The Costs of "Charging It" in America:

Assessing the Economic Impact of Interchange Fees for Credit Card and Debit Card Transactions

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I. Introduction

The use of credit cards and debit cards has made what once was a simple, direct exchange of product for cash between a merchant and a customer into a complicated financial transaction. With credit cards, customers can charge their purchases through a merchant. The merchant's bank (the "acquiring bank") then uses a network such as Visa or MasterCard to transmit the charge to the bank that issued the card to the customer (the "issuing bank"). Here is where the fees start piling up. For this transaction, the merchant's bank charges the merchant a "merchant discount fee" that covers various costs and profits for itself, the credit card network, and the card-issuing bank. The portion of this "merchant discount fee" that the merchant's bank pays to the card-issuing bank is called the "interchange fee," while the portion that goes to the credit card network is called the "association fee."[2] The same basic arrangements are used for debit cards, which directly connect the network to the customer's checking account.

Fees to cover the costs of processing credit and debit card transactions have a sound economic basis. The merchants who pay them receive services: Customers purchase more when they can use credit cards to delay their payments, merchants receive their payments before their customers pay their bills, and the banks issuing the cards are frequently responsible when customers default on their charges or charges prove to be fraudulent. The banks also receive services from the credit card network, most importantly when they act as the processor of payments between consumers, merchants and their respective banks.

While the economic basis for interchange fees used in current credit card and debit card systems are clear, there are serious issues about the economic basis for *the levels of those fees*, which in 2008 totaled some $48 billion. This study analyzes these issues. We find, first, that the current arrangements effectively prevent normal market factors from determining the level of these fees. In fact, these arrangements appear to have many of the price-setting features and distortions of a cartel. As we will see, two firms, Visa and MasterCard, together account for more than 86 percent of all U.S. consumer card transactions and nearly two-thirds of all U.S. commercial card transactions. Further, merchants would incur prohibitive costs if they tried to apply market pressure by withdrawing or exiting from these systems, since credit and debit card transactions are so ubiquitous.

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[1] Research for this analysis was supported by Consumers for Competitive Choice. The views and analysis are solely those of the authors. The authors also want to acknowledge the valued assistance of Krista Ellis.

[2] The cash flow runs in the opposite direction, from the cardholder to the card-issuing bank, to the card network, to the merchant's bank, and finally to the merchant. See figure 1 for an illustrative example. After the transaction is authorized, the issuing bank posts the original charge on the cardholder's account and sends the original charge less the interchange fee to the merchant's bank through the network. Both the network and the merchant's bank deduct their own fees, and then send what remains--the original charge less the fees--to the merchant.

The systems also impose certain rules that further weaken or disable normal market price signals that might affect the level of these fees. Most important, merchants are prohibited from charging higher prices for credit card purchases, so everyone is forced to absorb some of merchants' costs of using the system. While the banks apply a range of interchange fees based on the particular terms of the credit or debit card, merchants also are barred from adjusting consumer prices based on the level of those fees. Further, competition between credit card networks drives up interchange fees. The networks compete with each other to persuade banks to issue their brand cards, often attracting new institutions to their networks by raising the interchange rates paid by merchants to the issuing banks. The higher fees also enable banks to offer cards with no annual fees and rewards for favored subscribers. Greater inducements require higher interchange fees to finance them, so the competition among card-issuing banks reinforces the competition between the card networks that drives up the fees. And all consumers, whether they hold a rewards card or any card at all, bear most of the cost in higher prices.

These dynamics produce two negative economic effects. First, they create regressive cross-subsidies. We estimate that about 56 percent of interchange fees are passed along by merchants in the form of higher prices for consumers. However, an estimated 54 percent of lower and moderate-income American families pay these prices without receiving the benefits of any credit card.[3] Moreover, some 59 percent of higher-income card holders receive rewards financed by these fees, compared to 25 percent of lower-income card holders and 39 percent of those with moderate incomes.[4] As a result, these arrangements force those without cards or who carry cards with no rewards to subsidize the rewards which largely go to higher-income people.

Second, the interchange fees add approximately 1 to 3 percent to the price of virtually everything Americans purchase, and an estimated 56 percent of these additional costs are passed along to consumers in higher prices. As a result, American households pay an average of $230 each, per-year, in higher prices, net of the system's actual processing and transaction costs.[5] These higher prices reduce real demand for goods and services, which reduces job creation in the industries that produce the goods and services. We estimate that if these additional costs were not present, lower interchange fees would lead to the creation of 242,000 new jobs.[6] The largest gains would come in the finance, insurance, real estate, rental and leasing sector, followed by government, professional and business services, and manufacturing. Some 44,000 of the jobs would be created by small firms, 39,000 by medium-size firms, and 157,000 by large firms.

The current credit card and debit card systems provide valuable services to consumers and merchants, and those services involve legitimate costs and therefore prices. However, the current arrangements do not allow market forces to determine those prices; nor do they permit merchants or consumers to choose to carry out their transactions with or without paying that additional price, as would a free market. These conditions and their economic consequences call for the government to either take steps to enable market forces to determine the proper level for interchange fees or provide for a disinterested body such as the Federal Reserve to issue rules that will determine the appropriate level of these fees. In Australia, the Reserve Bank and Competition and Consumer Commission undertook an in-depth review of that country's private

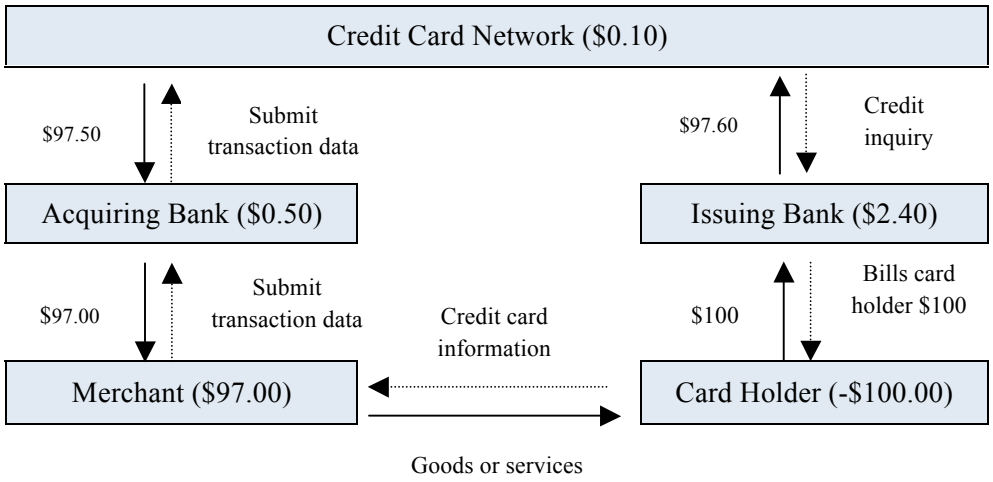
[3] Authors' calculation based on data from US Census Bureau, Statistical Abstract of the United States (2009).
[4] Authors' calculation based on data from Ching and Hayashi (2008).
[5] See calculations in section IV, below, at page 13.
[6] See calculations in section IV, below, at page 14.

interchange fees and rules, and recommended changes which ultimately reduced those fees to an average of 0.50 percent per-transaction and allowed merchants to apply transparent surcharges based on the particular fees for each transaction. At a minimum, the Federal Reserve Board or the Federal Trade Commission should examine our credit-card system's fees and practices and recommend reforms to reduce the impact on consumers and jobs.

II. Credit Cards Payment System and Interchange Fees

As noted above, the widespread use of credit cards and debit cards has turned a simple, direct exchange into a complicated transaction involving the merchant, the consumer, the merchant's bank, the consumer's bank, and the credit card network. Figure 1, below, illustrates a typical credit card transaction with a $100 charge and a 3 percent merchant discount fee. This figure describes the Visa and MasterCard systems; in the American Express and Discover systems, those firms act as both the card-issuing institution and acquiring bank.

Figure 1. Credit Card Payment Transaction[7]



Depending on the type of card, the interchange fee may be a flat charge per-transaction, a percentage of the value of the transaction, or a combination of both. Credit card transactions usually entail a flat fee plus a percentage-fee for each transaction, while most PIN debit card transactions usually involve only flat fees.[8] The size of the interchange fee also can depend on the type of card, the merchant's category, the volume of merchant's sales, and how the transaction is processed.[9] Table 1, below, illustrates average interchange fees for four classes of cards, although once again, the merchant's fee includes a fee paid to the merchant's bank on top of the interchange fee paid to the bank issuing the card and the credit card network. In 2009, the

[7] This is only an illustrative example. The specific dollar amounts in this example are from Levitin (2007). The issuing bank as well as the merchant pays association fees. $0.1 in this example only captures the portion that the merchant pays. July 2009, MasterCard earned $0.0185 per-transaction and Visa earned $0.0195. See www.ok.gov/treasurer/documents/OK%20Summary%202009_1.doc

[8] Levitin (2007).

[9] GAO (2008).

average fee for credit cards transactions was 1.5 percent to 2.0 percent, although they range as high as 2.95 percent for Visa card and 3.25 percent for MasterCard transactions.[10]

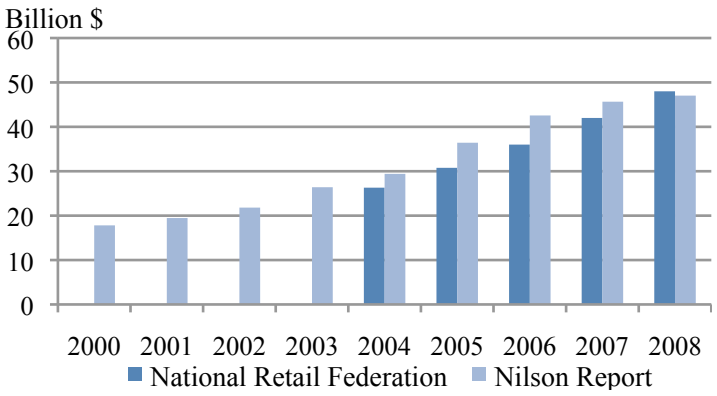
Table 1. Average Interchange Fees, By Type of Card Transaction, in the United States[11]

Type	Interchange Fees
PIN Debit	0.30 to 0.75 percent of the transaction value
Signature Debit	1.2 percent of the transaction value
Visa Credit Card	1.5 to 2.0 percent of the transaction value
MasterCard Credit Card	1.5 to 2.0 percent of the transaction value

Since American Express and Discover act as both the card-issuing banks and the acquiring banks, their merchant fees and interchange fees are the same. American Express and Discover also negotiate with individual merchants over the level of their fees, but do not issue any summary of the results. It is believed that the average merchant pays higher fees for American Express than Visa and MasterCard, although American Express is also reported to have reduced its average fees from roughly 3.26 percent in 1990 to 2.56 percent in 2009. However, a survey of 750 small business owners found that merchants with fewer than 250 employees paid fees averaging 3.2 percent for American Express transactions and 2.5 percent for transactions using Discover cards, compared to 2.3 percent for MasterCard and Visa.[12]

The volume of interchange fees has risen sharply in recent years, increasing their impact on merchants and consumers, and their importance to the banks which issue the cards and retain the fees. According to the National Retail Federation, the total fees paid by merchants accepting Visa and MasterCard nearly doubled in recent years, from about $26 billion in 2004 to $48 billion in 2008. These data track information from the Nilson Report, which estimates that interchange fees increased from about $18 billion in 2000 to $47 billion in 2008.

Figure 2. Interchange Fees Paid by Merchants[13]



[10] GAO (2009).
[11] Prager, Manuszak, Kiser and Borzekowski (2009); Ching and Hayashi (2008).
[12] GAO (2009).
[13] GAO (2009)

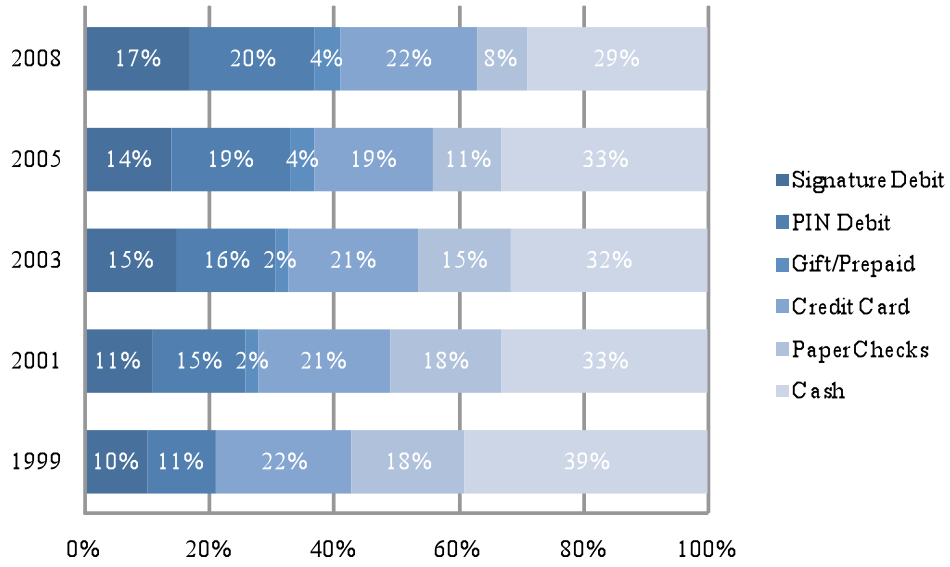
These increases in the total volume of interchange fees reflect Americans' increasing use of these cards as well as growth in the number of credit cards and debit cards issued. The number of credit and debit cards in circulation has increased steadily for many years. From 2000 to 2006, the number of credit cards increased from 1,425 million to 1,488 million or 4.4 percent. (See Table 2, below) Over the same years, the total volume of transactions using those cards grew from $1,242 billion to $1,950 billion, or 57.0 percent; and industry analysts predict that credit card volume will grow another 40.9 percent from 2006 to 2010.

Table 2. Debit Cards and Credit Cards - Number of Cards and Purchase Volume[14]

Year	Debit Cards		Credit Cards	
	Number of Cards	Purchase Volume	Number of Cards	Purchase Volume
1990	164 million	$12 billion	1,012 million	$466 billion
2000	235 million	$311 billion	1,425 million	$1,242 billion
2006	354 million	$1,025 billion	1,488 million	$1,950 billion
2010 (est)	484 million	$1,643 billion	1,618 million	$2,747 billion

Furthermore, the share of the value of all in-store transactions across the country that were covered by credit and debit cards grew from 43 percent in 1999 to 59 percent in 2008.

Figure 3. In-Store Transaction by Payment Type[15]



On top of these increases in the use and numbers of credit and debit cards, banks have raised interchange fee rates. While Visa and MasterCard both claim that the average interchange rate applied to their transactions has remained stable, the GAO found that interchange rates have increased for 43 percent of Visa cards and 45 percent of MasterCard credit cards. In addition,

[14] U.S. Census Bureau (2000; 2009)
[15] Brandt (2008)

the structure of those fees has become more complex, with the number of fee levels and categories reaching 60 under Visa and 243 under MasterCard.[16] The GAO analysis also established that from 1991 to 2009, the maximum interchange rates charged by Visa and MasterCard rose by more than 50 percent, from about less than 2.0 percent to about 3.25 percent (Table 3 below). Other researchers also have found that from 1995 to 2005, interchange fees rose by more than 25 percent.[17] Throughout this period, one might have expected that these rates would have actually declined, given the higher use of credit cards and technological improvements across much of the transaction system.

Table 3. Interchange Fee Charges for Visa and MasterCard Domestic Credit Cards[18]

Changes in rates from 1991 and 2009	Visa	MasterCard
Number of interchange rate categories in 1991	4	4
Number of interchange rate categories in 2009	60	243
Range of interchange rates in 1991	1.25% to 1.91%	1.30% to 2.08%
Range of interchange rates in 2009	0.95% to 2.95%	0.90% to 3.25%
Percentage of rates that increased	43%	45%
Percentage of rates that stayed the same	45%	45%
Percentage of rates that decreased	12%	10%

III. The Economics and Anti-Competitiveness of Interchange Fees

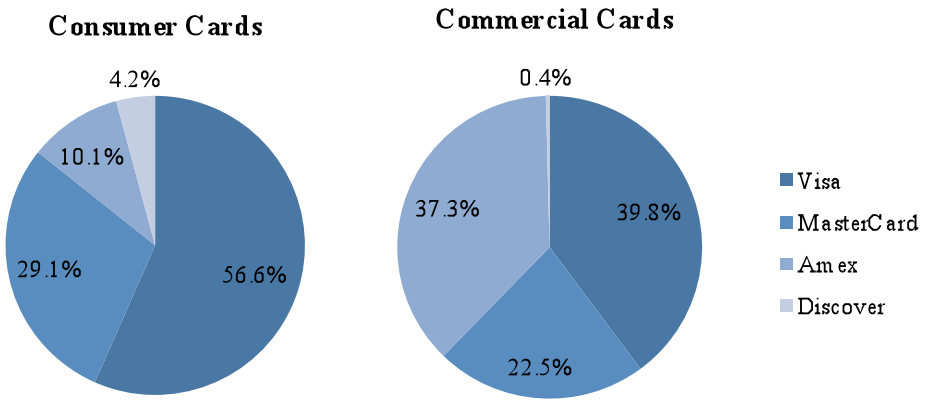
The Economics of Interchange Fees

The market for credit and debit card payments has several features which prevent normal supply and demand from determining the levels of interchange fees. First, these fees are set in what economists call a "two-sided market," in which the issuing banks and credit card networks provide services to two different groups (merchants and credit card holders) with different sensitivity to changes in the prices of those services. In principle, the interchange fee could be set at the level that would reflect most closely the actual benefits for each group and the actual costs borne by the issuing bank and the network. In practice, the merchants bear the direct costs of interchange fees, while credit card users directly pay other fees, including annual membership fees, interest charges, and late payment penalties. This is also a market with network effects, in which the benefits to an individual credit card holder increase with the number of merchants in the network, and the benefits to the individual merchant increase with the number of credit card holders. Markets with these kinds of network effects have two features which can weaken or disable normal market price signals. First, they tend to develop one or two dominant players, a feature evident in this case. Most merchants have only four choices of credit card networks – Visa, MasterCard, American Express, and Discover – and since all four are fairly ubiquitous, most merchants are constrained to accept most or all of them. In fact, Visa and MasterCard together account for 86 percent of all consumer card transactions and 62.3 percent of all

[16] GAO (2009).
[17] Semeraro (2008).
[18] GAO (2009).

commercial cards transactions (Figure 4, below). If consumers want to hold a useful credit card, they also have only four choices. These dynamics, in turn, give the four networks a measure of pricing power.

Figure 4. Market Share of Credit Cards Networks[19]



Second, a market with network effects often imposes high costs on anyone withdrawing from that market, further weakening normal market forces. The market in computer operating systems, long dominated by Microsoft Windows, is often cited as a classic example: Windows' usefulness to each PC user increases with the number of users and, consequently, the number of new applications written for it, creating network effects. The sacrifice of that enhanced usefulness can involve high costs for anyone, for example, considering switching to Linux. With credit cards, the costs of withdrawing from the four dominant card networks are also high, especially for merchant, since 78 percent of American consumers hold credit cards,[20] and almost 40 percent of all in-store transactions are paid for with credit cards and signature debit cards.[21] Given these dimensions, most merchants are effectively unable to leave all or most of these networks in a market response to high interchange fees.

The current arrangements, in which the credit card networks set these fees while most of the funds collected by them go to the banks that issue the cards, comes from their history. In the late 1950s, Bank of America began offering one of the first general purpose credit cards, the BankAmericard. To increase its use, Bank of America licensed it to other banks and then converted the system into a membership-owned corporation, which it called the Visa network.[22] Similarly, MasterCard began in 1966 as a bank-owned card association.[23] In both cases, a few large banks controlled the networks, which allocated their ownership and effective control based on the credit-card sales volume of its member banks.[24] In 2006, both MasterCard and Visa became public corporations, combining ownership by banks, investors and charitable

[19] The Nilson Report, September 2009, Issue 933. The numbers are based on $3.069 trillion in purchases of goods and services generated from commercial and consumer general purpose credit and debit cards in 2008.
[20] Foster, Meijer, Schuh and Zabek (2009).
[21] Signature debit cards transactions are carried mostly by MasterCard and Visa.
[22] GAO (2009).
[23] Chakravorti (2003).
[24] Levitin (2007).

foundations. While the major banks no longer wholly control these networks, the card networks continue to operate to serve the interests of their dominant member banks, with the same incentives governing interchange fees.[25]

The dominance of this market by a handful of card-issuing financial institutions has increased in recent years. In 1992, the top ten credit card issuers accounted for just over one-half of the market.[26] By 2002, the top ten controlled 75 percent of the market; and by 2007, the top ten accounted for almost 90 percent of all credit card volume. Moreover, in 2007, just four financial institutions – American Express, J.P. Morgan Chase, Bank of America, and Citigroup – controlled nearly 70 percent of the market; and setting aside American Express and Discover, the other three institutions held more than 63 percent of the remaining market (Table 4, below).

Table 4. Ten Largest Credit Card Issuers by Dollar Value, 2007[27]

Issuer	Market Share	Market Share Excluding AMEX & Discover
American Express	24.7%	-
JP Morgan Chase	17.6%	24.9%
Bank of America	14.6%	20.8%
Citigroup	12.3%	17.6%
Capital One	5.9%	8.4%
Discover	5.0%	-
U.S. Bank	3.6%	5.2%
HSBC	2.3%	3.3%
Wells Fargo	2.1%	2.9%
GE Money	1.5%	2.1%
Total	89.6%	85.2%

While these institutions compete fiercely for new credit card subscribers, they do so not by reducing interchange fees but by offering inducements such as rewards programs and initially low interest charges. This competition, therefore, tends to increase costs, which in turn are passed along to merchants in higher interchange fees. Moreover, economic researchers have found that in two-sided markets, a producer may be able to increase profits by charging one group a price close to or even below the producer's actual marginal cost and then earn all or most of its profits by charging other groups much higher prices.[28] As noted above in Table 3, MasterCard alone has 243 separate interchange rate levels, with the highest rates applied to the purchases using high rewards cards. This strategy is especially effective since those who pay the

[25] Semeraro (2008).
[26] Evans and Schmalensee (2005b).
[27] Prager et al (2009).
[28] Evans and Schmalensee (2005a) Magazines are another example of a two-sided market. There, many magazines provide deep discounts for subscriptions, which they use to set higher advertising rates. They also charge much higher prices to those purchasing individual issues at newsstands, which accounts for the frequent use of disasters, celebrities and fads featured on their covers.

highest costs (merchants) have no alternative, and those who ultimately bear the costs (all consumers) are unaware of them.

A number of economic studies have found that these arrangements produce interchange fees which in general are not set at efficient levels. In fact, the network effects make it very difficult to establish the optimal level for these rates[29] and, in theory, even whether the current rates are too high or too low.[30] There is greater agreement, however, that once a credit card network recoups its startup and coordination costs, high interchange fees cards are less justified.[31] Yet, as should be apparent, competition among the banks setting the fees does not introduce downward pressure on those fees and may actually put upward pressure on the fees, in order to finance the inducements required to attract new cardholders.

Anti-competitive Measures Employed by Credit Card Networks

The insulation from market pressures enjoyed by the credit card networks and the banks issuing the cards is enhanced by the rules they impose on merchants. Interchange fee rates are set by the credit cards networks, and even large merchants have little negotiating power to reduce those fees. Moreover, the conditions for merchants that want to affiliate with a credit card network include their agreeing to the network's rules and regulations. The most important rule is that merchants affiliated with a credit card network cannot discriminate in their pricing based on the interchange fees for particular transactions. Therefore, they have to charge the same price whether the customer pays cash, uses a card with a 15-cent plus 1.0 percent interchange fee, or uses a card with a 50-cent plus 3.0 percent fee. The networks also enforce "no-surcharge" rules barring merchants from applying additional charges to transactions using cards with high interchange fees. In short, these rules prevent merchants from charging prices that reflect their actual interchange-fee costs. This market-disconnect is reinforced by other restrictions. For instance, a merchant affiliated with Visa or MasterCard must agree to accept combinations of the many cards with the Visa or MasterCard logo, regardless of the card's interchange rate. As a result, a bank can offer large rewards or other inducements to attract subscribers to its card and then apply a high interchange fee on the merchant for their purchases. Merchants also cannot set minimums for credit card transactions, a rule especially burdensome for small merchants operating on slim margins. For example, merchants have to accept credit cards for purchases of 35-cent candy bars which sell wholesale for 21-cents, but carry a 21-cent interchange fee.[32]

These rules prevent normal market pressures from affecting interchange fee levels. Merchants cannot set their prices to reflect the particular interchange costs they bear for each transaction, which in turn could enable consumers to apply market pressure to the credit card companies by choosing less-expensive forms of payment such as cash or cards with lower fees. The result is high interchange fees that carry very large costs for merchants – and therefore for all consumers as well. For example, Target reports that interchange fees have become its second-highest, store-level cost, behind payroll; and Home Depot reports spending more on these

[29] See Prager, *et. al.* (2009), Evans and Schmalensee (2005a), and Semeraro (2008) for more details.
[30] See Prager, *et. al*. (2009) and Evans and Schmalensee (2005a) for more details.
[31] GAO (2009)
[32] These examples are real cases. See the testimony of Ms. Kathy Miller before House Financial Services Committee on October 8, 2009 on H.R. 2382, the Credit Card Interchange Fees Act of 2009 and H.R. 3639, the Expedited CARD reform for Consumers Act of 2009. House Committee on Financial Services (2009).

fees than on its employees' health care.[33] Similarly, 7-11 has said that interchange fees represent its third-largest business expense, after payroll and electricity;[34] and the National Association of Convenience Stores reports that in 2006, interchange fees totaling $6.6 billion exceeded the $4.8 billion profits of all U.S. convenience stores. Moreover, the total fees paid by convenience stores have continued to rise since 2006, reaching $7.6 billion in 2007 and $8.4 billion in 2008.[35]

These large fees do not appear to be necessary to maintain the current credit card system, since they account for a small share of the system's revenues. One study found that the interchange fees collected by an average bank issuing Visa or MasterCard in 2001 accounted for just 15 percent of its credit card-related revenues, compared to 70 percent from finance charges, 12 percent from penalties and cash-advance fees, and a 3 percent from annual membership and other fees.[36] Another study found similar results, with 13 percent of revenues coming from interchange fees, more than 70 percent from interest and penalty charges, and 2 percent from annual membership fees.[37] The GAO estimates are slightly higher, with about 20 percent of Visa and MasterCard issuers' card-related revenues coming from interchange fees.[38]

High interchange rates, however, are an effective way for credit card networks and payment systems to attract new banks to issue their cards. Analysts note, for example, that Visa and MasterCard raised their average interchange fee from 1.3 percent in 1995 to 1.7 percent in 2002 in order to entice banks to choose their systems.[39] Following a 2003 court ruling allowing banks that are members of Visa or MasterCard to also issue other credit cards, Visa and MasterCard both moved to retain banks by introducing new cards with higher interchange fees. Both networks also offered higher interchange fees to encourage card-issuing banks to favor their signature debit cards over PIN debit cards.[40] And the GAO reports that the average interchange rates introduced since the 2003 judicial ruling have been 18 percent higher for Visa and 11 percent higher for MasterCard than their average rates prior to 2003.[41]

As interchange fees increase in the absence of market discipline, they entail higher economic costs. As we will see, merchants pass along much of these fees in higher prices, which all consumers bear regardless of how they pay for their purchases. The result is a series of cross-subsidies, in which consumers who do not use credit cards or cannot qualify for high-reward cards pay higher prices to support the use of cards and high-reward cards by others. These subsidies are often regressive, since lower-income consumers are more likely to pay cash while high-income consumers are more likely to use high-reward-based credit cards. They also reduce real consumer demand, with adverse effects for job creation. The rest of the fees are absorbed by merchants through lower profits, which also may hamper job creation.

[33] Martin (2009).
[34] Sidel (2009).
[35] NACS Online (2009).
[36] Evans and Schmalensee (2005b).
[37] Chakravorti (2003).
[38] GAO (2009).
[39] Evans and Schmalensee(2005b).
[40] In the early-1990s, when Visa undertook a campaign to convince banks to issue its signature debit card, Visa's interchange fee was about 37 cents, versus 8 cents for a bank PIN debit card on a typical $30 transaction (Evans and Schmalensee(2005b)).
[41] GAO (2009).

IV. The Economic Costs of the Current Payment System

These arrangements impose significant economic costs. Some of the fees are absorbed by merchants through cost reductions, which may include jobs, as well as lower profits. Most of the costs are passed along to consumers in higher prices, which also reduces jobs.

Regressive Cross Subsidies

Since the largest direct effect of interchange fees is the higher prices that merchants have to charge, and the credit card networks forbid price differentiation based on how a consumer pays for a good or service, all consumers bear this cost whether or not they use credit cards. Furthermore, as noted earlier, interchange fees vary by cards with the highest fees linked to transactions using cards that offer rewards. Visa and MasterCard charge interchange fees that range from 1.43 percent to 1.59 percent for transactions using non-rewards credit cards, compared to between 1.53 percent and 2.20 percent for purchases using credit cards that carry rewards.[42] As a result, the interchange fee system creates cross-subsidies in which consumers who don't use credit cards or who cannot qualify for high-reward cards pay higher prices to support not only the banks issuing the cards but also the rewards offered to other consumers. Because lower-income consumers are more likely to pay cash or use credit cards that do not offer rewards, and higher-income consumers are more likely to use the rewards-based credit cards, these cross subsidies are generally regressive.

These subsidies have expanded rapidly, because the use of rewards-linked cards and the higher fees they impose on everyone have risen sharply. In 2001, rewards-linked cards accounted for 23.5 percent of all new credit cards; by 2005, they accounted for 58.0 percent of new cards.[43] Moreover, an industry study has estimated that by 2008, 71 percent of credit card holders used rewards-linked cards.[44] But an estimated 54 percent of all lower-income and moderate-income Americans have no credit cards, yet still have to pay higher prices to support the rewards cards used by higher-income people and the competition among banks for the business of those card holders.[45] The regressive transfers inherent in these arrangements are also clear in consumer survey data, which show that nearly 54 percent of those using credit cards linked to rewards earn more than $60,000 per-year, compared to 41 percent of all credit card users and just 36 percent of all households.[46] (See Table 5, below) By contrast, those earning less than $40,000 per-year represent more than 46 percent of all Americans, but less than 25 percent of those with rewards-linked credit cards.

[42] Ching and Hayashi (2008).
[43] Levitin (2007).
[44] Noted in GAO (2009).
[45] Authors' calculation based on data from Statistical Abstract of the United States (2010).
[46] The numbers are from Ching and Hayashi (2008) that analyzed 2005/2006 Study of Consumer Payment Preferences conducted by the American Bankers Association and Dove Consulting.

Table 5. Income Characteristics of Card Users[47]

Income	All Americans	Credit Card Users	Reward Card Users
$0-$40,000	46.3%	35.2%	24.4%
$40,000-$59,999	17.8%	24.0%	21.9%
$60,000 and over	36.0%	40.8%	53.7%

These data show straight-forward transfers from lower-income people to higher-income people with rewards cards. Nor can the banks that issue the rewards-linked credit cards charge merchants high interchange rates when their customers use those cards claim credibly that the rewards are a necessary part of the overall efficiencies associated with credit cards: Studies have found that nearly all (higher-income) consumers who receive rewards from using their cards would continue to use them if the rewards ended, rather than switch to cash or checks.[48]

The Impact of Interchange Fees on Jobs

When merchants pass along their interchange fees to consumers, the higher prices reduce real demand for goods and services, which in turn affects the jobs of those who produce those goods and services. The use of credit cards enhances efficiency, and part of the interchange fee represents the cost to process the transaction. One study estimates that 13 percent of interchange fees represent the actual cost of transaction processing.[49] The remainder of these fees goes to cover the rewards, which account for an estimated 44 percent of the total fees, as well as credit card network branding and servicing, and other transaction costs and profit margins for the card-issuing banks.[50] The authors caution, however, that their findings represent only rough estimates, since banks do not issue the data required to refine such an analysis. For this analysis, therefore, we take a conservative approach and increase the estimated share of the interchange fee that represents the cost of transaction processing, by 50 percent to 19.5 percent. That adjustment leaves 80.5 percent of the fee to be passed on to consumers through higher prices or absorbed by merchants.

In order to determine what share of that 80.5 percent of the fee is actually passed along in higher prices for consumers, we have to estimate a "cost pass-through rate" for interchange fees. In other contexts, such cost pass-through rates vary significantly depending on the type of cost and the industry. Since interchange rates affect a wide range of businesses, we reviewed studies of the cost pass-through rates for exchange rates and value added taxes, which also affect a wide range of businesses. Our literature review found that 60 percent to 70 percent of the costs associated with changes in exchange rates are passed through in higher prices.[51] Furthermore, studies by the Congressional Research Service and others found that that a 4 percent value-added

[47] Ching and Hayashi (2008).
[48] *Ibid.* They did find that ending rewards might induce some consumer to prefer debit cards over credit cards, but that also would not reduce the benefits or efficiencies of credit and debit card use.
[49] Dawson and Hugener (2006).
[50] *Ibid.*
[51] Ashenfelter, Ashmore, Banker, and McKernan (1998). The pass-through rates for exchange rate changes refer to changes in local currency import prices in response to variations in the exchange rate between exporting and importing countries.

tax, covering 75 percent of consumer outlays, would likely lead to a 3 percent increase in consumer prices, for a 75 percent cost pass-through rate.[52] Based on these findings, we estimate that the cost pass-through rate for interchange fees, apart from transaction costs, is about 70 percent. Therefore, we can estimate that 56 percent of the $48 billion in interchange fees charged and collected in 2008 were passed on to consumers as higher prices (0.805 x 0.70 = 0.56), or about $26.9 billion. This suggests that the average American household spent more than $230 in 2008 on interchange fees that did not represent the transaction and processing costs for credit cards, even if they never used a credit card.[53] As noted earlier, much of these costs go to support rewards programs that disproportionately benefit higher-income households.

These calculations frame the analysis of the impact of these interchange fees on jobs: If American consumers and businesses had an additional $26.9 billion to spend or save, how many new jobs would it likely create? To answer this question in the current economic environment, we adopt the analysis used by the President's Council of Economic Advisers (CEA) to estimate job creation associated with the 2009 stimulus package.[54] The CEA study averaged a range of public and private models to estimate the effects of the projected increases in government spending and tax reductions. The CEA concluded that after two years, a stimulus equal to 1.0 percent of GDP would generate output increases of 1.57 percent from higher spending and 0.99 percent from tax cuts. The lower prices linked to lower interchange fees are similar to tax cuts, while the direct increase in purchasing power at the point of spending is similar to spending. Therefore, we use the average of the two multipliers, 1.28 percent. The study also found that a 1.0 percent increase in GDP is accompanied by an employment increase of 0.75 percent.

These findings enable us to estimate the impact on jobs if consumers did not bear the share of interchange fees now passed along in higher prices, after setting aside the actual transaction and processing costs of credit cards. GDP in 2008 was $14,441 billion, and $26.9 billion represents 0.186 percent of GDP. If consumers had an additional $26.9 billion to spend, it would generate an increase in output of 0.238 percent (0.186 x 1.28 multiplier); and that increase in output implies an increase in employment of 0.179 percent (0.238 x 0.75). Non-farm payroll employment at the end of 2008 was 135,074,000. Therefore, if the share of current high interchange fees now passed along to consumers in higher prices, net of the system's actual transaction and processing costs, were eliminated, we estimate that the resulting increase in economic activity would generate almost 242,000 new jobs. We note that this estimate does not take account of jobs created by the rewards provided by some cards. However, this factor should be offset entire or in substantial part by our assumption that the transaction and processing costs which are not passed along in higher prices account for 19.5 percent of interchange fees, a 50 percent increase of the rough estimate of 13 percent by previous researchers.

These potential jobs gains would be distributed across many industries. Table 6, below, distributes those gains based on each industry's share of GDP. We estimate that employment in finance, insurance, real estate, rental and leasing would expand by 48,300 jobs, followed by nearly 31,200 government jobs, and 30,600 jobs in professional and business services, and nearly 27,800 in manufacturing.

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[52] Bickley (2003).

[53] This estimate is based on 116,783,000 U.S. households in 2008, the number estimated in the 2010 *Statistical Abstract.*

[54] President's Council of Economic Advisers (2009).

Table 6. Job Gains by Industry If the Share of Credit Card Interchange Fees Passed On in Higher Prices, Net of Actual Processing and Transaction Costs, Were Eliminated[55]

Industry	Industry Output (billion)	Share of GDP	Job Gains
Gross domestic product	$14,264.6	100.0%	241,783
Private industries	$12,424.6	87.1%	210,595
Agriculture, forestry, fishing, and hunting	$157.7	1.1%	2,673
Mining	$325.3	2.3%	5,514
Utilities	$306.0	2.1%	5,187
Construction	$581.5	4.1%	9,856
Manufacturing	$1,637.7	11.5%	27,759
Wholesale trade	$818.8	5.7%	13,879
Retail trade	$885.5	6.2%	15,009
Transportation and warehousing	$414.9	2.9%	7,032
Information	$622.0	4.4%	10,543
Finance, insurance, real estate, rental and leasing	$2,848.4	20.0%	48,280
Finance and insurance	$1,064.9	7.5%	18,050
Real estate and rental and leasing	$1,783.5	12.5%	30,230
Professional and business services	$1,805.8	12.7%	30,608
Educational services, health care, social assistance	$1,157.9	8.1%	19,626
Arts, entertainment, recreation, accommodation, food services	$536.3	3.8%	9,090
Other services, except government	$326.8	2.3%	5,539
Government	$1,840.0	12.9%	31,188

These jobs gains would be distributed across small, medium-size and large companies. Table 7, below, shows this distribution based on Census Bureau data on receipts by firm size.

Table 7. Estimated Job Gains by Firm Size[56]

Firm Size	Annual Receipts	Share of Firms	Job Gains
Small Firms	$0-$999,999	5.61%	13,561
	$1,000,000-$9,999,999	12.94%	31,277
Medium-size Firms	$10,000,000-$49,999,999	11.35%	27,444
	$50,000,000-$99,999,999	4.97%	12,009
Large Firms	$100,000,000+	65.14%	157,491

[55] Total GDP in table 7 on which each industry share is based is smaller than GDP 14,441 billion used in the above analysis. This is because GDP by industry data have not been adjusted to reflect the revised GDP 14,441 billion at the time of this writing.
[56] U.S. Census Bureau (2002).

This analysis shows that small businesses would create some 44,000 new jobs, nearly 20 percent of the total employment gains; medium-size firms would add more than 39,000 new jobs or 16.3 percent of the total, and large firms would create more than 157,000 new jobs or nearly two-thirds of the total.

V. Judicial and Legislative Actions Affecting Interchange Rules and Fees

While interchange fee levels are not regulated directly in the United States, Congress and the courts have taken steps periodically regarding some of the system's anti-competitive features. For example, in 1971 the courts held that a Visa rule prohibiting banks from affiliating with more than one credit card network was a per se prohibition of antitrust laws.[57] In 1991, a federal appeals court allowed Visa to bar Sears, which had founded Discover Card in 1985, from issuing Visa cards;[58] but in 1998, the courts overturned Visa and MasterCard rules prohibiting banks in their networks from also issuing Discover or American Express cards.[59] In 1996, a group of major retailers led by Wal-Mart and Sears sued Visa and MasterCard over their rule requiring merchants that accepted their credit cards to also accept their signature debit cards; on the eve of the trial in late 2003, the credit card networks agreed to apply their honor-all-cards rule separately to credit and debit cards and paid the retailers some $3 billion in damages.[60] And in 2008, a group of businesses sued Visa, MasterCard, Bank of America and others alleging the credit card networks and certain large banks conspired to set interchange fees in violation of the Sherman and Clayton Antitrust Acts, but the Ninth Circuit Court of Appeals found that the plaintiffs had not presented sufficient evidence of a conspiracy.[61]

Congress is also considering reforming these arrangements. In 2009, legislation was introduced by Representative Peter Welch (D-VT), "The Credit Card Interchange Fee Act of 2009," to bar credit card networks from imposing additional charges on merchants for certain premium payment cards, as well as certain features of honor-all-card rules and no minimum payment rules. The bill would also direct credit card companies to provide consumers with transparent disclosure of the terms of their contracts and rules, and authorize the Federal Trade Commission to review their rules, terms and agreements.

Other countries have taken stronger steps to regulate these fees and practices. The GAO reports that more than 30 countries have taken actions or are considering doing so to reduce interchange fees and the antitrust practices of their credit card payment systems. One notable case is Australia. In 2000, the Reserve Bank of Australia and the Competition and Consumer Commission issued a study on that nation's credit card payment system, concluding that interchange fee rates of 0.95 percent per-transaction were too high and that network rules prohibiting merchants from applying surcharges to reflect interchange fees unnecessarily suppressed price signals to consumers about the costs of their credit card use.[62] Following the report, the Bank of Australia introduced a series of reforms reducing the weighted average interchange fees on Visa and MasterCard from 0.95 percent to 0.50 percent and eliminating the

[57] *Worthen Bank and Trust v. National Bank Americard*, discussed in Evans and Schmalensee (2005b).
[58] *Sears v. Visa,* discussed in Evans and Schmalensee (2005b).
[59] *US v. Visa and MasterCard*, Department of Justice (2007).
[60] *In re: Visa Check/MasterMoney Antitrust Litigation*, discussed in Evans and Schmalensee (2005b).
[61] *Kendall v. Visa,* United States Court of Appeals for the Ninth Circuit (2008).
[62] Bank of Australia and Australian Competition and Consumer Commission (2000).

no-surcharge rules.[63] A 2008 review of these reforms found that they had improved price signals in the Australian payments system and increased transparency and access.[64] The review also estimated that consumers had saved $1.1 billion through lower prices in the preceding year, although opponents claimed that annual fees had risen 22 percent and the value of card rewards as a portion of spending had decreased 23 percent.[65]

The Australian experience, including the reduction of average interchange fee rates to a fraction of their U.S. average levels without apparently reducing the breadth or efficiency of that nation's credit card system, argues for a serious review of the American credit card system. Given the substantial costs to consumers and employment of our current arrangements, at a minimum the Federal Reserve and Federal Trade Commission should undertake such a review and recommend appropriate changes and reforms.

VI. Conclusion

The use of credit and debit cards by individuals and businesses is ubiquitous, and the benefits for consumers, business customers and merchants are obvious. Yet, the costs of the credit card system – how much it increases the prices everyone pays and the job effects of those price increases – have not been either recognized widely nor analyzed closely. This study has examined the interchange fees which merchants pay on all credit card transactions to the handful of large banks that issue most credit cards. We find that these fees are substantial: Visa and MasterCard, which account for more than 85 percent of all consumer credit cards and more than 62 percent of all commercial cards, impose interchange fees to every credit card purchase that range from about 1.0 percent to 3.5 percent of the sale and average 1.5 to 2.0 percent of the sale price.

We further find that these levels of interchange fees are not justified economically. Less than 20 percent of interchange fees go to cover the actual transaction and processing costs of the credit and debit card networks. A substantial share of the remainder of these fees goes to pay for the "rewards" that the banks issuing the credit cards offer higher-income people to adopt their cards, and possibly run up interest and penalty charges. Yet, most of these fees are passed along in higher prices for everything people buy, whether or not they use a reward-linked credit card or any credit card at all. The result is a system of regressive cross-subsidies in which lower and moderate-income people, who do not use credit cards or use cards with no rewards, pay higher prices to finance rewards for higher-income credit card users. We estimate that these fees cost an average American household some $230 per year in higher prices.

Moreover, the structure of the credit card market and the rules imposed by the dominant networks (including American Express and Discover, along with Visa and MasterCard) prevent normal market forces from determining the level of these fees. In particular, credit cards are so ubiquitous that merchants cannot apply market pressures to bring down their fees by withdrawing from the major networks, at least not without jeopardizing their sales. Moreover, the rules of these networks prevent merchants from charging customers based on the interchange

[63] Bank of Australia (2008b).
[64] Bank of Australia (2008a).
[65] Stillman, Bishop, Malcolm and Hildebrandt (2008).

fee for the card that a customer uses, and preclude consumers from exerting market pressure against high interchange fees by paying with cash, by check, or using cards with lower fees.

We further find that by raising prices, these fees also reduce real demand for goods and services, which in turn harms U.S. employment. We estimate that if interchange fees were limited to the transaction and processing costs of credit card purchases, the additional resources for consumers would support the creation of more than 240,000 new jobs.

The economic and social concerns over high interchange fees described here are not limited to the United States. In Australia, concerns in 2000 about high interchange fee rates that were still only a fraction of current U.S. levels – fees of 0.95 percent per transaction at the time – led to a high-level inquiry by the Bank of Australia and the Australian Commerce and Competition Commission. They found that the fees were both too high and insulated from normal market signals, and so they introduced reforms that brought down those fees to an average of 0.50 percent. A review of the results several years later found that the reforms improved the transparency, access, and efficiency of the country's payment system.

Given the large economic costs of our current credit and debit card payment system, the Federal Reserve and the Federal Trade Commission should undertake a comparable inquiry and propose new rules and reforms for the American credit card system and the interchange fees charged through it.

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