two sets of agents interact; and (ii) circumstances in which the decisions of one agent affect the other agent, typically through an externality.

Both of these characteristics apply to payment networks because consumers must use the payment network and merchants must accept payment through the network if it is to be successful. In this context, consumers clearly value the participation of merchants because the payment network is more valuable to the consumer where it is widely accepted. Similarly, merchants value the participation of consumers because the return on their investment in the payment network is greater where more transactions are processed through the network.

The discussion above points towards one possible structure for a payment card network: a three-party system. In this type of ‘closed’ system, the payment card network operator liaises with merchants and consumers directly and is responsible for in addition to processing transactions, issuing cards and enlisting merchants to accept those cards.

Three-party systems are, however, less widespread than are four-party systems. A four-party system consists of the following actors: an issuing bank; a cardholder; a merchant; and an acquiring bank. In this type of ‘open’ system, there is a greater division of labour than is the case in three-party systems. The payment network is an intermediary that liaises with issuers and acquirers but does not have direct contact with consumers or merchants.

2.4 Interchange fees

The process through which a credit card transaction initiated by a cardholder is settled in a four-party system consists of the following eight stages:

1. The consumer’s bank (the issuer) issues a card to the cardholder.
2. The cardholder initiates a transaction by purchasing a good or service from the merchant.
3. The merchant submits a request for authorisation to its acquiring bank (the acquirer).
4. The acquirer submits the transaction to the issuer for verification and authorisation.
5. The issuing bank authenticates the transaction and the acquirer provides confirmation to the merchant.
6. The consumer completes the purchase with the merchant.
7. The issuing and acquiring banks settle the transaction.
8. The cardholder’s account is debited by the issuer for the good or service that was purchased from the merchant.

Interchange fees are included in the seventh stage of this process where the issuer subtracts a per transaction fee before it pays the acquirer.\(^6\) Interchange fees exist because, in a four-party payment system, issuers assume greater risks and costs than do acquiring banks. The interchange fee serves partly to compensate the issuers for these higher risks and costs they entail for the commensurate benefits that merchants receive from accepting electronic payment (in the case of credit cards, the payment guarantee against fraud and cardholder default, the free-funding period, and the processing of incoming transactions). At the same time, IFs serve to balance the demands of consumers and merchants, so as to maximise the

\(^5\) We note that this use of the term “market” is separate from the definition of “relevant markets” for competition law purposes.

\(^6\) As three-party systems do not involve issuers and acquirers, interchange fees are not present in these systems.
output of the number of transactions, but also to allow issuers to invest in innovation, security, efficient payments administration etc. The level of this fee can be the outcome of bilateral negotiations between an issuer and an acquirer, or can be set by the network at a ‘default’ or by banks at a ‘multilateral’ level in the absence of bilateral negotiations.

As shown in Figure 2.6, interchange fees are not the only fees paid in a four-party system. Merchants pay a fee known as the merchant service charge (MSC) to acquirers, of which interchange is one component. The MSC covers the provision of services such as connectivity to the card network, terminal hardware and software, customer support and so on. The economic function is to allow acquirers to benefit from the acceptance of cards by their customers. The level of this charge is the outcome of a negotiation between merchants and acquirers. Figure 2.6 also illustrates exchanges between the issuing bank and the cardholder. Besides providing the payment service, issuing banks give cardholders additional benefits, such as loyalty rewards, cash-back or travel insurance. In return, cardholders pay a combination of fees (e.g. annual card fees), interest rates and charges. Interchange maximises market participation and utilisation of the payment system by both consumers and merchants. Without interchange, merchants would receive the benefits from issuers’ services without paying for them, resulting in a shortfall for issuers that would have to be picked up elsewhere.

Figure 2.6: Fees and charges in a four-party system

Table 2.1 below summarises IF rates for debit and credit cards for 2011. Comparing the IFs in Table 2.1 with those reported in the HMT review7 in 1998, the average credit card interchange fee was set at 1.1 per cent while it now ranges between 0.88 to 0.9475 per cent. In contrast, the debit card IF estimate for 1998 was £0.038.

Table 2.1: IF Rates for Consumer Cards

<table>
<thead>
<tr>
<th>Card Type</th>
<th>2011</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Debit cards</strong></td>
<td></td>
</tr>
<tr>
<td>Visa</td>
<td>£0.09</td>
</tr>
<tr>
<td>MasterCard</td>
<td>£0.07</td>
</tr>
<tr>
<td><strong>Average Debit IF</strong></td>
<td><strong>£0.08</strong></td>
</tr>
<tr>
<td><strong>Credit cards</strong></td>
<td></td>
</tr>
<tr>
<td>Visa</td>
<td>0.924 %</td>
</tr>
<tr>
<td>MasterCard</td>
<td>0.971 %</td>
</tr>
<tr>
<td><strong>Average Credit/Charge IF</strong></td>
<td><strong>0.9475 %</strong></td>
</tr>
</tbody>
</table>

Source: RBR and 2011 credit/charge card IF from MasterCard

2.5 Merchant Services and Merchant Service Charges

The merchant payment services sector in the UK in the early 1970's started out as a duopoly with Barclays as the sole acquirer for Visa and the Joint Credit Card Company (JICC) owned by Natwest, Midland Bank, Lloyds and RBS was the sole acquirer for Access, Eurocard and MasterCard. By 1989, this structure was well and truly over by spontaneous break up of JICC and inroads from Europe and US. In the 1989 Worldpay set up its UK division Streamline as the acquiring arm of NatWest and in 2002 it became wholly owned by the RBS Group. In the 1990’s Cooperative Bank and Alliance and Leicester through the Girobank Merchant Services entered into this sector. In June 2000, the US based NOVA Information Systems started a joint venture called euroConex with the UK operations of the Girobank Merchant Services. NOVA was taken over by US Bankcorp in 2001 and in 2006, Bankcorp launched the Elavon Financial Services with Elavon Merchant Services as the specialist merchant payment services division. In 2001, Lloyd’s TSB and First Data International set up Cardnet Merchant Services. Currently, Worldpay is the largest UK acquiring and merchant card services business and has 44 per cent industry share globally. This is followed by Barclaycard Business and Global Payments is ranked third in UK. The other larger acquirers are Cardnet and Elavon. Note in 2009, Elavon entered into an agreement with Santander to provide merchant services for its UK customers.

Merchant service charges, MSCs, reflect the costs relating to electronic payment and settlement guarantees for POS. The sector and size (volume and value) of the retailers’ POS transactions, the cost of anti-fraud measures and the period needed for settlement are the main drivers for merchant service charges. As the acquiring firms have to pay the IF to the card issuing banks, MSCs generally follow the size of the IFs for the type of card whether debit or credit, consumer or business/corporate and also the card not present scenarios for these.

As direct data on MSC is available mostly only in surveys done by the OFT and British Retail Consortium in 2010 and 2011, in the following we will rely on these sources. The recent Which? Super-complaint of 30 March 2011 and the July 2012 OFT response to this are also useful sources of information. Often, as in the BRC surveys, it is the costs to retailers for accepting payment cards that is surveyed and analysed. Some acquirers can include all the following under MSCs and hence for some retailers they are the only costs for accepting payment cards. In some cases all costs other than the first are not part of MSC and may be add-ons with other providers or done in-house by the retailer. The costs to retailers for accepting payment cards are:

- Transaction processing fees;
- Fees for charge-backs which are the funds returned to a consumer when a transaction is reversed when, for example, the delivered goods do not meet the consumer’s satisfaction;
- Overheads on terminals or chip and pin devices;
- Fraud monitoring and maintaining compliance with Payment Card Industry Data Security Standards (PCI DSS) to help prevent fraud, required by all the major card networks;
- Installation and running infrastructure to handle card payments, such as payment websites or call centres; and
- Staff training.

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As noted above in the case where the acquirers also provide EFTPOS\textsuperscript{11} terminals all of the above with perhaps the exception of staff training are included as MSC. Thus, MSC as a percentage of costs of card payments for retailers can vary considerably. The important point is what proportion of MSC is paid to the card issuer in IF. The OFT Report of July 2012 states that about around 70 per cent of the MSC is made up of the interchange fee that the acquirer pays to the card issuer. In contrast, as we will see below, the 2012 BRC Cost of Payment Collection Survey states that this is closer to 90 per cent.

These sources have found that there is considerable price discrimination between large and small retailers due to their relative power in the negotiations with acquirers. The overall acquiring business is not hugely profitable, as the majority of the turnover in POS is with large retailers who drive a hard bargain. The 2010 the BRC Annual Cost of Payment Collection Survey shows that on average UK merchants are charged £0.09 for debit card POS transactions while they pay £0.37 per credit card transactions. The British Banking Research Report for 2012 give estimates of MSC that range between £0.25 - £0.45 for debit cards for small retailers and is as little as £0.05 for large retailers. Typically for EMV compliant credit cards, MSCs can be as low as 0.8 per cent for large merchants, leaving no margin in excess of IFs. According a European Commission study quoted in Which? (2011), small retailers\textsuperscript{12} in Europe pay on average up to 70 per cent higher MSCs per transaction than larger merchants.

<table>
<thead>
<tr>
<th>Table 2.2: UK Merchant Service Charges 2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>Small Retailers**</td>
</tr>
<tr>
<td>Credit</td>
</tr>
<tr>
<td>Debit</td>
</tr>
</tbody>
</table>

Source: 2010 British Retail Consortium (BRC), Annual Cost of Payment Collection Survey
*UK Banking Research Report 2012

We also present below the July 2012 OFT’s estimates based on Which’s super-complaint data on payment fees, which include but are not limited to MSCs, that acquirers charge merchants for acquiring card transactions.

<table>
<thead>
<tr>
<th>Table 2.3: UK Merchant Service Charges 2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>Small Retailers/Highest</td>
</tr>
<tr>
<td>Credit</td>
</tr>
<tr>
<td>Debit</td>
</tr>
</tbody>
</table>

Source: Which! Super-complaint, 30 March 2011\textsuperscript{13}; Also given in July 2012 OFT Report Table C.1.

The most recent BRC Cost of Payment Collection Survey covered retailers that represent almost 60 per cent of UK retail sales annual turnover of £311 billion in 2012. The value of retail sales represented by that survey is £182 billion and they reported the cost of payment collection to be in the order of £797 million. This cost of payment collection works out to be 0.4 per cent of the value of retail sales - that is less than half a pence per £100 of retail sales. The BRC 2012 Cost of Payment Collection Survey reports that “the biggest single cost, which accounts for 81.74 per cent of total collection costs for retailers accepting cards, continues to be the Merchant Service Charge (MSC): within that cost the fixed element – interchange – accounts for over 90 per cent” (ibid, page 8). This leads to the following estimates for MSC for 2012.

---

\textsuperscript{11} EFTPOS stands for “electronic funds transfer at point of sale”. It is the system used to receive electronic payments used in Australian and New Zealand.

\textsuperscript{12} Which? (2011) gives the following classification: Small retailers typically have annual retail sales of less than £1 billion, for medium size ones this is in the range of £1 billion - £4 billion and large retailers have retail sales of over £4 billion.

\textsuperscript{13} http://www.which.co.uk/documents/pdf/payment-method-surcharges-which-super-complaint-249225.pdf
Table 2.4: UK Merchant Service Charges, BRC, Cost of Payment Collection Survey 2012

<table>
<thead>
<tr>
<th>Card Type</th>
<th>Average MSC% (Ad Valorem)</th>
<th>Average MSC £s</th>
</tr>
</thead>
<tbody>
<tr>
<td>Credit</td>
<td>1.04%</td>
<td>£0.38</td>
</tr>
<tr>
<td>Debit</td>
<td>0.32%</td>
<td>£0.094</td>
</tr>
</tbody>
</table>


On comparing the OFT figures for 2011 and those given in BRC Survey of 2012, it appears that the average MSC on debit card has come down from 11 pence to 9.4 pence which is a 15 per cent reduction and that for credit cards has come down by 22 per cent from 1.34 per cent to 1.04 per cent. In contrast, the 2012 BRC survey reports a 6.9 per cent increase in the cost of payments collection as a percentage of tender turnover which has cost retailers an additional £51.44 million. The implication that this is due to MSCs moving in line with IF increases is tenuous. When compared to the BRC estimates for 2010 given earlier, the 2012 BRC survey shows debit card MSC has gone up from £0.09 to £0.094 (a 4.4 per cent increase) and credit card from £0.37 to £0.38 (2 per cent increase). Note as what constitutes MSC in contracts with acquirers is highly variable both across retailers and across time, as discussed above, most surveys of MSC will be far from consistent. The BRC survey is not exempt from this.

2.6 UK policy background

- To date, interchange fees have not been subject to per se price regulation within the UK. However, the Office of Fair Trading has been relatively active in this field during the past decade. In September 2005, it ruled that the agreement between members of MasterCard UK Members Forum (MMF) on interchange fees infringed both Article 81(1) of the EC Treaty and the Chapter I prohibition in section 2 of the Competition Act 1998. In June 2006, the Competition Appeal Tribunal (CAT) quashed the OFT’s decision. In the meantime (February 2006), the OFT had launched an investigation against MasterCard’s new arrangements for setting fallback interchange fees that were introduced in November 2004, which is still currently suspended pending the outcome of an appeal by MasterCard to the European Court of Justice.

- To date, it has not made any finding of an infringement of competition law and has not issued a Statement of Objections to any of the parties under investigation.

14 In relation to 2007, the 2012 BRC survey states that the card merchant service costs for debit cards have risen by over 26 per cent and now account for 0.31 per cent of debit card turnover. The MSC on credit and charge cards has risen by 4.3 per cent.
3 Past experiences regulating interchange fees

3.1 Impacts of introducing a progressive cap on interchange fees in Spain\footnote{This sub-section draws from the findings presented in Iranzo et al. (2012) “The effects of the mandatory decrease of interchange fees in Spain”.

3.1.1 Background

Even before the intervention, Spain was characterised by having a lower level of use of credit and debit cards, in comparison to other European countries. In the Eurozone non-cash payment methods amounted to 21 per cent of total volume, while in Spain this figure reached only 17 per cent despite the fact that the ratio of POS terminals to total private consumption is similar. In 2010, the average number of transactions per capita in Spain was 46.73, considerably lower than the EU-15 average which was 90 transactions. In 2005, Spain also had the largest ratio of ATMs per inhabitant in Europe, with nearly double the number than in the more advanced European countries. Online commerce, or e-commerce, also grew significantly in Spain over the period in which fee caps were introduced, which may be a cause for an increase in the use of non-cash payment methods. Further, Spain, already characterised by a large underground economy, saw this expand as a consequence of the economic crisis.

The timing of the intervention, which capped IFs between 2006 and 2010, overlaps with the period in which the Spanish economy entered the global economic crisis. Figure 3.1 shows Spanish GDP growth, which peaked in 2006 at 4.08 per cent and continued at 3.48 per cent in 2007. Following the financial crisis, GDP growth plunged to -3.74 per cent in 2009, returning to positive figures two years later. For this reason, any conclusions in respect of the impacts of the cap need to bare this in mind.

\textbf{Figure 3.1: Annual GDP growth of Spanish economy}

\begin{center}
\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{figure3.1.png}
\caption{Annual GDP growth of Spanish economy}
\end{figure}
\end{center}

\textbf{Source: World Bank}

3.1.2 Intervention

The Spanish payment networks and merchant associations historically set their IFs collectively following a special authorisation granted by the Tribunal de Defensa de la Competencia (TDC).\footnote{Accordingly, IFs were}
set through negotiations led by the Ministry of the Economy and Competitiveness and the Ministry of Industry, Tourism and Trade along with the antitrust authority.

In May 2003, payment networks were requested to set such IFs according to the European Commission’s basic principles for EU-wide cross-border interchange fees set in the Visa July 2002 exemption decision, i.e. using a cost-based which in order to reflect operating and fraud costs. Consequently, in December 2003, the TDC cancelled the special authorisation which enabled the collective setting of IFs.

In December 2005, Spanish card networks and merchants reached an agreement coordinated by the Ministries of Economy and of Industry, Tourism, and Trade to progressively reduce IFs for the period 2006-2008. The agreement consisted of a mechanism which set yearly caps on IFs with the objective of progressively lowering the fees. Table 3.1 below shows the yearly caps for credit and debit cards.

<table>
<thead>
<tr>
<th>Issuing Bank Revenue</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>€</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0-100 m</td>
<td>1.40%</td>
<td>€ 0.53</td>
<td>1.30%</td>
<td>€ 0.47</td>
<td>1.10%</td>
</tr>
<tr>
<td>100-500 m</td>
<td>1.05%</td>
<td>€ 0.36</td>
<td>0.84%</td>
<td>€ 0.29</td>
<td>0.63%</td>
</tr>
<tr>
<td>&gt; 500 m</td>
<td>0.66%</td>
<td>€ 0.27</td>
<td>0.66%</td>
<td>€ 0.25</td>
<td>0.54%</td>
</tr>
<tr>
<td>Average</td>
<td>1.01%</td>
<td>€ 0.32</td>
<td>0.96%</td>
<td>€ 0.29</td>
<td>0.81%</td>
</tr>
</tbody>
</table>

Source: Iranzo et al. (2012) and Bank of Spain

The regulatory intervention ended in December 2010, giving Spanish card schemes the freedom to choose the default level of interchange fees, which are then exposed to competition in Spain. Although the intervention ended in 2010, average interchange fees have continued to fall, currently standing at average levels of 0.59 per cent for credit cards and € 0.22 per debit card transaction.

3.1.3 Impacts on card payments and the banking sector

The most direct result of the cap was a fall in revenues from IFs for issuing banks: in 2005 these amounted to € 1107.76 million while in 2010 they only reached € 609.18. Also, issuing banks’ share of revenue from cards (excluding interest income) fell from 20.8 per cent in 2005 to 18 per cent after the intervention.

One of the intended effects of the cap on IFs, which was to reduce merchant service charges (MSCs), was significantly, but not completely, realised. Iranzo et al. (2012) explain that one could expect acquiring banks not to pass through the full reduction in IFs to merchants in order to increase their own revenues and protect their margins by transaction. This, the authors argue, was especially true for small and medium sized enterprises (SMEs). Due to their lower sales volumes, SMEs only have limited bargaining, or buyer, power, which puts them at a disadvantage when negotiating MSCs and other charges with acquiring banks. In contrast, large merchants are better able to benefit during such negotiations as a result of their large sales volume.

The evidence shows that before the introduction of the cap, the average MSC remained at 1.52 per cent from 2002 to 2005, with falls in maximum MSCs being matched with increases in the minimum rate. In 2005, IFs averaged at 1.55 per cent. The former charge followed reductions in the latter throughout the regulatory period ending at 0.74 per cent in 2010, when IFs averaged at 0.64 per cent. (Shown in Figure 3.2)

16 The Tribunal de Defensa de la Competencia (TDC) was the decision-making body of the Spanish competition authority. After the latter’s restructuring in July 2007, it was replaced by the Council of the Comisión Nacional de la Competencia (CNC), the current competition authority.

17 Iranzo et al. (2012).
Past experiences regulating interchange fees

Although maximum and minimum MSC rates also converged during the regulatory period, their average level fell. Also, the degree to which the reduction in IFs led to a reduction in MSCs varied per sector. Consequently, the authors note that cross-transfers from issuing banks to acquiring banks only occurred in those sectors in which decreases in the maximum rate were not paired by increases in the minimum rate of MSCs.

Figure 3.2: Average Interchange Fees and Average Merchant Service Charges

The difference between the two rates was the largest during the first year, at 0.19 per cent, in which the cap was implemented. The same difference was lowest in 2009 at 0.04 per cent. Over the period of the intervention, IFs fell by 0.91 per cent and MSCs dropped by 0.78 per cent. In relative terms, IFs were reduced by 58.71 per cent when comparing the 2010 level to that in 2005. MSCs were reduced by 51.32 per cent. The authors found that minimum and maximum MSCs converged during the intervention period. This is evidenced by a difference of 2.24 per cent in 2005 and 0.94 per cent in 2010.

Table 3.2: Bank revenues in Spain in relation to credit cards

<table>
<thead>
<tr>
<th>Year</th>
<th>Revenues from MSCs Acquiring Bank (m €)</th>
<th>Revenues from IFs Issuing Bank (m €)</th>
<th>Surplus for Acquiring Bank (m €)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006</td>
<td>894.00</td>
<td>743.68</td>
<td>150.32</td>
</tr>
<tr>
<td>2007</td>
<td>911.84</td>
<td>813.50</td>
<td>98.34</td>
</tr>
<tr>
<td>2008</td>
<td>830.84</td>
<td>764.75</td>
<td>66.09</td>
</tr>
<tr>
<td>2009</td>
<td>737.71</td>
<td>701.28</td>
<td>36.43</td>
</tr>
<tr>
<td>2010</td>
<td>704.36</td>
<td>609.18</td>
<td>95.18</td>
</tr>
<tr>
<td>Total 2006-2010</td>
<td>4,078.75</td>
<td>3,632.40</td>
<td>446.36</td>
</tr>
</tbody>
</table>

Source: Own elaboration based on Bank of Spain data

Also, the regulation meant that acquiring banks began to make savings, as outlined in Table 9, as they did not pass on the full interchange reduction, in euro terms, to merchants. Over the five years, acquirers' total savings surpassed €446 million.

The authors also found that some acquirers increased fees charged to merchants for the installation of POS terminals. This increases the costs for merchants of accepting cards, which naturally impacts SMEs more severely than larger merchants as the higher costs are spread over a lower sales volume and value. As
argued by Evans and Mateus (2011), the higher costs borne by merchants are expected to have been fully transferred to consumers, especially in highly competitive sectors that experience constant returns to scale.

3.1.4 Impact on consumers

No impact on final prices

The intended effect of imposing a cap on interchange fees was that they would translate into lower prices of goods and services purchased by consumers, summarised below:

Lower IFs → lower MSCs → lower retail goods price and higher quality of product/service → increase in card transactions → transfer of benefits from monopoly card issuers to consumers and society

Consumers were intended to be the main beneficiaries of the policy, with lower IFs translated into lower costs to merchants, through lower MSCs. The latter reduction would be passed on to consumers as lower retail prices and higher quality of products and services available. In this way, the cap on IFs was intended to transfer surplus away from monopoly card issuers to consumers and society as a whole.

As reported in Iranzo et al. (2012), this chain of effects did not take place in Spain: although the reduction in IFs did translate into lower MSCs\(^\text{18}\), no evidence of it having been passed through to decreased prices was found by the study. The explanation given was that the reduction in the price per transaction would have been insufficient to justify a move in price points\(^\text{19}\). Also, the authors found no evidence of an improvement in the quality of products offered.

Higher cardholder fees

As issuing banks saw their revenues fall due to lower income from IFs, they raised cardholder fees and reduced benefits in order to compensate for the lost income. Annual fees for credit cards increased by 50 per cent by the end of the regulatory period, and those of debit cards rose by 56 per cent\(^\text{20}\).

Issuing banks experienced an increase in revenues from cardholder fees (annual issuance and renewal fees) of €855 million, from 1,116.7 million in 2005 to 1,972.5 million in 2010. The authors conclude that the cost to consumers in terms of annual fees increased by 50 per cent as a result of the Spanish regulation, amounting to €2.35 billion paid in increased fees over the course of the intervention\(^\text{21}\).

Higher Credit Card Interest Rates

Spanish consumers were unintentionally impacted by the lower IFs through higher credit card interest rates according to the following mechanism:

Lower IFs → lower income for issuing banks → increase in credit card interest rates → higher outstanding card debts despite reduction in volume of debt → decrease in consumer welfare

The authors found that average interest rates increased during the time the cap was in place, from 6.27 per cent in 2005 to 6.35 per cent in 2010. Revenue from interest rates is estimated by Iranzo et al. (2012) to have increased from €661.12 million to €959.37 million from 2005 to 2010.

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\(^\text{18}\) The degree of pass through between IFs and MSCs is studied in detail in the following subsection.

\(^\text{19}\) A price point is a retail price chosen at a strategic level with the aim of becoming more attractive to consumers, e.g. £4.99 or €0.99.

\(^\text{20}\) Iranzo et al. (2012) report that the average annual cardholder fee increased from €22.94 for credit cards and €11.12 for debit cards in 2005 to €34.39 and 17.3 respectively, once the cap was removed in 2010.

\(^\text{21}\) This calculation is taken directly from Iranzo et al. (2012). The authors calculate the additional amount in revenue collected by issuers from average annual fees resulting from the regulatory intervention in comparison to the revenues they would have enjoyed if annual fees remained at their 2005 levels.
Past experiences regulating interchange fees

Slowdown in the displacement of cash

Although the substitution of cash payments with card payments continued in the period during which IFs were capped, growth in the take-up of cards slowed and the number of debit cards fell as a consequence of higher cardholder fees and lower cardholder benefits. \(^{22}\) This is detrimental to consumers as it prevents the full benefit of card payments being realised. The rationale behind this is as follows:

Lower IFs \(\rightarrow\) reduced IF revenue for issuing bank \(\rightarrow\) issuing bank compensates by increasing cardholder fees \(\rightarrow\) consumers substitute from card use to cash \(\rightarrow\) decrease in economic efficiency due to higher cost of cash use

Growth in the take-up of cards slowed: the annual growth rate in the use of cards fell from approximately 14 per cent in 2005 to 10 per cent in 2006, while cash use went up from 1.60 per cent in 2005 to 3.01 per cent in 2006. Further, in the aftermath of the recession the decline in the use of cards of 2.5 per cent in 2009, while cash use only declined by 2.9 per cent.

Moreover, the analysis also suggests that the cap on IFs affected the average value of POS transactions. \(^{23}\) The average value of payments made by card peaked in 2005 at €52.10 and decreased steadily since then falling to €44.30 in the last year of the agreement. In contrast, the average value of ATM withdrawals grew consistently throughout the period, increasing from €91.20 to €117.20 during the period.

What is more, the average value of a POS transaction, i.e. the average amount card holders paid by card, increased between 2002 and 2005. This implies that the growth rate of the average value was positive during the period. However, once IFs were capped in 2006, the growth rate declined sharply into negative values to -3.32 per cent (see Figure 3.3). Because Spain was already one of the European countries with the lowest usage of card payment systems, the regulation of IFs only seemed to delay the country’s convergence to its neighbours’ rates.

**Figure 3.3: Growth rate of the average transaction value**

\[ \text{Growth rate POS transactions} \]
\[ \text{Growth rate ATM withdrawals} \]

Source: Own elaboration using Bank of Spain data

Effect on the underground economy\(^{24}\)

As illustrated above, the cap on IFs delayed the growth in the uptake of cards as a means of payment. Combined with the consequent decrease in the number of officially recorded transactions, this reduced government tax revenues. Moreover, this could also have boosted the underground economy, which is

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\(^{22}\) The average value of a card transaction is the ratio of the total value of POS transactions over the total number of POS transactions.

\(^{23}\) The underground, or shadow, economy is defined by Schneider (2013) as consisting of undeclared work (two-thirds) and underreporting (one-third).
Past experiences regulating interchange fees

estimated to represent approximately 20 per cent of Spain’s GDP.\textsuperscript{25} By holding back the uptake of electronic payments, the IF cap may have prevented these benefits from being fully realised.

3.1.5 Summary

In conclusion, the Spanish study suggests that consumers in Spain were made worse off as a result of the regulation of interchange fees:

- There is no evidence that retail prices were reduced.
- Cardholder fees increased by 50 per cent.
- Credit card interest rates increased, raising issuers’ annual income from interest rates by 45 per cent.
- Substitution from cash to cards was slowed, preventing the full benefits of card payments from being realised.

3.2 Impacts of regulating interchange fees in Australia\textsuperscript{26}

Unlike the Spanish experience, the introduction of fee caps in Australia did not coincide with the financial crisis. However, there are other factors and characteristics of the Australian economy which need to be taken into account. For instance, CRA International (2008) point out that low-rate credit cards and the growth of e-commerce may “confound” conclusions relating to card usage. The former were introduced in 2003 and are thought of by the authors as a consequence of international development, not of RBA’s intervention itself.

The increased use of e-commerce after the intervention is shown in Figure 3.4. The trend continued after the cap on IFs was introduced and it is therefore also not considered a consequence of the intervention.

\textbf{Figure 3.4: Share of MasterCard transactions during which the debit/credit card was not present}

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{figure3.4.png}
\caption{Share of MasterCard transactions during which the debit/credit card was not present}
\end{figure}

Source: CRA International (2008) using MasterCard data

\textsuperscript{25} NERA (2011) “Paying with Card or Paper: Costs and Benefits for the Economy and for Users in the United Kingdom, Italy, Germany, and Poland”, 29 December 2011.

\textsuperscript{26} The summary presented next is drawn from CRA International (2008) “Regulatory intervention in the payment card industry by the Reserve Bank of Australia, Analysis of the evidence”.
3.2.1 Intervention

In 2003, the Reserve Bank of Australia’s (RBA) regulated card payments through two mechanisms: RBA capped interchange fees on four-party credit cards by reducing them from 0.95 per cent to 0.55 per cent, and it prohibited no-surcharge rules in four-party and three-party systems.

The rationale given by RBA for setting IFs was that it believed these charges and other aspects of credit card payments were leading to inefficient outcomes. RBA argued that IFs created a distortion in the price signals perceived by consumers because the revenue from IFs partly financed cardholder benefits, e.g. reward points and interest-free loan period. The intuition behind the elimination of no-surcharge rules was that merchants should have the freedom to impose them.

In 2006, RBA changed the allowed IF for debit cards from 0.53 per cent to 12 cents per transaction. IFs for EFTPOS debit card transactions were reduced from 20 cents to between 4 and 5 cents.

There has been regulation since 2003 and the IFs of MasterCard, Visa, Visa Debit and EFTPOS are still capped today. The cap is set on the weighted average IF for each card listed above, and is reviewed every three years.

3.2.2 Impacts on card payments and the banking sector

Merchant Service Charges

The RBA’s intervention to reduce IFs was intended to benefit merchants through two mechanisms:

- Lower IFs → lower MSCs → lower cost to merchants
- Lower IFs → lower MSCs → greater transparency → better bargaining position for merchants

By means of a lower service charge imposed on merchants and more transparency which would put them in a better, more informed, position when negotiating with acquiring banks, merchants were intended to be the main beneficiaries of the regulatory intervention. According to CRA International (2008), Australian retailers experienced cost reductions of the order of AU$676m during the first year after the introduction of the regulation.

One opposing expectation, however, was that the search and adjustment costs of merchants would prevent acquiring banks from fully passing the reduction in costs on to merchants, especially in the case of smaller firms. This, however, was not the case. MSCs fell by 0.43 per cent, from 1.40 to 0.97 per cent the year the cap was introduced, and was further reduced to 0.79 per cent in 2007. This implies a full pass-through of the reduction in IFs in relation to the reduction in MSCs during the first year of the intervention, as both fell by approximately 0.40 per cent on average.

Subsequently, CRA International (2008) report that merchant acceptance of credit cards grew since 2004. The number of locations accepting MasterCard as a form of payment slightly decreased immediately after

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27 In Australia, 85 per cent of debit card transactions are processed using an EFTPOS terminal. IFs for such transactions are imposed in inverse direction to that of credit cards as they are paid by the issuing bank to the acquiring bank.

28 The EFTPOS system is used domestically to process debit card transactions. EFTPOS debit cards are the most widely used in Australia, therefore making the most common IF for debit transactions be the 4-5 per cent rate. However, when other debit card transactions are processed these now incur an IF charge of 12 cents per transaction.

29 MasterCard debit has voluntarily decided to comply by this rate.


31 We point out that these figures are average rates experienced by an average merchant in Australia. Therefore, the reduction in fee levels experienced by any single merchant may be different to another.
the introduction of the cap on IFs to approximately 500,000 locations. However, the number increased continuously since to about 700,000 in 2007.

**Bank revenues**

Issuing banks suffered from a revenues reduction from IFs worth AU$647m for 2006. However, as in the Spanish case, banks responded to the reduction in their revenue from IFs by increasing the level of other fees. Annual fees increased by AU$40 on average, which for 2006 represent an estimated AU$480m in issuer revenues. As a result, issuing banks recovered 74 per cent of the lost revenue from IFs. Other important fee increases reported by the authors are illustrated below.

**Figure 3.5: Changes in other fees**

![Graph showing changes in other fees](chart.png)

Source: Own elaboration based on CRA International (2008)

Finally, the authors argue that the decrease in profitability for issuing banks and the effect of regulatory uncertainty brought about by the new regulation, had a negative effect on the incentives to innovate for the issuers.

**Competition and entry**

According to CRA International (2008), the regulation of IFs had a positive effect on three-party schemes. A particular phenomenon observed is that Australian issuers started offering three-party credit cards, i.e. American Express and Diners Club, as a companion product to four-party credit cards. As expected by the RBA, the MSCs of American Express and Diners Club also declined as a result of the intervention: MSCs fell from 2.45 per cent in 2003 to 2.38 per cent in 2004 (see Figure 3.6). After the introduction of the regulation, all MSCs declined, however, those of four-party cards fell more abruptly.
Past experiences regulating interchange fees

Figure 3.6: Credit card merchant service charges in Australia, 2003-2013

The relative share of the three-party system in terms of the number of cards issued (Figure 3.7, left) only increased slightly during the first years after the reduction in IFs: American Express and Diners Club covered 9.98 per cent of the credit card industry in 2003, while their share was 12.02 per cent in 2005. Therefore, the immediate response to the cap on IFs for three-party cards was limited. However, in 2009, their share increased to 14.89 per cent and is currently at 15.13 per cent. This may indicate that the two three-party schemes gained a comparative advantage over four-party schemes when issuers started offering “companion cards”. A similar trend is observed when analysing shares in terms of the value of transactions (Figure 3.7, right).

3.2.3 Impact on consumers

According to CRA International (2008), RBA intended two types of impacts on consumers to take place due to its intervention.

First, in contrast to the Spanish expectation, RBA expected cardholder fees to increase and benefits to fall in relation with the following causal mechanism:
Past experiences regulating interchange fees

Lower IFs → lower revenues for issuing banks → increased cardholder fees and reduced cardholder benefits → increased cost of credit cards → consumers switch to debit card payments

Accordingly, with the intervention RBA intended to induce consumers to use debit cards instead of credit cards as the cost of the latter payment method increased. Debit cards were thought to be less costly in terms of resources utilised. CRA International (2008) found that cardholder fees did indeed increase as a result of the reduction in IFs (see Figure 3.8).

Figure 3.8: Annual cardholder fees, by card type

Source: Own elaboration based on CRA International (2008)

From the shape of the curves for each type of card above, it becomes clear that regulation in Australia had the strongest impact on the annual fees of Gold rewards-based cards, whose fees increased by 30 per cent as a result of the regulation of IFs from AU$ 98 to AU$ 128 in 2003. The annual fees of Standard rewards-based cards increased by 24 per cent, while those of Standard cards went up by 8 per cent.

The authors explain that cardholder benefits were also reduced as reflected in the lower amount of reward points earned per dollar spent, as well as by the reduction in the amount of points needed to claim a prize. In 2003, the average number of reward points required to redeem a voucher worth AU$100 was 12,400, while the figure went up to 16,200 in 2007.

Moreover, the removal of no-surcharge rules was also expected to induce consumers to switch to debit card payments as the cost of using credit cards would rise further:

No-surcharge rules prohibited → merchants start imposing surcharge → increased cost of credit cards → consumers switch to debit card payments

Although RBA did not expect a widespread use of surcharges, CRA International (2008) report that the number of merchants imposing a surcharge increased significantly, as shown in the figure below.
Past experiences regulating interchange fees

Figure 3.9: Number of merchants imposing a surcharge, by firm size

Source: Own elaboration based on CRA International (2008)

What is more, the surcharges introduced were not based on costs, according to the authors, and were greater than MSCs. The difference between the two varied per payment system and suffered significant changes as shown below.

Table 3.3: Difference between MSCs and surcharges, by credit card

<table>
<thead>
<tr>
<th></th>
<th>2004</th>
<th>2006</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Visa &amp; MC</td>
<td>Amex</td>
</tr>
<tr>
<td>Average surcharge</td>
<td>1.80%</td>
<td>2.60%</td>
</tr>
<tr>
<td>Average MSC</td>
<td>0.99%</td>
<td>2.38%</td>
</tr>
<tr>
<td>Difference</td>
<td>0.81%</td>
<td>0.22%</td>
</tr>
</tbody>
</table>

Source: CRA International (2008)

CRA International (2008) found that the adoption of credit cards remained similar to its level before the intervention. The growth rate in the use of debit cards, however, was lower after the introduction of the cap on IFs. Also, the share of debit card transactions went from 49.8 per cent in 2002 to 53.7 per cent in 2007.

Figure 3.10: Number of accounts, in thousands

Source: CRA International (2008)
Effect on prices

The second mechanism would benefit consumers as retail prices would fall:

Lower IFs $\rightarrow$ lower MSCs $\rightarrow$ lower cost for merchants $\rightarrow$ lower prices

RBA expected the decrease in IFs to be passed through to consumers as lower prices, thanks to “vigorous competition” at the retail level. What is more, the RBA eliminated no-surcharge rules because it expected prices to follow the decrease in IFs and would thus no longer reflect merchants’ cost of offering card payment services. Consequently, only those consumers opting to pay by card would be imposed the cost of using the card system. The dimension of the impact on prices was estimated by RBA to be a reduction of 0.1-0.2 percentage points in the Consumer Price Index (CPI).

As in the Spanish case, no evidence was found neither of a reduction in retail prices nor of an improvement in the quality of products. CRA International (2008) also explain this as a consequence of the very small reduction in the price per transaction if pass through from MSCs to prices would have taken place. The authors estimate that the average cost reduction for the merchant was approximately 0.16 per cent.

In 2008, the RBA observed that merchants had saved around Aus$1.1bn, yet they have been unable to provide any evidence related to consumers’ benefit, stating that:

“No concrete evidence has been presented to the Board regarding the pass-through of these savings.” In 2009, the RBA dropped any reference to merchants passing along savings: “The aggregate net savings to merchants over 2007/08 from declines in merchant fees…since the reforms were introduced is estimated at $1.1 billion. Equivalently, this represents a reduction in costs for merchants of around 72 cents per credit or charge card transaction over the period”.

Wider impacts

The regulatory intervention by RBA intended to reduce the profitability of four-party payment systems. Accordingly, as profitability was reduced, so were issuers’ incentives to invest and innovate, in for example, new types of four-party cards, improving the security of the system and preventing fraud.
4 Potential impacts of interchange regulation in the UK: Scenario analyses

4.1 Scenarios

In this section we model the impact of regulating IFs in the UK. To do this, we estimate the difference between issuing banks’ current interchange income and their interchange income if fees were capped. We then use data from Spain to estimate the extent to which issuing banks would be able to recoup lost interchange revenue through higher cardholder fees, and the extent to which acquiring banks would pass through the saving in interchange fees in the form of lower MSCs.

We present three scenarios:

- In Scenario 1, IFs are capped at half their current average value.
- In Scenario 2, IFs are regulated using ad valorem caps for both card types: 0.20 per cent for debit cards and 0.30 per cent for credit cards.
- In Scenario 3, IFs are capped at zero.

These are summarised in the table below.

<table>
<thead>
<tr>
<th>Scenario 1</th>
<th>Scenario 2</th>
<th>Scenario 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cap IFs Debit</td>
<td>IF = £0.04</td>
<td>IF = 0.20%</td>
</tr>
<tr>
<td>Cap IFs Credit</td>
<td>IF = 0.30%</td>
<td>IF = 0.30%</td>
</tr>
</tbody>
</table>

4.2 Status Quo

We first set out our analysis of the current levels of interchange fee revenues and merchant service charges.

4.2.1 Interchange Fee Revenues

To estimate current interchange revenues, we use three different methods:

- In Method 1 the credit card IF rate is given ad valorem on the basis of the value of transactions and debit card IF is a flat rate in GBP per transaction:\(^{32}\)

\[
IF\ Revenues = IF\ Revenues_{Debit} + IF\ Revenues_{Credit}
\]

where

\[
IF\ Revenues_{Debit} = IF_{Visa} (E) * Volume_{Visa}^{Debit} + IF_{MasterCard} (E) * Volume_{MasterCard}^{Debit}
\]

\[
IF\ Revenues_{Credit} = IF_{Visa} (\%) * Value_{Visa}^{Credit} + IF_{MasterCard} (\%) * Value_{MasterCard}^{Credit}
\]

---

\(^{32}\) This method is used in the 1998 HM Treasury calculation in Table D3.6 of Appendix D3 on Interchange Fees for Credit and Debit Cards.
In Method 2, the IF rate is given in basis points for debit and credit cards and this is applied to their respective total value of transactions:

\[
IF\ \text{Revenues} = IF\ \text{Revenues}^{\text{Debit}} + IF\ \text{Revenues}^{\text{Credit}}
\]

where

\[
IF\ \text{Revenues}^{\text{Debit}} = IF^{\text{Debit}}_{\text{Visa}}(\%) \times Value^{\text{Debit}}_{\text{Visa}} + IF^{\text{Debit}}_{\text{MasterCard}}(\%) \times Value^{\text{Debit}}_{\text{MasterCard}}
\]

\[
IF\ \text{Revenues}^{\text{Credit}} = IF^{\text{Credit}}_{\text{Visa}}(\%) \times Value^{\text{Credit}}_{\text{Visa}} + IF^{\text{Credit}}_{\text{MasterCard}}(\%) \times Value^{\text{Credit}}_{\text{MasterCard}}
\]

Method 3, uses an average IF rate, averaged over network providers, for the debit and credit schemes. This method ignores the industry shares of providers.

\[
IF\ \text{Revenues} = IF\ \text{Revenues}^{\text{Debit}}_{\text{Average}} + IF\ \text{Revenues}^{\text{Credit}}_{\text{Average}}
\]

where

\[
IF\ \text{Revenues}^{\text{Debit}}_{\text{Average}} = IF^{\text{Debit}}_{\text{Average}}(\%) \times Value^{\text{Debit}}_{\text{Total}}
\]

\[
IF\ \text{Revenues}^{\text{Credit}}_{\text{Average}} = IF^{\text{Credit}}_{\text{Average}}(\%) \times Value^{\text{Credit}}_{\text{Total}}
\]

The first method is the most precise, while method 3 ignores differences in fees between the networks. We apply these methods to the UK below.

**Table 4.2: Estimated Interchange Revenues for Issuers, 2011**

<table>
<thead>
<tr>
<th>Card Type</th>
<th>Industry share (Range)</th>
<th>Avg. IF</th>
<th>Volume (in million)</th>
<th>Value (in £m)</th>
<th>Avg. trans. value (in £)</th>
<th>IF Revenue (in £m)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Method 1 Method 2 Method 3</td>
</tr>
<tr>
<td><strong>Debit</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Visa Debit</td>
<td>96.40%</td>
<td>£0.08 - £0.1</td>
<td>£0.09</td>
<td>9,818.34</td>
<td>508,105.12</td>
<td>883.65</td>
</tr>
<tr>
<td>MC Debit</td>
<td>3.60%</td>
<td>£0.06 - £0.08</td>
<td>£0.07</td>
<td>366.66</td>
<td>18,974.88</td>
<td>25.67</td>
</tr>
<tr>
<td>Average Debit</td>
<td></td>
<td>£0.08</td>
<td></td>
<td></td>
<td></td>
<td>814.80</td>
</tr>
<tr>
<td>IF Revenues Debit Average</td>
<td>(0.2095%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(1,104.23)</td>
</tr>
<tr>
<td>Total Debit</td>
<td></td>
<td></td>
<td>10,185.00</td>
<td>527,080.00</td>
<td>51.75</td>
<td>909.32</td>
</tr>
<tr>
<td><strong>Credit</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Visa Credit</td>
<td>30.50%</td>
<td>0.9240%</td>
<td>706.99</td>
<td>47,824.31</td>
<td></td>
<td>441.90</td>
</tr>
<tr>
<td>MC Credit</td>
<td>58.60%</td>
<td>0.9710%</td>
<td>1,358.35</td>
<td>91,885.39</td>
<td></td>
<td>892.21</td>
</tr>
<tr>
<td>Other</td>
<td>10.90%</td>
<td></td>
<td>252.66</td>
<td>17,091.31</td>
<td></td>
<td>161.94</td>
</tr>
<tr>
<td>Average Credit</td>
<td>0.9475%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1,485.69</td>
</tr>
<tr>
<td>Total Credit</td>
<td></td>
<td></td>
<td>2,318.00</td>
<td>156,801.00</td>
<td>67.64</td>
<td>1,496.04</td>
</tr>
<tr>
<td><strong>Total Credit &amp; Debit</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2,405</td>
</tr>
</tbody>
</table>

Source: MasterCard Data, MasterCard and Visa websites, UK Plastic Cards 2012 Report, Calculations
4.2.2 Merchant Service Charge Revenues

In the table below, we give the total value of MSC income for 2011 in the UK and assess what proportion of it is composed of IFs paid to card issuers.

Table 4.3: Estimated UK Merchant Service Charge Revenues 2011

<table>
<thead>
<tr>
<th>Card Type</th>
<th>MSC in OFT Report</th>
<th>Volume of UK Card Transactions (millions)</th>
<th>Merchand Service Charges Total (£m)</th>
<th>Value of UK Card Transactions (£m)</th>
<th>MSC for Average Transaction Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Debit Card</td>
<td>£ 0.11</td>
<td>10,185</td>
<td>1,120.35</td>
<td>527,080</td>
<td>(£0.11)</td>
</tr>
<tr>
<td>Credit Card</td>
<td>1.34 %</td>
<td>2,318</td>
<td>2,101.13</td>
<td>156,801</td>
<td>£0.9064</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td>3,221.48</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Our estimated IF revenues for issuing banks are £2,300m (using Method 3, which is analogous to the method used above to estimate MSC revenues). This implies a ratio of IF revenues to MSC revenues of 71 per cent, so that UK retailers paid £3,221m in card service charges, of which £2,300m went toward IFs. This confirms the 2012 ratio estimated by the OFT as opposed to the BRC ratio of 90 per cent. This ratio shows a substantial decline when compared to the 1998 HMT study, which estimated the MSC for the then average transaction value of £50 to be about 86 per cent (see HMT (1998), p258).

4.2.3 Expected Impact on Cardholder Fees and MSCs: Lessons from Spain

First, we show what IF and cardholder fees revenues per card would have been without any regulatory intervention (see Table 4.4), as calculated in Iranzo et al. (2012). We include an additional year before the introduction of the cap than in the original study, i.e. as we see that IFs fell significantly from that year to the next, from 1.62 to 1.55 per cent. In 2004, issuers generated approximately €1bn in IF revenues, for the value of POS transactions reported by the Bank of Spain.

Given the expected change in issuing banks’ revenues, we then model the additional impact on cardholder fees and MSCs.
Table 4.4: Banking revenues in Spain without intervention, 2004-2010

<table>
<thead>
<tr>
<th>Year</th>
<th>IF (%)</th>
<th>MSC (%)</th>
<th>Value (€m)</th>
<th>Revenues from IFs (€m)</th>
<th>Revenues from MSCs (€m)</th>
<th>Total Number of Cards (million)</th>
<th>IF Revenue per card (€)</th>
<th>IF Revenue Mark-up per card (€)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2004</td>
<td>1.62</td>
<td>1.52</td>
<td>62,515.42</td>
<td>1,009.62</td>
<td>950.23</td>
<td>61.7</td>
<td>16.4</td>
<td>0.96</td>
</tr>
<tr>
<td>2005</td>
<td>1.55</td>
<td>1.52</td>
<td>71,466.43</td>
<td>1,107.73</td>
<td>1,086.29</td>
<td>65.1</td>
<td>17.0</td>
<td>0.33</td>
</tr>
<tr>
<td>2006</td>
<td>1.55</td>
<td>1.52</td>
<td>79,115.03</td>
<td>1,226.28</td>
<td>1,202.55</td>
<td>70.1</td>
<td>17.5</td>
<td>0.34</td>
</tr>
<tr>
<td>2007</td>
<td>1.55</td>
<td>1.52</td>
<td>89,395.89</td>
<td>1,385.64</td>
<td>1,358.82</td>
<td>75</td>
<td>18.5</td>
<td>0.36</td>
</tr>
<tr>
<td>2008</td>
<td>1.55</td>
<td>1.52</td>
<td>94,413.92</td>
<td>1,463.42</td>
<td>1,435.09</td>
<td>76.4</td>
<td>19.2</td>
<td>0.37</td>
</tr>
<tr>
<td>2009</td>
<td>1.55</td>
<td>1.52</td>
<td>91,075.50</td>
<td>1,411.67</td>
<td>1,384.35</td>
<td>74.5</td>
<td>18.9</td>
<td>0.37</td>
</tr>
<tr>
<td>2010</td>
<td>1.55</td>
<td>1.52</td>
<td>95,184.09</td>
<td>1,475.35</td>
<td>1,446.80</td>
<td>71.6</td>
<td>20.6</td>
<td>0.40</td>
</tr>
</tbody>
</table>

Source: Iranzo et al. (2012), Bank of Spain and Europe Economics calculations

From the table above it becomes clear that in the absence of a cap on IFs, the revenue mark-up enjoyed by issuers in Spain would have been reduced by nearly 60 per cent over the course of seven years.

We then model the extent to which issuing banks recouped lower IF revenues from cardholders in the form of higher cardholder fees and increased interest income. Specifically, we compared the change in additional revenues (from cardholder fees and interest) per card with the change in IFs per card. This is shown in Table 4.5 below.

Table 4.5: Comparison of changes in revenues from annual fees and interest income in Spain, 2005-2010

<table>
<thead>
<tr>
<th>Year</th>
<th>Revenues from IFs (€m)</th>
<th>Revenue from Annual Fees + Interest income (€m)</th>
<th>Total Number of Cards (million)</th>
<th>IF Revenue per card (€)</th>
<th>Additional revenues per card (€)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005</td>
<td>1,107.8</td>
<td>1,777.8</td>
<td>65.1</td>
<td>17.0</td>
<td>27.3</td>
</tr>
<tr>
<td>2006</td>
<td>743.7</td>
<td>2,473.0</td>
<td>70.1</td>
<td>10.6</td>
<td>35.3</td>
</tr>
<tr>
<td>2007</td>
<td>813.5</td>
<td>3,052.1</td>
<td>75.0</td>
<td>10.9</td>
<td>40.7</td>
</tr>
<tr>
<td>2008</td>
<td>764.8</td>
<td>3,308.2</td>
<td>76.4</td>
<td>10.0</td>
<td>43.3</td>
</tr>
<tr>
<td>2009</td>
<td>701.3</td>
<td>3,080.8</td>
<td>74.5</td>
<td>9.4</td>
<td>41.3</td>
</tr>
<tr>
<td>2010</td>
<td>609.2</td>
<td>2,931.9</td>
<td>71.6</td>
<td>8.5</td>
<td>41.0</td>
</tr>
</tbody>
</table>

Change in IFs per card, 2005-2010: -50.0%
Change in fees per card, 2005-2010: 49.9%
Change in Revenues per card as % of Change IFs: -99.9%

Source: Europe Economics calculations based on Iranzo et al. (2012)

This suggests that the burden of the IF revenues lost for issuers in the Spanish case was passed on to consumers up to nearly 100 per cent, on a per card basis.

33 Data on revenues from IFs is taken from Iranzo et al. (2012) who calculate it using the average IF rate for credit card transactions and apply it to the value of sales POS terminals for each year. We added the figure for 2004 to the authors’ analysis using the same methodology.

34 We note that data on the level of annual fees is only available since 2005, making an earlier comparison (as done in the rest of the analysis) impossible.
To model the impact of lower IFs to MSCs, we compared the change in MSCs per transaction with the change in IF revenue per transaction. This is shown in the table below.

**Table 4.6: Comparison of changes in MSCs in Spain, 2004-2010**

<table>
<thead>
<tr>
<th>Year</th>
<th>Revenues from IFs (€m)</th>
<th>Revenues from MSCs (€m)</th>
<th>Total Volume of Transactions (millions)</th>
<th>IF per transaction (€)</th>
<th>MSC Revenue per transaction (€)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2004</td>
<td>1,009.6</td>
<td>950.2</td>
<td>1,171</td>
<td>0.86</td>
<td>0.81</td>
</tr>
<tr>
<td>2005</td>
<td>1,107.8</td>
<td>1,086.3</td>
<td>1,418</td>
<td>0.78</td>
<td>0.77</td>
</tr>
<tr>
<td>2006</td>
<td>743.7</td>
<td>894.0</td>
<td>1,627</td>
<td>0.46</td>
<td>0.55</td>
</tr>
<tr>
<td>2007</td>
<td>813.5</td>
<td>911.8</td>
<td>1,900</td>
<td>0.43</td>
<td>0.48</td>
</tr>
<tr>
<td>2008</td>
<td>764.8</td>
<td>830.8</td>
<td>2,065</td>
<td>0.37</td>
<td>0.40</td>
</tr>
<tr>
<td>2009</td>
<td>701.3</td>
<td>737.7</td>
<td>2,121</td>
<td>0.33</td>
<td>0.35</td>
</tr>
<tr>
<td>2010</td>
<td>609.2</td>
<td>704.4</td>
<td>2,258</td>
<td>0.27</td>
<td>0.31</td>
</tr>
</tbody>
</table>

Change in IF revenues 2004-2010: -40%
Change in MSC revenues 2004-2010: -26%
Change in MSC revenues as % Change in IF revenues: 65%
Change in IFs per transaction, 2004-2010: -69%
Change in MSCs per transaction, 2004-2010: -62%
Change in MSCs as % Change in IFs: 90%

Source: Europe Economics calculations based on Iranzo et al. (2012)

The table above demonstrates that in the Spanish case the cap on IFs led to a 40 per cent fall in IF revenues for issuers in 2010 in comparison to the pre-regulation revenues in 2004. Acquirers’ revenues from MSCs fell by 26 per cent, which leads to the conclusion that the fall in the latter revenues for acquirers as a proportion of the reduction in issuers’ revenues from IFs was 65 per cent over the period.

Nevertheless, when looking at the change in revenues with respect to the volume of transactions, the degree of pass-through is greater: IFs per transaction fell by nearly 70 per cent as a result of the cap, while MSCs per transaction were reduced by 62 per cent. This implies a pass-through rate from IFs to MSCs of 90 per cent, on a per transaction basis, over the period 2004 to 2010.

A possible explanation for the lower pass-on rate when assessing the total revenue changes in comparison to the rate passed through on a per transaction basis is that acquiring banks in Spain may not have reduced the MSC for smaller merchants as much as they lowered the charge for larger merchants. The reason for this being is that SMEs do not enjoy the same bargaining power as larger merchants, which puts them at a disadvantage when negotiating MSCs with acquirers.

As noted in the previous section, in the Spanish case there was zero pass-through by merchants to consumers from lower MSCs in the form of lower retail prices.35

35 Such a case has also been reported in relation to the regulation of debit IFs introduced in the US in 2011. (Electronic Payments Coalition, 2012) Research by Bloomberg Government stated that the expected benefit to the retail industry was expected to be US$8 billion. In relation, the Electronic Payments Coalition reported that merchants expected the highly competitive market to translate the IFs savings into lower prices. However, the same study conducted a review of prices at 18 stores before and after the introduction of the Amendment. It found that “customers paid 1.5 per cent more for the same products after the Fed rule was implemented” as only 33 per cent of the stores evaluated increased prices of kept them at the same level.
4.3 Scenario 1: A 50 per cent reduction in IFs in the UK

A cap on IFs which would reduce their current levels by half would lead to IFs for debit card transactions at £0.04 per transaction, and that of credit cards at 0.30 per cent of the value of each transaction. Below, we present the modelled revenues for issuers under this scenario. (This uses method 1.)

Table 4.7: Interchange Revenues for Issuers under Scenario 1

<table>
<thead>
<tr>
<th>Card Type</th>
<th>Industry share</th>
<th>Avg. IF</th>
<th>Volume (in million)</th>
<th>Value (in £m)</th>
<th>Avg. trans. value (in £)</th>
<th>IF Revenue (in £m)</th>
<th>Loss in IF Revenue (in £m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Debit Cards</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Visa Debit</td>
<td>96.40%</td>
<td>£0.04</td>
<td>9,818.34</td>
<td>508,105.12</td>
<td>51.75</td>
<td>407.40</td>
<td>501.92</td>
</tr>
<tr>
<td>MC Debit</td>
<td>3.60%</td>
<td>£0.04</td>
<td>366.66</td>
<td>18,974.88</td>
<td>14.67</td>
<td>11.00</td>
<td></td>
</tr>
<tr>
<td>Total Debit</td>
<td></td>
<td></td>
<td>10,185.00</td>
<td>527,080.00</td>
<td>51.75</td>
<td>407.40</td>
<td>501.92</td>
</tr>
<tr>
<td>Credit Cards</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Visa Credit</td>
<td>30.50%</td>
<td>0.30%</td>
<td>706.99</td>
<td>47,824.31</td>
<td>67.64</td>
<td>470.40</td>
<td>1,025.64</td>
</tr>
<tr>
<td>MC Credit</td>
<td>58.60%</td>
<td>0.30%</td>
<td>1,358.35</td>
<td>91,885.39</td>
<td>67.64</td>
<td>470.40</td>
<td>1,025.64</td>
</tr>
<tr>
<td>Other</td>
<td>10.90%</td>
<td>0.30%</td>
<td>252.66</td>
<td>17,091.31</td>
<td>67.64</td>
<td>470.40</td>
<td>1,025.64</td>
</tr>
<tr>
<td>Total Credit</td>
<td></td>
<td></td>
<td>2,318.00</td>
<td>156,801.00</td>
<td>67.64</td>
<td>470.40</td>
<td>1,025.64</td>
</tr>
<tr>
<td>Total Credit + Debit</td>
<td></td>
<td></td>
<td>8,476.00</td>
<td>1,693,881.00</td>
<td>58.39</td>
<td>877.80</td>
<td>1,527.56</td>
</tr>
</tbody>
</table>

Source: Europe Economics calculations

Our analysis therefore suggests that reducing IFs by half would lead issuing institutions’ revenues to fall by £1.5 billion per year. On the basis of the Spanish experience, with almost full pass through to cardholder fees, this suggests that issuing banks would increase cardholder fees by £1.5 billion per year. On the basis of a 90 per cent pass-through for MSC reductions on a per transaction basis, MSCs would fall by nearly £1.4 billion. In line with Spain and Australia, this would occur with no reduction in final prices. We illustrate what the result of this would be per card and per transaction in the table below:

Table 4.8: Changes in Consumer Fees on a per card basis and MSCs on a per transaction basis for Scenario 1

<table>
<thead>
<tr>
<th></th>
<th>Debit</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Cards (million)</td>
<td>86</td>
<td>61</td>
</tr>
<tr>
<td>Number of Transactions (million)</td>
<td>10,185</td>
<td>2,320</td>
</tr>
<tr>
<td>Loss in IF Revenue (£ million)</td>
<td>502</td>
<td>1026</td>
</tr>
<tr>
<td>Increase in Consumer Fees (£ million)</td>
<td>502</td>
<td>1026</td>
</tr>
<tr>
<td>Increase in Consumer Fees per Card (£)</td>
<td>5.81</td>
<td>16.84</td>
</tr>
<tr>
<td>Reduction in MSCs (£ million)</td>
<td>457</td>
<td>933</td>
</tr>
<tr>
<td>Reduction in MSCs per Transaction (£)</td>
<td>0.04</td>
<td>0.40</td>
</tr>
</tbody>
</table>

Source: Europe Economics calculations

Consumer fees would increase by £5.81 per debit card and £16.84 per credit card. (Note that the credit card figure includes interest.)

Although no pass-through to consumers, by means of lower retail prices, was identified in Spain, Australia, and more recently in the US, we have estimated the fall in retail prices that would be equivalent to a 50 per cent reduction in IFs in the UK. We assess what the reduced costs to merchants from lower MSCs would translate as lower retail prices per transaction by dividing the reduction in MSCs (paid by merchants to
acquiring banks) by the total volume of transactions. This yields an average price reduction of £0.04 per transaction for debit cards and £0.40 for credit cards. As this is calculated on the basis of the total value of transactions, it would be up to the merchant to assign a specific reduction in price for different types of payments or even products/services. With respect to the total value of transactions, which was £684 billion for debit and credit cards, full-pass-through from merchants to consumers would represent a retail price reduction of twenty basis points per transaction.

4.4 Scenario 2: Ad valorem IFs

Under scenario 2, IFs would be capped at 0.20 per cent for debit card transactions and at 0.30 per cent for credit card payments. In the table below we present the yearly revenues for this scenario. (This calculation uses method 2.)

Table 4.9: Interchange Revenues for Issuers under Scenario 2

<table>
<thead>
<tr>
<th>Card Type</th>
<th>Industry share</th>
<th>Avg. IF</th>
<th>Volume (in million)</th>
<th>Value (in £m)</th>
<th>Avg. trans. value (in £)</th>
<th>IF Revenue (in £m)</th>
<th>Loss in IF Revenue (in £m)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Debit Cards</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Visa Debit</td>
<td>96.40%</td>
<td>0.20%</td>
<td>9,818.34</td>
<td>508,105.12</td>
<td></td>
<td>1,016.21</td>
<td>25.41</td>
</tr>
<tr>
<td>MC Debit</td>
<td>3.60%</td>
<td>0.20%</td>
<td>366.66</td>
<td>18,974.88</td>
<td></td>
<td>37.95</td>
<td>2.66</td>
</tr>
<tr>
<td>Total Debit</td>
<td></td>
<td></td>
<td>10,185.00</td>
<td>527,080.00</td>
<td>51.75</td>
<td>1,054.16</td>
<td>28.06</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Credit Cards</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Visa Credit</td>
<td>30.50%</td>
<td>0.30%</td>
<td>706.99</td>
<td>47,824.31</td>
<td></td>
<td>143.47</td>
<td>298.42</td>
</tr>
<tr>
<td>MC Credit</td>
<td>58.60%</td>
<td>0.30%</td>
<td>1,358.35</td>
<td>91,885.39</td>
<td></td>
<td>275.66</td>
<td>616.55</td>
</tr>
<tr>
<td>Other</td>
<td>10.90%</td>
<td>0.30%</td>
<td>252.66</td>
<td>17,091.31</td>
<td></td>
<td>51.27</td>
<td>110.67</td>
</tr>
<tr>
<td>Total Credit</td>
<td></td>
<td></td>
<td>2,318.00</td>
<td>156,801.00</td>
<td>67.64</td>
<td>470.40</td>
<td>1,025.64</td>
</tr>
<tr>
<td>Total Credit + Debit</td>
<td></td>
<td></td>
<td>1,524.56</td>
<td>1,053.70</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Europe Economics calculations

If a cap on IF revenues would be set according to Scenario 2, issuing banks would experience a loss in IF revenues of £1.1 billion per year. On the basis of the Spanish experience, this would result in an increase in cardholder fees of £1.1 billion and a reduction in MSCs of £1 billion on a per transaction basis. In line with Spain and Australia, this would occur with no reduction in retail prices. We illustrate what the result of this would be per card and per transaction in the table below:

Table 4.10: Changes in Consumer Fees on a per card basis and MSCs on a per transaction basis for Scenario 2

<table>
<thead>
<tr>
<th></th>
<th>Debit</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Cards (million)</td>
<td>86</td>
<td>61</td>
</tr>
<tr>
<td>Number of Transactions (million)</td>
<td>10,185</td>
<td>2,320</td>
</tr>
<tr>
<td>Loss in IF Revenue (£ million)</td>
<td>28.06</td>
<td>1,026</td>
</tr>
<tr>
<td>Increase in Consumer Fees (£ million)</td>
<td>28.06</td>
<td>1,026</td>
</tr>
<tr>
<td>Increase in Consumer Fees per Card (£)</td>
<td>0.33</td>
<td>16.84</td>
</tr>
<tr>
<td>Reduction in MSCs (£ million)</td>
<td>26</td>
<td>933</td>
</tr>
<tr>
<td>Reduction in MSCs per Transaction (£)</td>
<td>0.003</td>
<td>0.40</td>
</tr>
</tbody>
</table>

Source: Europe Economics calculations
Under this scenario, cardholder fees would increase by £0.33 per card for debit cards and £16.84 per credit card.

Again, in the hypothetical case (which has been elsewhere suggested to be unlikely to be realised) that full pass-through to lower consumers prices would occur, prices would fall by £0.003 per average transaction for debit cards and £0.40 per transaction for credit cards. In relative terms, the average retail price reduction would be of fourteen basis points in the UK.

4.5 Scenario 3: Zero Interchange Fees

Under a zero interchange fee cap, issuing institutions would lose all of the revenue of generated from interchange fees, amounting to some £2.4 billion. This is shown in the table below.

Table 4.11: Interchange Revenues for Issuers under Scenario 3

<table>
<thead>
<tr>
<th></th>
<th>Credit (£m)</th>
<th>Debit (£m)</th>
<th>Total (£m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loss in Issuer Revenue from IFs</td>
<td>1,496.04</td>
<td>909.32</td>
<td>2,405.36</td>
</tr>
</tbody>
</table>

Source: Europe Economics calculations

On the basis of the Spanish experience, this would result in an increase in cardholder fees of £2.4 billion, while MSCs would decrease by £2.2 billion. In line with Spain and Australia, this would occur with no reduction in retail prices. We illustrate what the result of this would be per card and per transaction in the table below:

Table 4.12: Changes in Consumer Fees on a per card basis and MSCs on a per transaction basis for Scenario 3

<table>
<thead>
<tr>
<th></th>
<th>Debit</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Cards (million)</td>
<td>86</td>
<td>61</td>
</tr>
<tr>
<td>Number of Transactions (million)</td>
<td>10,185</td>
<td>2,320</td>
</tr>
<tr>
<td>Loss in IF Revenue (£ million)</td>
<td>909</td>
<td>1,496</td>
</tr>
<tr>
<td>Increase in Consumer Fees (£m)</td>
<td>909</td>
<td>1,496</td>
</tr>
<tr>
<td>Increase in Consumer Fees per Card (£)</td>
<td>10.53</td>
<td>24.56</td>
</tr>
<tr>
<td>Reduction in MSCs (£m)</td>
<td>827</td>
<td>1,361</td>
</tr>
<tr>
<td>Reduction in MSCs per Transaction (£)</td>
<td>0.08</td>
<td>0.59</td>
</tr>
</tbody>
</table>

Source: Europe Economics calculations

Under this scenario, cardholder fees would increase by £10.53 for debit cards and £24.56 for credit cards. Assuming full pass-through by merchants of the reduction in MSCs to consumers, retail prices would fall by £0.08 per average transaction for debit cards and £0.59 per average transaction for credit cards. In relative terms, prices per transaction would fall by thirty-two basis points.

4.6 Conclusion

To summarise the above discussion, the fee cap options that we have examined would reduce issuing banks’ interchange revenues between £1 and £2.5 billion. On the basis of the Spanish experience, although this would reduce MSCs by £1.4 to £2.2 billion, it would also increase total fees paid by consumers by between £1 and £2.5 billion pounds. These are shown in the table below.
Potential impacts of interchange regulation in the UK: Scenario analyses

Table 4.13: Comparison of loss in IF revenue, increase in consumer fees and reduction in MSCs under scenarios 1-3

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Loss in IF Revenue (£ m)</th>
<th>Increase in Consumer Fees (£ m)</th>
<th>Reduction in MSCs (£ m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scenario 1</td>
<td>1,528</td>
<td>1,528</td>
<td>1,390</td>
</tr>
<tr>
<td>Scenario 2</td>
<td>1,054</td>
<td>1,054</td>
<td>959</td>
</tr>
<tr>
<td>Scenario 3</td>
<td>2,405</td>
<td>2,405</td>
<td>2,189</td>
</tr>
</tbody>
</table>

Cardholder fees per card under each of the three scenarios are shown in the table below.

Table 4.14: Comparison of loss in increase in consumer fees per card under scenarios 1-3

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Increase in debit Card fees per card</th>
<th>Increase in credit Card fees per card</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scenario 1</td>
<td>5.81</td>
<td>16.84</td>
</tr>
<tr>
<td>Scenario 2</td>
<td>0.33</td>
<td>16.84</td>
</tr>
<tr>
<td>Scenario 3</td>
<td>10.53</td>
<td>24.56</td>
</tr>
</tbody>
</table>

The average debit card fees would increase by between £0.33 and £10.53, depending on the scenario, while average credit card fees would increase by either £16.84 or £24.56. As in the case of Australia, one could expect the annual fees for different types of cards, i.e. rewards-based cards, premium cards, etc., to be affected in different ways. If the Australian case were to take place in the UK, the annual fees for non-standard cards would be expected to go up by more than those of standard cards. Another reason why premium and rewards-based cardholders could be affected differently than standard card users, is because IFs tend to be higher for the former two than for the latter.36

Finally, if the reduction in IFs and MSCs were to be fully passed through to consumers by means of lower retail prices, the impact on the retail price paid per transaction for each scenario would be:

Table 4.15: Comparison of hypothetical fall in prices given full pass-through under scenarios 1-3

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Fall in prices of debit transactions</th>
<th>Fall in prices of credit transactions</th>
<th>Relative fall in prices in debit + credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scenario 1</td>
<td>£ 0.04</td>
<td>£ 0.40</td>
<td>0.20 %</td>
</tr>
<tr>
<td>Scenario 2</td>
<td>£ 0.003</td>
<td>£ 0.40</td>
<td>0.14 %</td>
</tr>
<tr>
<td>Scenario 3</td>
<td>£ 0.08</td>
<td>£ 0.59</td>
<td>0.32 %</td>
</tr>
</tbody>
</table>

36 We remind the reader that throughout the report and analysis we have used average interchange fee values.
5 Potential impacts of interchange regulation in the UK: Additional risks

5.1 Introduction

Section 4 considers the potentially adverse direct short- to medium-term impacts of the introduction of interchange regulation in the UK. However, interchange regulation could potentially also lead to a number of additional, more complex adverse consequences, namely:

- An increase in financial instability occurring due to lower revenues for issuing banks;
- Problems for the financing of the self-employed and micro-enterprises, the economic importance of which have increased;
- Uncertainty in monetary policy;
- Problems for the Government’s planned welfare reforms;
- A deterioration in competitive conditions and reduced incentives for issuers to innovate for bank cards.

5.2 Retarding the Recovery in Bank Lending

Banks appear in the four-party system at two key points: some are acquirers and some are issuers. In respect of issuers, there is a revenue effect that in direct terms is transitional but material. Transitional in that over the medium-term, charges to cardholders and interest rates may eventually balance out revenue lost through IFs, but in the interim period revenues and profits for issuers are diminished.

Such an effect on issuer revenues is likely to have wider impacts for the UK economy. Any decrease in their revenue streams is likely to decrease lending, as banks that are less profitable will take longer to rebuild their currently distressed balance sheets, and in the meantime will have less available to lend, while increases in the uncertainty of their revenue streams could also potentially slow the recovery in lending growth.

The chart below shows financial institutions operating income (left axis) and changes in their lending to the private sector (right axis). As financial institutions’ operating income grew relatively steadily from 2005 to early 2007, their lending to the private sector was growing. However, after a large shock to their operating income in 2008 as a result of the financial crisis, lending fell from the end of 2008. Moreover, despite a general recovery, their income has remained subject to significant fluctuations and lending generally continued to fall.
Figure 5.1: Quarterly total of Monetary financial institutions sterling and all foreign currency operating income residents and non-residents (in sterling millions) not seasonally adjusted (left axis) and quarterly changes in M4 lending (monetary financial institutions’ sterling net lending to private sector (in sterling millions) not seasonally adjusted (right axis)

As interchange regulation would reduce issuers’ revenues, a consequence might therefore be a slower recovery in bank profitability and hence a slower recovery in the robustness of bank balance sheets, due to lower revenues, and increased uncertainty, for issuing banks. This in turn could retard the recovery in bank lending.

5.3 Financial Problems for Small Businesses and the Self-Employed

As noted above, one important feature of the current crisis has been a fall in lending to businesses across the economy. Credit cards are an important alternative source of financing or credit availability for small businesses and the self-employed. As traditional bank lending channels have dried up, the importance of credit card lending to these groups has, if anything, increased.

The chart below shows year-on-year changes in business lending since 2000, and illustrates the sharp decline that has occurred since 2008.
Moreover, lending to small businesses in particular has been problematic. This can be seen in the chart below, which shows lending to small and medium enterprises since April 2011, which shows that lending to SMEs in 2012 was generally below its levels in 2011. Although there has been some improvement in 2013, lending conditions for small businesses remain poor.

Figure 5.3: Monthly sterling and all foreign currency gross lending (excluding overdrafts) to small and medium-sized enterprises (in sterling millions) by monetary financial institutions - not seasonally adjusted

Coupled with poor lending conditions, a further feature of the post-financial crisis economy has been an increase in the number of workers that are self-employed. In fact, the number of self-employed workers increased by 367,000 in the four years from 2008 to 2012, while the number of employees fell by 434,000 in the same period. This trend can be seen in the chart below, which shows year-on-year changes in the

Source: Bank of England

number of self-employed workers and employees in the UK. In every year but one the number of self-employed has increased, whereas in every year but one the number of employees has fallen.

**Figure 5.4: Year on Year Change in Number of Self-Employed workers and Employees (thousands)**

Small businesses, and the self-employed in particular, are more likely to be reliant on business credit cards as a source of finance than are larger businesses, which typically raise more of their capital through bank loans or corporates bonds. Likewise, sole traders may also use personal credit cards as a form of business finance. For example, only three per cent of small businesses use equity finance, compared to 55 per cent that use credit cards.\(^{38}\) More evidence on tighter lending conditions for SMEs in the wake of the crisis can be found here.\(^{39}\)

The UK Department for Business, Innovation and Skills (BIS)\(^{40}\) reported in January 2012 that 19 per cent of the external finances of SMEs are from credit cards. Moreover, they identify that SMEs use mostly existing cards, while only a small proportion of these firms obtain a new card.

According to the SME Business Barometer for February 2013\(^{41}\), half of all SME employers in the UK had credit cards that they used for business purposes.\(^{42}\)

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\(^{39}\) [http://www2.warwick.ac.uk/fac/soc/wbs/research/csme/research/latest/small_firms_in_the_credit_crisis_v3-oct09.pdf](http://www2.warwick.ac.uk/fac/soc/wbs/research/csme/research/latest/small_firms_in_the_credit_crisis_v3-oct09.pdf).


\(^{42}\) It is not known if the cards were used in the name of the business or as personal cards.
Potential impacts of interchange regulation in the UK: Additional risks

To the extent that interchange regulation increases the cost of holding cards and reduces credit card use, it would also therefore constrain finance to small businesses in particular.

5.4 Uncertainty in Monetary Policy

In any economy, and by definition, Nominal GDP (GDP in cash terms) is identical to the product of the broad money stock and the GDP-velocity of circulation of that money stock — the amount of money times the average circulation of each pound note in producing that GDP is identically equal to the cash value of GDP.

The broad money stock is not simply the notes and coin in circulation. Instead, the broad money stock can be thought of as consisting of “everything used as money” and can be defined in many ways, depending on how broadly one wants to draw the concept of being used as money. Some plausible definitions will, however, include available credit balances on credit cards as falling within the broad money stock. In general, however, it will certainly be the case that the relationship between narrower concepts of “money” (e.g. notes and coin plus reserve balances at the Bank of England — known as the “monetary base”) and “broad money” — the relationship called the “money multiplier” — will be affected by practices such as the standard norms of credit card use. In principle, such practices could also affect the velocity of circulation.

Hence the relationship between changes in broad money and changes in nominal GDP depends (either via the money multiplier or via the velocity of circulation), inter alia, on how widespread is the holding of credit cards and how they are used. If fewer consumers have credit cards, then (other things being equal) for a given monetary base, nominal GDP will be expected to be lower.

Quantitative easing (QE) involves the Bank of England purchasing government bonds with newly-created money. This process expands the monetary base. If the relationship between the monetary base and nominal GDP were stable, then such an expansion in the monetary base would have a predictable effect upon nominal GDP. There are, however, many complexities.

One such complexity has been widely discussed in recent months. Responding to the failure of many financial institutions during the financial crisis of 2008/09, the regulatory authorities in the UK raised capital and liquidity requirements (so-called “prudential requirements”) for banks. Many authors have contended that this had the perverse effect of offsetting the impact of QE on the broad money stock — with higher
capital requirements, the argument goes, banks face incentives to shrink (growth in) their balance sheets, thereby shrinking (growth in) the volume of bank deposits and hence reducing (growth in) the broad money stock. Responding to this critique, the Bank of England has recently emphasized the extension of the time period available over which to meet new capital requirements, and new banks have had their capital requirements reduced markedly.

In a closely related way, regulation that had the effect of reducing credit card use (as the Spanish experience suggests an interchange fee cap might do) could affect the relationship between QE and nominal GDP. This could make it very difficult for the Bank of England to calibrate the appropriate amount of QE to engage in (a difficult task even under ideal condition), and mean that the medium-term impacts were unpredictable.

5.5 Problems for the Implementation of Universal Credit

As part of its welfare reform programme, the UK government is introducing Universal Credit to replace six existing benefits – income-based Jobseeker’s Allowance, income-related Employment and Support Allowance, Income Support, Child Tax Credits, Working Tax Credits and Housing Benefit. Introduction of Universal Credit began in some areas of North-West England in April 2013. Key changes from the current system are that Universal Credit will be available to people in work as well as to those out of work, most people will claim Universal Credit online, and Universal Credit will continue to be paid as people move in and out of work, start a new job or increase their hours.43

However, from the point of view of interchange regulation, the key differences are that:

- Claimants will receive one monthly payment, paid electronically into a bank account in the same manner as a monthly salary. In combination with a Basic Bank Account, this can now include prepaid cards that have sort codes and account numbers.
- Support with housing costs will go directly to the claimant in their monthly payment.

The intention of paying claimants monthly, and paying support for housing costs directly to them, is to mirror working practices to ready claimants for entering the workforce and having to budget, as many existing benefits are paid weekly or fortnightly.

However, interchange regulation may cause problems for the implementation of Universal Credit for a number of reasons. First, as Universal Credit will be paid into bank accounts, including those linked to prepaid cards, regulating interchange would increase charges to card users. Current proposals for delivering Universal Credit payments via prepaid cards have no/low cost associated with them. In practical terms, regulating interchange removes the ability to offer this option as it would increase costs to claimants who would be in no position to pay. This may further increase the difficulty that claimants have in adjusting to monthly payments to bank accounts.

Secondly, to the extent that interchange regulation causes card users to withdraw larger amounts of money in a smaller number of withdrawals (as occurred in Spain), this may affect the ease of claimants’ adjustments to the new system. It is plausible that claimants adjusting to monthly payments would find managing their cash spending easier by withdrawing cash only as they needed it across the month, rather than having small numbers of large withdrawals. However, if increased card charges as a result of interchange regulation discouraged this practice and lead to large cash withdrawals, claimants may find it more difficult to adjust to monthly payments, and the effectiveness of welfare reform would be reduced.

5.6 Adverse Consequences for R&D and Innovation

5.6.1 Innovation in the payments system

One of the areas for which issuing institutions use interchange revenue is investment in R&D and innovation. Such investment is often channelled towards improving security of the card payments system by developing fraud prevention technologies and other security enhancing measures.

According to the UK Cards Association, players in the credit card business have historically invested heavily in developing the security of the system. Recently, investment has shown to have paid off: after a peak in fraudulent card use in 2008 at a total of nearly £600m, there has been a marked decline in losses from fraud from all card types to about £337.7 million (see Figure 5.5).

**Figure 5.5: Total Value of Fraudulent Card Transactions, in £ million**

![Graph showing total value of fraudulent card transactions from 2001 to 2011.](image)

Source: UK Plastic Cards 2012

As a result, the losses due to fraud in the industry have gone down significantly in the last five years (see Figure 5.6). One example of this is the implementation of a chip in both credit and debit cards which increased security of the system as approval for payment is now done by requiring a security code.

**Figure 5.6: Fraud losses on UK-issued cards, in million £**

![Graph showing fraud losses on UK-issued cards from 2001 to 2012.](image)

Source: The UK Cards Association

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44 According to DotEcon (2011), fraud prevention and the losses related to fraud are one of the main cost categories for retail banks.

45 Estimates of fraud for credit and debit transactions are provided in the Appendix.

46 In contrast, in Australia and the United States, some payments by credit cards are authorised by requiring a signature only.
What is more, Schneider (2013) reports that the UK has one of the smallest shadow economies in Europe relative to the size of its regular economy, currently at 10 per cent of GDP — which is widely regarded as at least partly a direct result of high usage of electronic payments. Nevertheless, together with Germany, Italy, France and Spain, the UK contributes to two-thirds of the European underground economy.

Other innovations that have resulted from the large investment in R&D are the introduction of contactless payments and the roll out of Near Field Communication (NFC) technology, also called mobile payments. Through the creation of the NFC Steering Group (NFC-SG), which consists of players from the card payment and other industries, several collaborations have been established. For instance card issuers and mobile network operators work together to design and develop new mobile payment methods.

The fall in IFs revenues for issuing banks is expected to have a negative impact on innovation through three mechanisms. First, as issuers see their revenues fall, provided they do not manage to recoup them through other means, they would have fewer resources available to invest in R&D and innovation. The lower investment would mean that the development of new technologies for improved security and fraud prevention in the market would slowdown progress in the field. In summary:

Regulatory intervention → fall in IFs revenue for issuers → less funds available for investment in R&D and innovation → slowdown in the improvement of security and fraud prevention

Second, depending on the competitive position of four-party card issuers vis-à-vis three-party issuers, the incentives for banks to innovate in general terms may be reduced:

Regulatory intervention → alteration of balance in four-party credit card system → negative impact on ability to compete with three-party system → no level playing field in the market for card payments → reduced incentives to innovate

This latter point was experienced in the Australian case. Four-party credit card schemes saw their ability to compete with three-party systems altered by the capped IFs and related reduction in IF revenue for issuers. This led to a decrease in the issuers’ incentives to innovate.

Third, as proven in the Spanish case, the regulatory intervention increased uncertainty for players in Spain, in particular with regards to future regulatory interventions. Such perceived uncertainty had a negative effect on the incentive and degree of innovation in the Spanish card payments industry.

Regulatory intervention → increased regulatory uncertainty for issuers → reduced incentives to innovate → decrease in innovation

As a result, the most direct consequence on consumers from a reduction in investment for innovation is that they may perceive that issuers are failing to improve security and protect consumers from fraud. This may lead consumers to associate card payments with higher risk, or non-decreasing risk, and thus choose not to switch to plastic cards. In this way, the displacement of cash with cards would be negatively impacted because increasing security of the system is seen as key to the adoption of cards as a payment method. NERA (2011) reported that in the UK cash as a means of payment fell behind debit cards when the latter became the most used form of payment in 2010. Over the decade from 1999 to 2009 cash has become less important: in 2009 only 59 per cent of transactions were completed using cash, in comparison to 73 per cent in 1999.

As described in Section 3 when analysing the Spanish experience, a greater use of cash is associated with boosting the shadow economy because cash payments are anonymous and are not as easily traceable as card payments, therefore making it easier to participate in the underground economy. In relation, regulating IFs would be expected to lead to the following causal mechanism:

47 Specific examples include collaborations between Barclaycard and O2 for the development of QuickTap, Vodafone and Visa for mobile wallet and Visa and Samsung for the creation of the Olympics m-payment app.
Regulatory intervention → less investment in R&D and innovation → slowdown in the improvement of security and fraud prevention → lower perceived security associated with the card payments system → greater use of cash → boosting of underground economy

Consequently, cash as a form of payment is more conducive of tax evasion than plastic cards. As reported in NERA (2011) reducing the size of the underground economy is beneficial to society as it increases tax revenues, but also because it provides for a less distorted tax system as it reduces the burden on the “regular economy”.

Also, Schneider (2013) explains that “Countries with high levels of electronic payment usage, such as the United Kingdom and the Nordic countries, have smaller shadow economies”. For this reason, increasing the security of the card payments system is key to reducing the size of the underground economy. The author found that if the volume of electronic payments would increase by 10 per cent annually for at least four consecutive years, the shadow economy could be expected to shrink by five per cent.

NERA (2011) estimated that in the UK increasing the use of electronic payments between 2.5 and 10 per cent would lead to an increase in tax revenues of up to £3.4 bn.

In addition, one would expect a lower degree of security of card payments as perceived by consumers to adversely affect the UK’s e-commerce industry. As described in Section 2.2, e-commerce has grown in importance recently as credit cards accounted for 51 per cent of online spending in 2011. If this means of payment is perceived as lacking the expected level of security, consumers may shift back to using cash. Such consumers would naturally no longer be able to engage in e-commerce, thus affecting its use and development. Also, as discussed in Section 2, the analysis in Spain suggested that that small business acceptance costs might rise as a result of interchange regulation. As the vast majority of e-commerce businesses fall into the UK Government classification of small and medium-sized enterprises, interchange regulation might therefore have a disproportionately adverse effect on this sector.

5.6.2 Innovation by small firms

The sections above described the problems faced by UK businesses, especially small and medium-sized enterprises in accessing finance after the start of the financial crisis. In that context, we explained how the regulation of interchange fees could have a destabilising effect on the economy and thus delay the recovery in lending.

In relation to that argument, in a recent report by the Big Innovation Centre48, it is argued that the UK firms most likely to apply for finance are those which are most innovative. The authors found that in the period from 2010 to 2012, 34.7 per cent of innovative firms applied while only 24.9 per cent of other firms did. The former figure increased in comparison to 2007-2008, when only 28.2 per cent of innovative firms and 22.8 per cent of other companies sought finance. What is more, innovative firms found it more difficult to access finance as they are less likely to obtain finance now than before the recession. For this reason, delaying the recovery in bank lending may have a further negative impact on innovation in the country.

5.7 Conclusion

In addition to its direct effects on the cards market, interchange regulation could potentially have a number of further adverse impacts in the UK. The reduction in issuer bank revenues may delay the recovery in bank lending, whilst reductions (relative to trend) in the use of credit cards may increase uncertainty in monetary policymaking. In view of recent trends in the labour market, regulation may also have adverse effects on finance for the self-employed, while increased card charges may have adverse impacts on welfare.

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48 Lee et al. (2013) “Credit and the crisis, Access to finance for innovative small firms since the recession”, the Big Innovation Centre [Available here].
reform. Finally, regulating interchange may also lead to a particular impact on the e-commerce industry and reduced investment in R&D and innovation.
6 Conclusions

The analysis presented in this Report implies the following conclusions:

- We presented the analysis of past studies which found that the Spanish and Australian experiences in regulating interchange fees led to a transfer from issuers to merchants, that the former recovered in time from card users in the form of higher cardholder fees and increased interest rates, with merchants gaining in the interim. It is unclear what valid policy objective could justify engineering such a transfer, especially given that currently financially-stretched UK banks are not a cash-rich source to subsidise merchants.

- If duplicated in the UK, the Spanish experience would imply:
  - Losses in issuers’ revenues of up to £2.5 billion.
  - Issuers could aim to recoup such revenue loss by raising cardholder fees by up to £11 for debit cards and £25 for credit cards.

- In addition, there could be complexities for the recovery in UK bank lending, SME financing, quantitative easing, universal credit and innovation/fraud control.
7 References


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8 Appendix 1

8.1 The Cost of Fraud to Card Issuers

Table 8.1 gives a break down of these losses from fraud from debit and credit/charge cards as a percentage of the IF revenues calculated in the previous section for 2009-2011. In 2011 and 2010, fraud was equivalent to around 17 per cent of IF revenues from debit card transactions while that for credit cards was at 10 per cent for 2011 and 12.61 per cent for 2010.

Table 8.1: Fraud (£s millions, %) of IF Revenues for Debit, Charge/Credit and All Cards

<table>
<thead>
<tr>
<th>Year</th>
<th>Debit Fraud (£s)</th>
<th>IF (£s)</th>
<th>%Fraud/ Debit Revenues</th>
<th>Credit &amp; Charge &amp; IF (£s)</th>
<th>%Fraud/ Credit &amp; Charge &amp; Revenues</th>
<th>Total Fraud (£s)</th>
<th>IF (£s)</th>
<th>%Fraud/ Total Revenues</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009</td>
<td>214.6</td>
<td>863.739</td>
<td>24.85</td>
<td>217.5</td>
<td>1323.18</td>
<td>432.1</td>
<td>2186.92</td>
<td>19.76</td>
</tr>
<tr>
<td>2010</td>
<td>167.3</td>
<td>969.127</td>
<td>17.26</td>
<td>192.1</td>
<td>1522.83</td>
<td>359.4</td>
<td>2491.955</td>
<td>14.42</td>
</tr>
<tr>
<td>2011</td>
<td>187.8</td>
<td>1082.22</td>
<td>17.35</td>
<td>149.9</td>
<td>1496.48</td>
<td>337.7</td>
<td>2578.702</td>
<td>13.09</td>
</tr>
</tbody>
</table>

Source: UK Payments Statistics 2012, elaborated by Prof. Markose

Table 8.2 gives estimates for the cost of fraud for the average transaction value (ATV) for debit and credit/charge cards for 2009 -2011. As a percentage of IF revenues of ATV for debit cards, the cost of fraud works out to about 2.5 pence of 2009 and coming down to 1 pence for a ATV of £51.75 in 2011. For credit/charge card ATV of about £67 in 2011, the cost of fraud is estimated to be 6 pence, while this was closer to 10 pence in 2009.

Table 8.2: Fraud for Average Transaction Values (ATV) Debit, Charge/Credit Cards (in pence)

<table>
<thead>
<tr>
<th>ATV</th>
<th>IF ATV</th>
<th>Fraud for ATV</th>
<th>ATV</th>
<th>IF</th>
<th>Fraud for ATV</th>
<th>All ATM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Debit</td>
<td>Debit</td>
<td>Debit</td>
<td>Credit &amp; Charge</td>
<td>Debit</td>
<td>Credit</td>
<td>Charge</td>
</tr>
<tr>
<td>2009</td>
<td>£49.52</td>
<td>10p</td>
<td>2.5p</td>
<td>£67.19</td>
<td>59p</td>
<td>9.7p</td>
</tr>
<tr>
<td>2010</td>
<td>£52.85</td>
<td>8.7p</td>
<td>1.5p</td>
<td>£68.78</td>
<td>70p</td>
<td>8.8p</td>
</tr>
<tr>
<td>2011</td>
<td>£51.75</td>
<td>8p</td>
<td>1p</td>
<td>£67.65</td>
<td>64p</td>
<td>6p</td>
</tr>
</tbody>
</table>

Source: UK Payments Statistics 2012, elaborated by Prof. Markose

Clearly, an abolition of IF will imply that in the absence of IF revenues to offset the cost of fraud, card issuers will have to find other avenues to recoup the losses from fraud. Capping the IF for debit cards at 4 pence and 30 basis points implies about 20 pence IF revenues for a credit/charge card ATV of £67.

8.2 Performance of UK Credit Card Loans

Studies such as Evans and Schmalensee (2005) have shown that the largest share of revenue and costs for issuers are attributable to credit card debt. Until very recently credit card loans were a very lucrative
business. Although the rate of return has fallen as compared to the late 1980s and the early 1990s, compared to most other commercial bank activities credit cards still remain more profitable than these.49

Table 8.3: UK Consumer Credit Card Loans Outstanding (£s millions), APR (%) Interest Paid (£millions), Write Offs (%,$millions)

<table>
<thead>
<tr>
<th>Year</th>
<th>Outstanding Credit Card Loans (£smm)</th>
<th>Interest Credit Card %</th>
<th>Write off Credit Card %</th>
<th>Write Offs (£s mms)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2001</td>
<td>39854</td>
<td>18.25</td>
<td>7271.69442</td>
<td>2 797.08</td>
</tr>
<tr>
<td>2002</td>
<td>43056</td>
<td>18.12</td>
<td>7800.312</td>
<td>2.5 1076.4</td>
</tr>
<tr>
<td>2003</td>
<td>46540</td>
<td>17.98</td>
<td>8368.27983</td>
<td>3.5 1628.9</td>
</tr>
<tr>
<td>2004</td>
<td>51864</td>
<td>17.80</td>
<td>9233.0886</td>
<td>3.4 1763.376</td>
</tr>
<tr>
<td>2005</td>
<td>57100</td>
<td>17.62</td>
<td>10061.02</td>
<td>4 2284</td>
</tr>
<tr>
<td>2006</td>
<td>55612</td>
<td>17.44</td>
<td>9698.26937</td>
<td>5.8 3225.496</td>
</tr>
<tr>
<td>2007</td>
<td>53421</td>
<td>17.29</td>
<td>9234.7102</td>
<td>5.9 3151.839</td>
</tr>
<tr>
<td>2008</td>
<td>52107</td>
<td>17.14</td>
<td>8930.27135</td>
<td>6.2 3230.634</td>
</tr>
<tr>
<td>2009</td>
<td>51154</td>
<td>17.00</td>
<td>8696.60628</td>
<td>8.1 4143.474</td>
</tr>
<tr>
<td>2010</td>
<td>60000</td>
<td>16.80</td>
<td>10082.5</td>
<td>8.5 5100</td>
</tr>
<tr>
<td>2011</td>
<td>57655</td>
<td>16.62</td>
<td>9581.30008</td>
<td>6.2 3574.61</td>
</tr>
</tbody>
</table>


Since 2001, outstanding credit card loans climbed steadily and to about £57 billion in 2007. The onset of the financial crisis saw some contraction in household indebtedness from 2006-2009 as households paid down loans. The fall in APR to 16.62 per cent in the 3 years leading up to 2011 has led to some substantial increases in outstanding credit card loans with the latter peaking at £60 billion. Revenues from credit card interest income had peaked at £9.69 billion in 2006 and this pre-crisis peak has more or less been achieved again in 2011.

The write off rates were at a historic low of about 2 per cent in 2001-2002. This has been steadily climbing since. The onset of the credit crunch with the 2007 financial crisis saw the write off rates peak at about 8.5 per cent in 2010. This corresponded with losses of about £5 billion. This has subsided to a write off rate of about 6.2 per cent in 2011 and close to the pre-crisis losses of £3.57 billion.

49 The average credit card profitability in the US has been estimated to be about 3%. This tallies with the return on assets reported by the Federal Reserve for a sample of large credit card banks, which was found to range between 2.14% and 3.66% for the years 1996-2005.