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* Views expressed are those of the authors and do not necessarily reflect official positions of De Nederlandsche Bank.

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Abstract

The provision of retail payment services is complex with many participants engaging in a series of interrelated bilateral transactions and subject to large economies of scale and scope along with strong adoption, usage and network externalities. This makes sound public policy difficult. We focus on three types of market interventions for various countries. We argue that intervention into payment markets should concentrate on the removal of entry barriers in payment markets and providing greater incentives to adopt efficient payment instruments without stifling private sector investment in more efficient payment technologies over the long term. While the theoretical literature on the economics of payment cards is growing, the empirical literature is yet too limited to provide much guidance to public authorities. Eventually, the outcomes from different types of market interventions will provide a useful “natural experiment” to refute or validate the various theories of the economics of payments.

Keywords: Retail payments, market interventions, pricing, public policy

JEL Codes: L11, G21, D53

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INTRODUCTION

Payment systems are evolving rapidly and are more complex than ever before in terms of global connectivity and the rules and regulations that govern them. They are a critical component of any financial system infrastructure—the “plumbing”—of any well-functioning economy. In this chapter, we will concentrate on market interventions in retail payment markets with particular focus on payment cards. Payment cards include cards that access transaction accounts, known as debit cards, cards that access lines of credit, known as credit cards, and cards that are prefunded, known as prepaid cards. Payment card usage has increased dramatically over the last two decades in most advanced economies. This increased usage has primarily resulted in the displacement cash and check transactions.¹ In addition, the rapid growth of internet transactions has increased the attractiveness of card-based transactions.

We focus on three types of market interventions. First, we analyze the impact of removing pricing restrictions placed on merchants that prevent them from setting different prices based on the payment instrument used to make purchases. Second, we summarize the impact on adoption and usage of payment cards when public authorities mandate caps on interchange fees—the fees paid by the payer’s financial institution to the payee’s financial institution. Third, we discuss the forced acceptance of all types of payment cards belonging to a single payment network, i.e. credit, debit, and prepaid, when merchants enter into contracts with acquirers. Such rules are often called honor-all-cards rules. While our focus is on payment cards, various pricing policies used to reach critical mass and steal market share from other payment instruments may also be valid for other types of payment instruments.

¹ Amromin and Chakravorti (2009) find a causal relationship between the adoption of payment card terminals and a decrease in the transactional demand for cash across 13 advanced economies.

For many observers, the pace of innovation, the displacement of paper-based payments with electronic substitutes, and the profitability of payment providers demonstrate how vibrant and adaptive the payment card industry has been with limited involvement by public authorities. Other observers argue that payment networks should be financial market utilities and regulated to limit the profits of network operators and payment providers.² The economic justification for public intervention arises when there is market failure.³ For example, in the United States, the ability to electronically exchange check images instead of original paper checks on a wide scale in the clearing and settlement process was enabled by the Check Clearing for the 21st Century Act passed by Congress in 2003.⁴ Once the Act was implemented, payment providers invested in new technologies and for the most part, eliminated the exchange of original or substitute paper-based images resulting in a more efficient electronic interbank processing of checks. Today, some financial institutions are allowing customers to take pictures of their checks with their mobile phones that they receive and send images for deposit. Prior to the Act, check processors were reluctant to invest in new image technologies and abandon their paper check sorters.

Many payment markets exhibit a combination of market failures. First, there may be coordination problems among the large number of participants preventing large capital expenditures or the establishment of industry standards inhibiting long-run growth and development such as the processing of electronic check images instead of paper checks. Second,

² Financial market utilities, such as payment systems, central securities depositories, and central counterparties, are entities that provide the essential infrastructure to clear and settle payments and other financial transactions, upon which the financial markets and the broader economy rely to function effectively.

³ Economists are generally agnostic on how profits are shared by economic agents for a given level of output for goods and services. They are concerned with the aggregate welfare of all economic agents. In other words, the possibility to increase the size of the pie is more important than how the pie is divided among economic agents at a given level of output for goods and services.

⁴ A key driver of this legislation was the stoppage of check processing after the September 11, 2001 terrorist attacks until planes were allowed to fly again. Note that the Act only mandated the exchange of paper-based substitute images instead of the original paper check written by the payer.

strong network effects exist in the provision of payment services because of the connectivity required between millions of payees, payers, financial institutions and payment network operators.⁵ Third, considerable scale and scope economies in retail payment systems may lead to highly concentrated markets with few payment networks because of high barriers to entry for new payment networks.⁶ Economies of scale and scope along with network effects may result in few payment network operators raising potential concerns of significant pricing power. Fourth, “two-sided” network effects cause further interdependencies that affect the pricing structure of payment instruments, in particular the setting of interchange fees—the fee paid by the payee’s bank to the payer’s bank—in payment card markets.⁷ Economic models of two-sided markets suggest that competition among network operators may result in fee structures that are less desirable than those set by a monopoly network.⁸ Fifth, consumer and merchant incentives to keep vital payment information secure and investments into fraud mitigation systems by payment providers and network operators may not be aligned to achieve the socially desirable level of prudent behavior by consumers and merchants to protect vital payment data and sufficient investment in fraud detection and prompt resolution technologies by payment providers.

The motivation of public authorities to intervene in payment card markets varies by country. First, public authorities may intervene to improve the incentives to use more efficient

⁵ Network effects exist when the value of a good or service to consumers increases as the number of consumers using the product increases. The classic example used in network economics is the fax machine. The value of fax machines increase as the number of fax machine owners increase because faxes can be use to connect to more locations.

⁶ Economies of scale exist when the average cost of production decreases as the quantity produced increases. Economies of scope exist when the joint costs of providing various payment and financial services together are lower than the “stand-alone” costs of providing these services separately.

⁷ Rochet and Tirole (2006) define a two-sided market as a market where not only the total price of the service but also the price structure (i.e. the share that each type of end-user pays of the total price) affects the total volume of transactions. In addition, end-users such as consumers and merchants are unable to negotiate prices based on costs to participate on a platform. Furthermore, this two-sided nature may limit the pricing power of payment providers.

⁸ For a review of these models, see Bolt and Chakravorti (2008b).

payment instruments.⁹ Second, they may also intervene because fees are “too high.” Third, public authorities may enable adoption of payment standards that may be necessary for market participants to invest in new payment instruments and channels especially during times of rapid innovation and competing standards. Fourth, consumer protection and education about payment and credit products continue to be a concern and an area of active involvement by public authorities. Most notably, the Dodd Frank Wall Street Reform and Consumer Protection Act (DFA) passed in 2010 mandates the creation of the Consumer Financial Protection Bureau which will have this specific mandate. However, if public involvement in payment markets is deemed necessary, public authorities must carefully weigh not only the immediate costs and benefits but also the impact on long-term investment in emerging technologies that would improve the efficiency of retail payment systems broadly.

We conclude that the justification to regulate fees is difficult at best given the lack of empirical evidence that conclusively shows the impact of fee regulation on consumers, merchants, financial institutions and investment in future innovations. Furthermore, the cost-based approach that is often used to regulate these fees ignores the economics of two-sided markets arguing that cross-subsidies among payment system participants may be necessary especially in mature payment card markets. However, public authorities should encourage the removal of merchant pricing restrictions such as the inability to charge different prices based on the instrument used to make payment. When consumers are faced with price incentives that more accurately reflect the underlying cost differences between payment instruments, they are

⁹ We define efficient payment instruments as payment instruments that not only use the least economic resources but we also take into account the economic benefits extended which in some cases may not be measured in monetary terms. For example, although credit cards may be the most expensive payment instrument to accept for merchants, credit provides economic benefits that cannot be ignored when considering these costs. Chakravorti and To (2007) study these tradeoffs. Furthermore, there is likely not one efficient payment instrument for all payers and payees for all types of transactions.

likely to use the payment instrument that generates the greatest social benefits. Such a policy is likely to improve market efficiency, although there may be instances where merchants set surcharges that are greater than their cost of acceptance potentially resulting in price signals that may cause consumers to use less efficient payment instruments. Finally, we would encourage greater competition among payment providers (banks and nonbanks) to provide innovative payment solutions that may leverage non-card-based retail payment systems while maintaining the overall safety and integrity of the payment system.¹⁰

STRUCTURE OF PAYMENT CARD MARKETS

Payment card networks comprise of consumers and their banks (known as issuers), as well as merchants and their banks (known as acquirers). Issuers and acquirers participate in a payment card network where an operator sets the rules and procedures for clearing and settling payment card receipts among its members. In principle, other forms of electronic payments, such as credit transfers and direct debits, have a similar structure in that payees and payers use financial institutions to transfer funds between them.

In figure 1, we diagram the four participants and their interactions with one another. First, a consumer establishes a relationship with an issuer and receives a payment card. Consumers generally do not pay per-transaction payment card fees to their banks. The types of fees paid by consumers differ based on the type of payment card. For debit cards, the fees are usually bundled into transaction account fees. In some cases, consumers may be limited to a

¹⁰ Nonbanks are defined as firms that do not have a bank charter. Nonbanks are playing an increasingly larger role in the payment system. Nonbank participants in the retail payment system include network operators, telecommunication providers, third-party processors, and any other entities that are a part or becoming a part of the payment processing chain such as Apple, Facebook, and Google. Countries differ in their regulation of nonbank players in the payment space. However, some nonbank participants may fall under a regulatory umbrella because of services they provide to banks.

certain number of transactions after which they will have to pay per-transaction fees. For general-purpose prepaid cards issued by financial institutions that are branded by a major payment card network, consumers pay upfront fees and may face other fees when reloading them.¹¹

---INSERT FIGURE 1 HERE---

For credit cards, consumers often pay annual membership fees but many U.S. issuers have eliminated them. On the contrary, some credit card issuers give their customers per transaction rewards, such as cash back or other frequent-use rewards. These rewards are effective in not only convincing consumers to use a certain payment instrument such as a credit card vis-à-vis cash but also between different credit cards in their wallet.¹² However, the U.S. merchant community has argued that these incentives result in the usage of more costly payment instruments and that merchants fund these rewards. Who pays for credit card rewards and whether such cross subsidies are justified continue to be hotly debated. Chakravorti and Emmons (2003) suggest that this cross subsidy comes from consumers that revolve.

Second, a consumer makes a purchase from a merchant using a payment card if the merchant has previously established a relationship with a financial institution to convert payment card receipts into bank deposits. A benefit that the merchant receives when accepting payment cards is a guarantee of payment if certain procedures are followed. For all payment card transactions, there are authentication and authorization procedures. The authentication process

¹¹ There are different types of prepaid cards. We limit our discussion to general-purpose network branded prepaid cards that are issued by the major payment network operators. For a discussion of prepaid cards, see Chakravorti and Lubasi (2006).

¹² Carbó Valverde and Liñares Zegarra (2009) and Ching and Hayashi (2010) study the impact of credit card rewards on the usage of other payment instruments. Agarwal, Chakravorti, and Lunn (2010) study rewards and their impact on credit card substitution and increased spending.

validates the cardholder and insures against unauthorized payments. Authentication can be achieved by signature, personal identification number, or other means.¹³ The financial institution authorizes the amount of the transaction based on funds in the account or availability of credit lines. By using a real time authorization, payment card issuers are able to eliminate payments where the account does not have sufficient funds or access to credit.¹⁴

Generally, merchants charge the same price regardless of the type of payment instrument used to make purchases. Often merchants are restricted from charging more for payment card purchases by the card network or by certain laws.¹⁵ These rules are called no-surcharge rules. In the United States, the Truth-in-Lending Act enacted in 1968 as part of the Consumer Protection Act and implemented as Federal Reserve Regulation Z initially restricted the charging of instrument-contingent prices. We define instrument-contingent prices as prices set by merchants for goods and services that are based on the type of instrument used to make the purchase. Subsequent revisions to Regulation Z and a part of the DFA have increased the ability of merchants to offer discounts for purchases made with certain payment instruments.¹⁶

Third, the merchant either pays a fixed per transaction fee (more common for debit cards) or a proportion of the total purchase amount, known as the merchant discount fee (more common for credit cards), to its acquirer.¹⁷ For credit cards, the merchant discount can range from one percent to five percent depending on the type of transaction, type of merchant, and type of card,

¹³ In some instances, U.S. card issuers may force cardholders to call and answer questions regarding previous addresses lived at, recent purchases made, and cars owned in the past before their cards can be used as an additional security measure.

¹⁴ The checking of funds or credit line availability is not similarly bundled by the financial institution for check and ACH debit payments, where ACH payments are initiated by the receiver of payments. Receivers of checks may opt for third-party check authorization and guarantee systems.

¹⁵ For example, some U.S. state laws prevent merchants from surcharging for certain payment card purchases.

¹⁶ For more discussion about U.S. instrument-contingent pricing history, see Chakravorti and Shah (2003).

¹⁷ Shy and Wang (2011) suggest that ad valorem fees may be more efficient in certain cases.

if the merchant can swipe the physical card or not, and other factors.¹⁸ This fee is greater than the interchange fee and generally increases or decreases as the interchange fee increases or decreases, respectively. These fees are bilaterally set between the acquirer and issuer. In the United States, some types of merchants pay fees that are almost identical to the interchange fees. This linkage between the interchange fee and the merchant fee is the main reason that merchants have lobbied legislatures and antitrust authorities globally to reduce interchange fees.

Fourth, acquirers pay interchange fees to issuers. These fees can either be ad valorem, proportional to the value of the transaction, or fixed regardless of the purchase amount. In addition, the fee may differ based on the type of merchant, the type of card, and whether card is present or not. The interchange fee is set at the network level. Prior to the recent restructuring of MasterCard and Visa into for-profit corporations, both operated as association of member banks. As such, a network of competitors set interchange fees that they charged one another resulting in antitrust scrutiny on the grounds of collectively setting prices. As part of one of the first U.S. antitrust challenges to the setting of interchange fees where Visa was able to successfully defend its setting of interchange fees, Baxter (1983) argued that the interchange fee were critical for payment cards to exist because consumers may have been reluctant to pay their share of the cost because of the perceived benefits of card use whereas merchants may have been willing to pay more than their cost resulting in both consumers and merchants being better off.

¹⁸ When the first charge card (payment cards that require full payment at the end of the payment cycle) was introduced in 1949 by Diners Club, the merchant discount was set at seven percent. This fee was based on a conversation by its founders with a restaurant owner about how much the restaurant was willing to pay for additional customers brought in by Diners Club membership. This feature has most recently been unbundled by Groupon that provides discounts at certain stores and restaurants resulting in increased sales for participating businesses.

THE ROLE OF PUBLIC AUTHORITIES

The role of public authorities in the operation and oversight of retail payment systems especially central banks has been evolving over time. The provision of fiat money (money that is created without another asset backing it such as gold) has been a central bank function for a long time. In most cases, central banks also operate large-value transfer systems for interbank payments although in some countries such as Canada and the United Kingdom, these are operated by private entities. Systemic concerns about large-value systems have resulted in central banks playing an active oversight role and often providing liquidity backstops especially during times of financial stress. Because these systems are usually operated as financial market utilities and not as profit-making entities, prices are set at cost or are used to provide incentives to encourage participants to better manage credit extended by the central bank. For example, Fedwire uses fees on daylight overdrafts to limit credit exposure to the central bank. In addition, generally, large-value systems have fewer competitors and limit the number of participants unlike retail payment networks that can be accessed by millions of consumers and merchants globally.

In non-cash retail payment systems, the role of central banks has differed widely. For example, the Federal Reserve operates a check clearing system and an automated clearing house (ACH) payment network alongside private sector competitors. In some European countries, such as the Netherlands, the government-run postal service infrastructure was used as an access point for payment services. In addition to public sector payment networks, private sector networks establish rules and standards for their members along with the infrastructure to clear and settle accounts that often leverage central bank operated payment networks. Until recently, these

networks set underlying interbank fees to promote payment cards vis-à-vis other payment options without intervention by public authorities.

More recently, in addition to central bank oversight, other public entities such as antitrust authorities, judicial systems, and, in some cases, national legislative bodies have intervened in retail payment markets. For example, the U.S. Department of Justice successfully sued the two largest payment card networks—MasterCard and Visa—to allow financial institutions issuing MasterCard and Visa cards to also issue cards from competitor networks such as American Express and Discover. In another court case, around five million U.S. merchants took legal action against MasterCard and Visa challenging their honor-all-cards rules that required acceptance of all payment products issued by a given network. The two card networks agreed to unbundle their payment products in an out-of-court settlement. The DFA gives the authority to the Federal Reserve Board to set rules regarding the level of debit card interchange fees. In this chapter, when we refer to public authorities, we include any public entity that can or has been given the authority to intervene in payment markets.

MARKET INTERVENTION AND EFFICIENCY

Intervention by the public authorities into payment card markets differs by country.¹⁹ We will focus on three types of the market interventions that were undertaken by public authorities to increase the efficiency of the payment market. In particular, we will discuss the removal of merchant pricing restrictions, regulation of interchange fees, and decoupling of merchant acceptance of all types of payment cards belonging to a single payment network operator.

Our analysis suggests that there is no “one-size-fits-all” strategy for intervention into payment card markets because of differences in adoption of payment forms, legal systems, and

¹⁹ For a discussion about the role of public authorities in retail payment systems, see Bolt et al (2010).

level of competition in banking and the broader economy. Our goal is to highlight specific market interventions and their effects on overall efficiency of the payment market.

Removal of no-surcharge policies

There are several countries where merchants are able to surcharge payment card transactions. In most cases, card networks prohibit merchants from surcharging consumers for their payment card purchases. Most of the academic research suggests that if merchants are allowed to surcharge, the level of the interchange fee would be neutral. An interchange fee is neutral when changing the level of the fee has no impact on card adoption or usage. If the interchange fee is neutral, regulating it would have no impact on payment card usage. We will discuss whether merchants actually surcharge or post differential prices when allowed to do so. This discussion should inform the debate of the willingness and ability of merchants to pass on costs directly to payment card users to potentially reduce cross-subsidies between consumers that use payment cards and those that do not.²⁰ Many public authorities and the merchant community have questioned why these cross subsidies should exist. We will discuss the ability of merchants to charge instrument-contingent pricing in three countries: Australia, the United States, and the Netherlands.

Australia

As part of their payment card reforms, the Reserve Bank of Australia (RBA) removed all surcharge restrictions. In addition, the RBA allowed differential surcharges among credit cards from different networks. The Australian authorities argued that consumers did not receive the

²⁰ Bolt and Chakravorti (2008a) provide a theoretical analysis on the relationship between the level of the pass through in the form of the surcharge and social welfare.

proper price incentives to use debit cards instead of credit cards when long-term credit lines were not used. In its 2008 review of these reforms, the RBA reported that the average cost of a credit card transaction excluding any costs associated with the credit component was AUS\$0.35 higher than a debit card transaction using a consistent AUS\$50 transaction size (Reserve Bank of Australia, 2008a). To encourage better price signals with the aim to increase debit card use vis-à-vis credit card use, the RBA removed no-surcharge restrictions in 2002.

While most Australian merchants do not impose surcharges for any type of payment card transaction today, the number of merchants surcharging credit card transactions continues to increase. At the end of 2007, around 23 percent of very large merchants and around ten percent of small and very small merchants imposed surcharges. The average surcharge for MasterCard and Visa transactions is around one percent, and that for American Express and Diners Club transactions is around two percent (Reserve Bank of Australia, 2008a). The RBA also found that if one network's card was surcharged more than another networks' cards, consumers dramatically reduced their use of the card with the surcharge. After analyzing consumer surveys, the RBA noted that nearly 40 percent of credit card convenience users (that is, credit card users who do not need credit to make purchases) did not use a debit card during the time of the survey suggesting that using credit cards is still preferred by many of those who do not need to borrow.²¹

²¹ Of course, even those credit card users who pay off their balances every month may benefit from short-term loans because they do not have funds in their accounts when making their purchases but their incomes will arrive before the credit card bill is due. Simon, Smith, and West (2010) find that those consumers that have an interest free period credit card, i.e. do not carry credit card balances month-to-month, are less likely to use their debit cards than those that do not have access to such a credit card.

United States

In the United States, merchants are allowed to offer cash discounts but may not be allowed to surcharge credit card transactions. In the 1980s, many U.S. gas stations explicitly posted cash and credit card prices. Barron, Staten, and Umbeck (1992) report that gas station operators imposed instrument-contingent pricing when their credit card processing costs were high but later abandoned this practice when acceptance costs decreased because of new technologies such as electronic terminals at the point of sale suggesting that the benefits of accepting payment cards were greater than the costs to accept them. Recently, some gas stations brought back price differentiation based on payment instrument type, citing the rapid rise in gas prices and declining profit margins.

U.S. consumers are rarely confronted with instrument-contingent pricing at the point of sale when they make purchases although there may be under-the-table arrangements where cash discounts may be offered. However, a part of the DFA expands the ability of merchants to steer consumers with price incentives. U.S. merchants will be allowed to offer discounts on any type of payment instrument vis-à-vis another type of instrument but may not offer discounts within a class of payment instruments. For example, a merchant may not offer a different discount for a MasterCard credit card than a Visa credit card.

The Netherlands

In some instances, public authorities may prefer if merchants did not surcharge certain types of transactions so as to increase the overall efficiency of the payment market by

eliminating incentives to use more costly payment instruments such as cash.²² For example, Bolt, Jonker, and van Renselaar (2010) find that a significant number of merchants surcharge debit transactions vis-à-vis cash in the Netherlands. Debit card surcharges are widely assessed when purchases are below 10 euro, suggesting that merchants are unwilling to pay fixed transaction fees below this threshold. Bolt, Jonker, and van Renselaar state that merchants may surcharge up to four times their debit card fee. In addition, when debit card surcharges are removed, consumers start using their debit cards for these small payments, suggesting that merchant price incentives do affect consumer payment choice. In an effort to promote a more efficient payment system, the Dutch central bank has supported a public campaign to encourage retailers to stop surcharging to encourage consumers to use their debit cards for small transactions. This strategy appears to have been successful. In 2009, debit card payments below ten euro accounted for more than 50 percent of the total annual growth of almost 11 percent in debit card volume. Because debit card processing is a scale business, average transaction costs fall as the number of debit transactions increase. An agreement between the payment network and merchants was reached to pass on some of the cost savings from increased volume to merchants.

The ability for merchants to charge different prices is a powerful incentive to convince consumers to use a certain payment instrument. In reality, few merchants may surcharge or discount card transactions depending on expected benefits and their underlying cost structures. In some instances, surcharges may result in less efficient payment use as evidenced in the Dutch example suggesting a potential adverse problem whereby merchants impose higher surcharges than their costs. It remains an economic puzzle as to why most merchants do not set instrument-

²² Amromin and Chakravorti (2009) suggest that there may be other benefits to cash acceptance such as tax avoidance. Often the anonymity feature of cash is highly valued by consumers such that in extreme cases, they may be willing to pay more when using cash.

contingent pricing when they are allowed to do so to offset fees that they pay to their payment providers.

Regulation of interchange fees

There are several jurisdictions where interchange fees were directly regulated or significant pressure was exerted by the public authorities on networks to reduce their interchange fees.²³ In this section, we will discuss the actual and potential impact of interventions in four jurisdictions—Australia, Spain, the European Union, and the United States.

Australia

In 2002, the RBA imposed weighted-average MasterCard and Visa credit card interchange fee caps and later imposed per transaction targets for debit cards with the intention to provide consumers better price signals regarding the underlying costs of payment instruments. As of April 2008, the weighted-average credit card interchange fees for MasterCard and Visa credit card transactions could not exceed 0.50 percent of the value of transactions. The Visa debit weighted-average interchange fee cap must not exceed 12 cents (Australian) per transaction. The EFTPOS (electronic funds transfer at point of sale) interchange fees for transactions that do not include a cash-out component must be between four cents (Australian) and five cents (Australian) per transaction.

The Reserve Bank of Australia (2008a) reports that the interchange fee regulation, coupled with the removal of the no-surcharge rule, improved the price signals that consumers face when deciding which payment instruments to use. However, lower interchange fee revenues on the issuing side are countered by setting higher payment fees and less rewards on the

²³ For a summary of antitrust challenges in various jurisdictions, see Bradford and Hayashi (2008).

consumer side. Specifically, annual fees for credit cards increased and the value of the rewards decreased. The RBA (2008a) calculates that for an AUS\$100 transaction, the cost to consumers increased from –AUS\$1.30 to –AUS\$1.10 for consumers who pay off their balances in full every month. A negative per transaction cost results when card benefits such as rewards and interest-free loans are greater than payment card fees for consumers.

Those who oppose the Australian interchange fee regulation argue that consumers have been harmed by reduced rewards and higher fees and have not shared in the cost savings—in terms of lower prices for goods and services. However, measuring such price effects over time of interchange fee regulation is difficult.²⁴ Furthermore, Hays (2007) finds that a close to 50 percent reduction in credit card interchange fees had little impact on the usage of credit cards.

Spain

In 1999, the Spanish government promoted an agreement between the three payment networks and the merchant associations to reduce maximum interchange fees from 3.5% to 2.75%. At the time, there was no distinction between debit and credit card interchange fees. Negotiations and implementation of new interchange fees were conducted by the Ministry of the Economy, the Ministry of Industry, Tourism, and Trade along with the antitrust authority, Tribunal de Defensa de la Competencia (TDC). In 2002, the TDC asked the Spanish payment card networks to provide information on their method of determining interchange fees. In May 2003, the Spanish Congress requested the TDC to follow the basic principles that the European Commission adopted for EU-wide cross-border interchange fees.²⁵

²⁴ For more discussion, see Chang, Evans, and Garcia Swartz (2005) and Hayes (2007).

²⁵ See European Commission Decision 2002/914/EC of July 24 regarding case No. Comp/29.373—Visa International—Multilateral Interchange Fee.

In December 2003, the TDC announced that the networks' special authorization to collectively determine interchange fees would be revoked. During the next two years, the payment card industry made several attempts to maintain their special authorization but failed. The TDC refused these proposals and required to set interchange fees based only on operating and fraud costs. In addition, the networks had to set different fees for debit and credit cards. Furthermore, debit card interchange fees would be per-transaction based whereas credit card interchange fees could remain a percentage of the purchase amount.

From 2006 to 2008, the highest interchange fees were reduced in a stepwise manner. For merchants with an annual value of payment card receipts less than €100 million, credit card interchange fees decreased from 1.40% to in 2006 to .35% in 2009. Debit card interchange fees were reduced from a per-transaction fee of €.53 in 2006 to €.35 in 2009. Since then the European Commission criteria to set interchange fees has shifted from cost based to the merchant indifference test methodology, which we will describe below.

These regulations had significant impact on debit and credit card usage and made the retail payment system more efficient. Economic theory predicts that there is an optimal interchange fee below and above which the aggregate benefits to consumers, merchants, and payment providers would decrease. Evidence from Spain suggests that the market determined fee was not optimal because adoption and usage of credit cards increased along with issuer revenue as a result of the regulation of interchange fees.²⁶

Carbó Valverde, Chakravorti, and Rodriguez Fernandez (CCR) (2009) study the effects of interchange fee reductions in Spain from 1997 to 2007. To our knowledge, they are the first to use bank-level data to study the impact of several episodes of interchange fee reductions for debit and credit cards resulting from agreements between market participants intermediated by

²⁶ Acquirer revenue was generally flat or increased slightly.

the government authorities. During the period of their study, debit card transactions increased from 156 million to 863 million and credit card transactions increased from 138 million to 1.037 billion. During the same period, debit cards increased from 22 million to 31 million, respectively, and credit cards increased from 14 million to 43 million respectively. In addition, acceptance of payment cards increased dramatically. According to CCR, acceptance on average increased over 20 percent across different regions in Spain during the period of their study. Furthermore, they find causal evidence that issuer revenue for both credit and debit cards increased while acquirer revenue remained flat or slightly higher.

European Union

In December 2007, the European Commission (EC) ruled that the multilateral interchange fees for cross-border payments in the European Union applied by MasterCard Europe violated Council Regulation (EC) No. 1/2003.²⁷ The EC argued that MasterCard's fee structure restricted competition among acquiring banks and inflated the cost of card acceptance by retailers without leading to proven efficiencies.²⁸ In response, MasterCard reached an interim understanding with the European Commission on these interchange fees for cross-border consumer payments in the EU in April 2009. Effective July 1, 2009, MasterCard Europe established interchange fees for consumer card transactions that, on average, do not exceed 30 basis points for credit cards and 20 basis points for debit cards. With these fee changes, the EC

²⁷ According to conversations with MasterCard executives, cross-border transactions account for only five percent of MasterCard European transactions.

²⁸ On December 16, 2002, the Council of the European Union adopted Council Regulation (EC) No. 1/2003 on the implementation of the rules on competition laid down in Articles 81 and 82 of the Treaty Establishing the European Community (that is, the 1997 consolidated version of the Treaty of Rome). The new regulation came into effect on May 1, 2004. For more discussion on the EC's ruling on MasterCard, see Bolt (2008).

will not further pursue MasterCard either for non-compliance with its December 2007 decision or violating antitrust rules.

The EC conducted a separate antitrust investigation against Visa and will monitor the behavior of other market players as well to ensure that competition is effective in this market to the benefit of merchants and consumers. The EC and Visa have agreed to 20 basis point debit card interchange fees but have not agreed to the level of credit card interchange fees.²⁹ The dialogue between Visa and MasterCard vis-à-vis the Commission has to date not led to an agreement concerning the application of the “merchant indifference methodology” based on the tourist test to consumer credit (and deferred debit) transactions—discussions on this issue continue.³⁰

It is likely that this cap on interchange fees will increase merchant acceptance of debit and credit cards in some European countries where the existing merchant fees are above these new levels and merchant adoption is not complete, that is, less than a 100 percent. There is a tradeoff between attracting additional merchants with lower interchange fees and sufficient revenue necessary to maintain a robust and efficient payment system along with providing sufficient incentives to consumers to use payment cards instead of other alternatives. However, in the long run, with much lower revenues on the payment networks’ side, necessary innovations could be stifled in the payment card industry.

²⁹ Unlike the MasterCard agreement, there are instances when the Visa debit caps apply to certain domestic markets within the European Union.

³⁰ The tourist test defines the interchange fee level that leaves a merchant indifferent between different means of payment when an incidental customer (“the tourist”) enters the store and pays at the counter.

United States

As part of the DFA, the U.S. Congress gave the Federal Reserve Board (Fed) the authority to set rules that govern the setting of debit card interchange fees. The amendment to the DFA, commonly known as the Durbin Amendment, was hastily added to the bill in the U.S. Senate without the usual debate that occurs. Merchant groups were able to successfully lobby the U.S. Congress to force the Federal Reserve to implement interchange fee caps. However, the comment process regarding the actual rule generated an intense debate resulting in a doubling of the initial cap proposed by the Fed of 12 cents. Eventually, in its final rule, the Fed set debit card interchange fees at approximately 24 cents.³¹

Some market participants such as credit unions and community banks have argued that the reduction in fees would disadvantage smaller financial institutions that issue debit cards even though the DFA has a provision that institutions with assets less than \$10 billion would be exempt. Many observers including consumer groups have also argued that consumers would face higher fees and may use other payment alternatives. Although Congress provided exemptions for payment products that are likely to be used by low income families, the payment industry has argued that such regulation is likely to increase the number of unbanked in the United States.

This legislation ignores the two-sided market literature where economists have argued that focusing on costs alone is not appropriate when regulating the payment card industry. In other words, cross subsidies between merchants and consumers may benefit both parties. Furthermore, some economists have argued that such fee caps would limit innovation and

³¹ The 24 cent cap is based on a \$38 debit card purchase which is the average purchase amount and a 5 basis point adjustment for fraud along with a 1 cent allowance for investment in fraud mitigation systems.

investment into new technologies that are aimed at improving the efficiency of the retail payment system.

Honor-all-cards rules

In addition to economies of scale, payment networks also enjoy economies of scope. A key component of the payments business is the processing of information and connectivity to financial institutions. Once a payment network has successfully gained connectivity to end users, it can use its network to process various types of payments. In some instances, such networks are leveraged to offer new payment products. For example, the credit card networks leveraged their networks to offer products such as debit and prepaid cards. To encourage adoption, these networks often establish rules that if a merchant accepts one of their payment card products, they must accept all of them. Such rules are commonly called honor-all-cards.³²

A payment card network may require that merchants that accept one of its payment products to accept all of its products. In other words, if a merchant accepts a network's credit card, it must accept all debit and prepaid cards from that network. In the United States, around 5 million merchants sued the two major networks, MasterCard and Visa, over the required acceptance of the network's signature-based debit card when accepting the same network's credit card. The merchants argued that PIN-based debit cards offered almost identical features of signature-based cards provided by the credit card networks at substantially lower prices. In addition, merchant fraud costs are substantially less for PIN-based debit transactions. The case was settled out of court. In addition to a monetary settlement, MasterCard and Visa agreed to decouple merchants' acceptance of their debit and credit products. While few merchants have declined one type of card and accepted another type, the decoupling of debit and credit card

³² Rochet and Tirole (2010) provide an economic model that investigates honor-all-cards rules.

acceptance may have increased bargaining power for merchants in negotiating merchant fees. Furthermore, the final debit card rule issued by the Federal Reserve Board ignores any differences between the two types of debit cards because both types of cards will be governed by the same fee structure.

As part of the payment system reforms in Australia, MasterCard and Visa were mandated to decouple merchants' acceptance of their debit and credit cards. The Payments System Board (Reserve Bank of Australia, 2008b) is unaware of any merchant that continues to accept debit cards but does not accept credit cards from the same network. This suggests that the regulation did not change the common market practice of accepting all payment products from a given payment network operator. In other words, merchants see value in accepting the suite of payment products from a network operator. However, it is difficult to measure whether the threat of accepting certain payment products and not accepting others has increased the bargaining power of merchants with regard to payment card fees generally.

On the other hand, honor-all-card rules may enable to rapid adoption of new emerging payment technologies such as prepaid cards. For example, the use of prepaid cards for government benefits transfers has been greatly aided by existing payment networks. In fact, the DFA exempted prepaid cards from interchange fee regulation to not stifle growth in the emerging payment market segment. Conversations with U.S. transit authorities suggest that the bundling of payment product may enable them to more rapidly adopt a cashless system because these prepaid cards can be used by unbanked transit riders. Thus, a one-size-fits-all strategy is not appropriate regarding honor-all-cards rules because its existence may benefit the adoption of new product innovations but may result in reduced bargaining power by merchants on more mature payment card products.

CONCLUSION

The setting of payment fees has attracted a lot attention by public authorities around the world. The provision of retail payment services is complex with many participants engaging in a series of interrelated bilateral transactions and subject to large economies of scale and scope along with strong adoption, usage and network externalities. This makes sound public policy difficult. The central question is whether the specific circumstances of the retail payment market are such that intervention by public authorities can be expected to improve economic efficiency.

The academic literature on the pricing of payment services that exhibit network externalities along with externalities associated with two-sided markets continues to grow and offers guidance to public authorities. A key contribution of this literature is that the efficiency of payment systems is measured not only by the costs of resources used, but also by the social benefits generated by them. We argue that intervention into payment markets should concentrate on the removal of entry barriers in payment markets and providing greater incentives to adopt efficient payment instruments without stifling private sector investment in more efficient payment technologies over the long term. In some cases, new providers of payment services may not be regulated entities which may pose some challenges to public authorities in terms of maintaining the security and resiliency of such systems. However, these concerns should be weighed against the innovative strategies these new entrants bring to the market. For example, PayPal enabled the acceptance of electronic payments online by sellers that were not able to accept payment cards. Eventually, with partnerships with financial institutions, PayPal was able to provide a safe and reliable payment alternative. The area of mobile payments is now facing similar challenges.

We find that no single theoretical model is able to capture all the essential elements of the market for payment services. While the theoretical literature on the economics of payment cards is growing, the empirical literature is too limited to provide much guidance to public authorities. Public authorities around the world are considering or have imposed interchange fee regulations, along with the removal of merchant pricing restrictions based on the type of payment instrument used. Eventually, the outcomes from such interventions will provide a useful “natural experiment” to refute or validate the various theories of the economics of payments.

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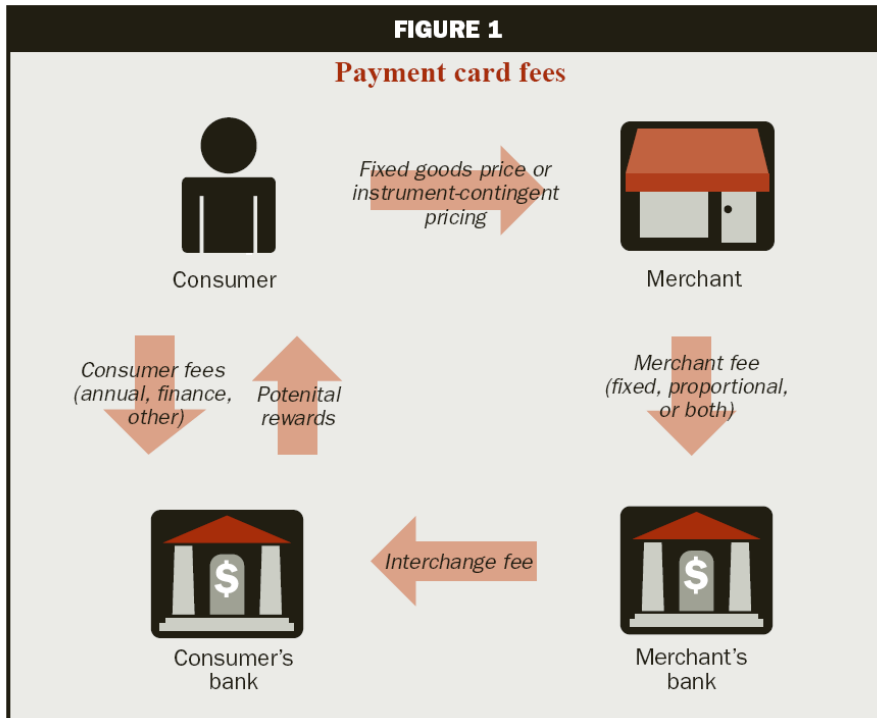
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APPENDIX



Source: Bolt and Chakravorti (2008b).

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