



# **CREDIT CARDS IN THE U.S. ECONOMY: Their Impact on Costs, Prices, and Retail Sales**

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**A Study by the Board of Governors of the Federal Reserve System**



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**Submitted to the Committee of Banking, Housing, and Urban Affairs  
of the United States Senate**

**and**

**the Committee on Banking, Finance and Urban Affairs  
of the United States House of Representatives**

**Pursuant to Section 202 of the Cash Discount Act of 1981**

**July 27, 1983**

CREDIT CARDS IN THE U.S. ECONOMY:  
THEIR IMPACT ON COSTS, PRICES, AND RETAIL SALES

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CREDIT CARDS IN THE U.S. ECONOMY:  
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1. INTRODUCTION AND SUMMARY

By at least the beginning of the 1970s the personal credit card had become a fixture in the nation's economy. Card use had spread rapidly after World War II, and accelerated with the development of the bank credit card in the late 1950s. Today almost 600 million credit card accounts exist in the United States, and seven out of ten households possess at least one credit card. Outstanding balances on credit card accounts total more than \$75 billion.

Despite the widespread use of credit cards, opinion has been divided on their economic significance. In response to a Congressional request for a report on the economic impact of credit cards--deemed necessary to evaluate a law that encouraged the offering of price discounts for payment by cash--this study examines the impact of credit cards on the costs that merchants and creditors incur, on the pricing of goods sold by retailers, and on the volume of retail sales. The Congress asked for information on these issues to help ascertain whether and to what extent credit card users are subsidized by cash customers when both pay the same prices for goods and services.

1.1. Scope of Study

While some background is provided (in Chapter 2) on the history, characteristics, and use of different types of credit cards, the primary focus of the study is on the costs to retailers associated with credit card transactions, compared with the costs of cash and check transactions, and on the question of how credit cards affect the sales of retailers--topics that

were of central concern in the discussions that led to the study request. The study also seeks to provide the Congress with up-to-date information on the prevalence of discount-for-cash programs, and current attitudes of both retailers and consumers toward such programs. The study provides no recommendations regarding legislation to promote discounts for cash or surcharges for credit, in view of the Congressional request for an informational rather than an advisory study.

The report draws upon existing studies, where applicable, and also presents findings of special surveys of households and retailers undertaken expressly for this report. The Federal Reserve Board sponsored questions about consumer response to discounts for cash on two regular household surveys conducted by the Survey Research Center at the University of Michigan. The Board also commissioned a survey of retail organizations about their perceptions of relative costs of cash, check, and credit card transactions, and on their practices and views concerning the offering of price discounts to customers who pay cash.

### 1.2. Origin of Study

In 1974, the Congress amended the Consumer Credit Protection Act (more commonly referred to as the Truth in Lending Act) to encourage merchants to offer discounts to customers who pay for purchases with cash instead of credit cards. The amendments, contained in the Fair Credit Billing Act of 1974, were based on a conviction that credit card transactions were more costly for merchants to handle than were cash transactions. Recognizing also that in the long run selling costs must be recovered in the prices that merchants charge, the Congress concluded that cash buyers were subsidizing credit buyers in the customary situation where both faced an identical retail

price for a given item at a given store. The amendments sought to encourage discounts by (1) prohibiting card issuers from contractually forbidding merchants to offer cash discounts and (2) exempting cash discounts of up to five percent from the requirement of disclosure as finance charges under federal law.<sup>1</sup> The Federal Reserve Board was to administer these provisions as part of its general responsibilities under the Truth in Lending Act.

In implementing the exemption of cash discounts from treatment as finance charges under the Truth in Lending Act, the Board encountered the question as to whether the Congress intended this special treatment to apply to both discount and surcharge pricing systems. The Board requested guidance from Congress on its legislative intent, and the Congress responded in 1976 by specifically defining the terms "discount" and "surcharge" as, respectively, a reduction from and an addition to the "regular price." "Regular price" was not defined, but the Congress clearly specified that a discount was not equivalent to a surcharge, and prohibited the imposition of surcharges until February 27, 1979. The particular mechanics of establishing a two-tier price system had to involve discounts from the credit price for cash customers rather than surcharges to the cash price for credit customers. In addition, the 1976 amendments provided that discounts offered in accordance with the act and regulation would not be considered credit charges under any state usury or disclosure laws. The surcharge prohibition was extended in 1978 for an additional two years, until February 27, 1981, without change.

1. The Truth in Lending Act requires extenders of credit to provide borrowers with information on the cost of credit expressed on a standardized basis to facilitate comparison shopping among creditors. This act and Federal Reserve regulations specify what should and should not be treated as a finance charge in calculating the annual percentage rate to be disclosed. In general, in credit sale transactions any difference between the cash price and the credit price is to be treated as a finance charge. Under these circumstances, especially in light of state laws setting maximum interest rates on consumer credit, merchants and card issuers were reluctant to price goods separately for sale by cash or by credit.

In 1981 Congress further amended the cash discount provisions in the Truth in Lending Act and once again extended the surcharge prohibition. The principal amendments (1) eliminated the 5 percent limit on discounts that were exempt from treatment as a finance charge, thus authorizing unlimited discounts, and (2) removed language that directed the Board to issue regulations concerning the offering of discounts. The surcharge prohibition was extended until February 27, 1984, but only after considerable debate and the addition to the Act of a requirement that a study be prepared by the Federal Reserve Board concerning credit cards.<sup>1</sup>

While the primary focus of decision in early 1984 apparently was to be whether to continue or to remove the surcharge prohibition, the Congress requested a study that would go beyond a comparison of surcharges and discounts to a fundamental examination of the economic merits of two-tier pricing--by whatever mechanism achieved. It was remarked several times in the Senate floor discussion that relatively little evidence had been put forth to substantiate the belief that credit transactions were more costly to retailers than cash transactions; that, in fact, the main study of credit cards familiar to the senators--a 1968 Federal Reserve study--had found that credit cards exerted little upward pressure on costs of retailers.<sup>2</sup>

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1. For the currently effective amendments to the Truth in Lending Act regarding discounts for cash, see: 15 U.S.C. §1666f (1982) (Pub. L. No. 90-321, Title I, §167, as added Pub. L. No. 93-495, Title III, §306, October 28, 1974, and amended Pub. L. No. 94-222, §3(c)(1), February 27, 1976, 90 Stat. 197; Pub. L. No. 97-25, Title I, §101, July 27, 1981, 95 Stat. 144.) The text of the Cash Discount Act of 1981 is provided in Appendix A.

2. Board of Governors of the Federal Reserve System, Bank Credit Cards and Check Credit Plans (Board of Governors, 1968), pp. 58-59. This conclusion was based in considerable part on the costs to retailers stemming from bank credit cards compared with the operating costs of store-card plans. If bank-card transactions primarily substitute for store-card transactions, a retailer would likely experience no change (or some decline) in costs. The 1968 study noted that "upward pressure on prices would arise from any massive shift of cash customers to the use of credit cards if there were no offsetting increase in the volume of transactions," but found little evidence that such a shift from cash was likely.

Thus, under Title II of the Cash Discount Act of 1981, the present study was commissioned to provide the Congress with a report on what is known about the impact of credit cards on the economy, particularly with regard to the costs incurred by retailers and the pricing of goods and services. The specific instruction from Congress was as follows:

"the Board of Governors of the Federal Reserve System shall prepare a study, on the basis of a review and analysis of such data and studies as it finds appropriate...on the effect of charge card transactions upon card issuers, merchants, and consumers, including to the extent possible--

(1) the effects of charge card transactions on retail sales;

(2) the effect of charge card usage on consumers and on merchants, including the effects on merchant cost; and

(3) the effect of charge card usage on the pricing of goods and services, with a comparison of the costs resulting from payment by (A) currency and coin, (B) by personal check or similar instrument, (C) by in-house credit plans, and (D) by charge card."

### 1.3. Summary

As observed above, the fundamental thesis underlying the Cash Discount Act is that credit card transactions are more costly to retailers than cash or check transactions, and that the higher costs of credit cards are incorporated in the prices of goods and services paid by all customers, resulting in a subsidy of credit buyers by cash purchasers.

The most basic challenge to this view would be the assertion that, properly measured, transactions costs for credit cards do not differ from other means of payment, or that the magnitude of difference is negligible. Another counter-argument sometimes proposed to the subsidy thesis is that credit cards generate incremental sales for retailers, so that the additional profits thereby attributable to cards eliminate any need to recover the cost

of credit cards in prices of goods and services. The following chapters discuss these issues, and also examine the current practices and attitudes of retailers toward offering discounts for cash.

Following a brief overview in Chapter 2 describing the types of credit cards available and the incidence of their use among households, Chapter 3 examines the broad question of the impact of credit cards on sales of retailers. Many observers would argue that because consumers are enabled by credit cards to spend beyond the immediate limits of cash or checking account balances, they are more likely to make ill-considered purchases and, in general, to spend more and save less than they would in the absence of credit cards.

This idea was examined in two ways: first, through a survey of households on "impulse" purchases transacted by credit cards; and second, by a review of available research on the link between credit cards and aggregate spending, on the grounds that any broad increase in spending induced by credit cards would be expected to boost aggregate consumption and to reduce the aggregate saving rate. However, neither the household survey nor the macroeconomic studies suggest that any strong, consistent relationship exists between credit cards and incremental sales among retailers as a group.<sup>1</sup> The survey found that many unplanned purchases were transacted by cash, and that many of those transacted through credit cards would likely have been undertaken even without access to a credit card. The limited amount of macroeconomic research available has failed to establish any measurable impact of credit cards on the aggregate saving rate.

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1. Whether card-honoring retailers attract sales from other retailers who don't accept credit cards is treated as a minor issue, in view of the widespread acceptance of credit cards. Unless industry-wide sales are increased, gains and losses from credit card sales will net out among retailers, yielding no net additional revenues to offset the higher costs of credit cards.

Chapter 4 examines the costs associated with credit cards and other means of payment, and summarizes a number of relevant studies. It also reports on the results of a survey of retailers conducted this year concerning their perceptions of the relative costs of credit cards, cash, and checks. The weight of the evidence from the survey and other studies is that total net costs to retailers associated with credit cards--including point-of-sale, security-related, and financial costs--are in fact higher than for other types of transactions, typically by about 2 to 3 percent of the transaction amount, a figure which roughly corresponds to the average factoring or servicing fee paid by merchants to issuers of third-party credit cards (or the net credit department deficits of retailers that issue their own credit cards). For most retailers, the costs of check transactions appear to be smaller than for credit cards, and either about the same or larger than for cash. Large retailers were more likely than small retailers to rate both checks and credit cards as more costly than cash.

In Chapter 5, the issue of whether the higher costs of credit cards are included in retail prices is discussed. From a microeconomic perspective, it is concluded that prices in the long run would reflect all such costs that were not recovered directly from credit card users, but that the size of the price effect would be small. In total, the need to cover credit-related costs would likely boost the price of a given item by less than 1 percent. This minimal impact owes in part to the relatively small share of sales transacted by credit cards (around 15 percent through third-party cards in the areas of general merchandising under study).

From a macroeconomic perspective, credit cards could potentially affect economic activity by altering the aggregate propensity to consume and/or the transactions demand for money. Some impact on the equilibrium

level of prices during a period of adjustment to the introduction of credit cards is held possible, but available evidence suggests that such an effect would be small and mostly irrelevant to the long-run processes of economic growth or inflation.

From Chapters 3 through 5, it can be concluded that credit card transactions cost most retailers more than cash (or check) transactions, and that this cost is not offset by higher retail sales volume, but is reflected in the level of prices. As a result it can be said that cash buyers, at least to some extent, subsidize credit card users by paying identical prices.

Chapter 6 examines two possible methods of minimizing the subsidy: (1) removal of government-imposed artificial barriers to coverage of credit card costs via finance charges and other user fees, and (2) establishment of a two-tier price structure involving discounts for cash or surcharges for credit.

Because of revisions in state usury laws and other statutes, card issuers have been in position to shift more of the cost of credit cards onto users recently. Adoption of two-tier pricing appears feasible for most retailers only if they simultaneously raise the base price from which discounts would be calculated, so that the "new" credit price is above--and the discounted cash price only somewhat below--the "old" single price.<sup>1</sup> This conclusion is based on results from surveys of consumer reaction to actual two-tier pricing of gasoline and to hypothetical discounts for cash on durable goods and clothing, as well as implications from the findings on costs in Chapter 4.

A polling of retailers on their current practices and attitudes toward discounts for cash, reported in Chapter 6, found that in the spring of

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1. Two-tier pricing through surcharges for credit would ordinarily result in the same structure of credit and cash price as under a discount-for-cash approach.

1983 cash discounts were typically the exception rather than the rule for types of business likely to accept credit cards in addition to other means of payment. About 25 percent of gasoline stations and 6 percent of other retailers offered discounts, with around 40 percent of all retailers surveyed describing discounts for cash as "a good idea." About three out of every ten retailers thought that surcharges for credit constituted a better approach to two-tier pricing than discounts for cash; 70 percent thought surcharges an inferior approach.

## 2. ECONOMIC CHARACTERISTICS OF CREDIT CARD PLANS

Credit card plans in today's marketplace offer consumers a diverse menu of financial services. As background for the ensuing analysis, the present chapter compares the services currently offered by five major types of credit cards, the cost implications and pricing of these services, and trends in the holding and use of each type of card.<sup>1</sup>

### 2.1. Gasoline Company Credit Cards

Gasoline credit cards are "two-party" arrangements--credit cards that are issued by a vendor for customers to use in making credit purchases primarily or exclusively at the retail outlets of the issuing company.<sup>2</sup> Most gasoline company credit card programs provide credit for a one-month billing period with no provision for extending repayment over a longer period. Some gasoline companies offer optional extended periods to pay for purchases of more expensive items such as tires, batteries, or repairs.

As a result of the short repayment period, the gross expense to the gasoline companies of financing these receivables is lower, relative to the dollar volume of credit billings, than for credit card programs that offer extended repayment terms.<sup>3</sup> However, the rather low average amount of credit purchases at gasoline stations implies that costs of processing credit card transactions tend to be fairly high per dollar of credit sales. Although processing costs are subject to some degree of control, particularly through

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1. For further discussion of holding and use of credit cards, see Thomas A. Durkin and Gregory E. Elliehausen, 1977 Consumer Credit Survey (Board of Governors of the Federal Reserve System, 1978).

2. Some gasoline company credit cards can be used to make purchases at stations operating under different brand names. Also, accommodations and meals at specified lodging establishments and restaurants can be charged on some gasoline company credit cards.

3. An offsetting factor is the relatively low amount of finance charge revenue generated by this type of credit card plan.

implementation of more efficient automated procedures that capture economies of scale, financial costs are mainly determined by market conditions and are largely beyond the control of credit card issuers.

Pricing of gasoline credit cards has consisted mainly of a finance charge applied to past-due balances. Thus, there has been no explicit charge for credit services used by credit customers that pay in full within the initial billing period. In the past few years, however, some gasoline companies have offered auto or travel clubs, for which membership fees are charged, consisting of credit card plans combined with travel-related services. Apart from this specialized development, no gasoline company has yet initiated a cardholder fee for its regular credit card program.

Since late 1981, some gasoline companies have begun programs that offer lower prices to customers who pay in cash rather than by credit card. Dealers who choose to participate in these programs generally charge customers about 3 to 5 cents per gallon less than the posted price if payment is made in cash; as a result, all credit card users help to defray at least part of the cost of providing credit card services. Several gasoline companies have also begun charging their dealers a handling fee--typically about 3 percent of amounts due from customers--for processing credit card billings.

The proportion of families that holds one or more gasoline company credit cards has remained stable, overall, in recent years at slightly above one-third (table 2.1). The dropoff in 1981 to 30 percent likely reflects short-term adjustments resulting from the 1979-80 gasoline shortage and associated price increases, as well as the temporary impact of the consumer credit restraint program that was in effect during the first half of 1980.

Use of gasoline credit cards has followed a generally similar pattern (table 2.2). About one-third of families has used gasoline company

TABLE 2.1

CREDIT CARD HOLDING  
(Families Holding Cards as Percent of All Families)

Type of Credit Card	Year			
	1977	1978	1981	1982
Any	63	64	66	70
Gasoline	34	34	30	35
Bank	38	40	45	51
General purpose <sup>1</sup>	8	10	14	14
Retail store	53	50	57	63
Other <sup>2</sup>	6	5	7	n. a.

1. Travel and entertainment cards.

2. Includes airline cards, car-rental cards, and others not classified elsewhere.

n.a.--not available

Source: Data collected for the Federal Reserve Board by the Survey Research Center, University of Michigan.

TABLE 2.2

CREDIT CARD USE  
(Families Using Cards as Percent of All Families)

Type of Credit Card	Year				
	1971	1977	1978	1981	1982
Any	50 <sup>3</sup>	60	62	62	n. a.
Gasoline	33	31	32	27	31
Bank	19	35	37	39	47
General purpose <sup>1</sup>	5	7	9	12	13
Retail store	45	50	48	51	57
Other <sup>2</sup>	n. a.	4	3	5	n. a.

1. Travel and entertainment cards.

2. Includes airline cards and car-rental cards.

3. Data for 1970.

n.a.--not available

Source: 1970 Survey of Consumer Finances, 1971-72 Surveys of Consumers, and data collected for the Federal Reserve Board by the Survey Research Center, University of Michigan.

credit cards since the early seventies. Some indication of reduced usage in 1981 likely reflects the aftereffects of gasoline shortages and government policies to restrain certain types of credit use.

## 2.2. Bank Credit Cards<sup>1</sup>

By contrast, bank credit cards are "third-party" arrangements in which the company that provides the financial service has no affiliation with the buyer or the seller of the goods and services purchased with the credit card. Bank credit cards offer highly flexible credit terms. Customers who can qualify for a fairly large credit limit--those who have a good credit history and adequate income--can incur relatively large indebtedness on such an account. Also, by choosing to pay less than the entire balance, account holders can stretch out repayments over an extended period of time. Thus, the bank credit card can be used to satisfy fairly large needs for immediate credit, and--if desired--to scale repayments to available income. Furthermore, bank credit cards are widely accepted for purchases of a large variety of goods and services, and can also be used to obtain cash at many financial institutions.

The gross financing cost incurred by a typical bank credit card issuer per dollar of credit billings likely exceeds that of most gasoline credit card programs, since a lower proportion--slightly less than three-fifths--of bank card customers usually pays the entire balance when billed. Processing costs are lower relative to the volume of bank credit card billings, owing to the larger average dollar amount of bank credit card transactions.

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1. Although the term "bank" credit card is commonly used, it obscures the growing diversity of institutions and organizations offering such services. "Bank" cards now are issued by finance companies (through commercial banks that may be subsidiaries), savings and loan associations, and credit unions. Some nonfinancial organizations such as the American Automobile Association have made arrangements with commercial banks to issue bank credit cards to members in the name of the organization.

Banks processing credit card receivables deduct a percentage of all credit card billings--called a "merchant discount" fee--for handling credit card slips submitted by the retailers. In turn, card-issuing banks charge other banks an "interchange" fee for clearing transactions billed to the accounts of customers of the card-issuing bank. Such fees help compensate card-issuing institutions for expenses of record keeping, billing customers, non-payment by customers, and fraudulent use of credit cards.

Customer pricing of bank credit cards has changed substantially in recent years. Before the mid-1970s, most banks relied entirely on a finance charge on customer credit card balances that remained unpaid after the initial billing period. Recent changes in financial and regulatory conditions have caused many banks to implement periodic fees for maintaining customer credit card accounts. As market interest rates increased during the late 1970s, the costs of funding credit card services rose significantly. Although faced with rising costs, banks in many states were unable to increase revenue derived from finance charges because of binding statutory rate ceilings.

A related factor was the gradual phaseout of regulatory limitations on deposit rates mandated by the Depository Institutions Deregulation and Monetary Control Act of 1980. The costs of funds acquired from bank customers increased as banks began to pay higher rates to attract and retain savings and time deposits, and as banks started to offer new transactions accounts that--unlike regular checking accounts--paid interest on deposits. Finally, from March 1980 through early July 1980, the credit restraint program administered by the Federal Reserve at the direction of President Carter imposed a special deposit requirement that caused some banks and other credit card issuers to experience additional costs of providing revolving credit.

To offset these cost pressures, many banks adopted periodic fees in an effort to boost current revenues and to re-price credit card services on a basis better suited to an environment in which customer deposit rates are unrestricted.<sup>1</sup> Some banks have pursued means of boosting revenues other than through imposing periodic fees, such as charging for each transaction billed to a credit card account and assessing penalties for late payments, for replacement of lost cards, or for balances that exceed credit limits. Other banks have increased merchant discount fees or customer finance charges, where competitive and regulatory conditions have permitted such action, or have started charging interest from the date that transactions are posted to an account rather than after an initial billing cycle.

A variant of the bank credit card offered by some institutions is the so-called "gold card." This specialized type of "premium" bank credit card combines the features of the regular bank credit card with a larger credit line and a package of additional services that may include accident insurance, lost credit card service, hotel and car rental discounts, and free travelers checks. Fees charged cardholders for gold card services typically exceed the range of fees on regular bank credit card accounts, but ordinarily are less than the fees charged for general purpose (travel and entertainment) cards.

One-half of all families in the United States now holds one or more bank credit cards, up from nearly two-fifths in 1977 (table 2.1). The proportion of families holding a bank credit card has expanded continually, as has the percentage of families that uses bank credit cards, which rose from one-fifth in 1971 to nearly one-half in 1982 (table 2.2).

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1. As providers of "third-party" credit card services, issuers of bank credit cards cannot fall back on profits from the sale of goods and services financed with such credit cards to cover some costs of providing credit card services.

### 2.3 General Purpose Credit Cards<sup>1</sup>

This type of third-party credit card is oriented toward more affluent customers able to pay a larger annual membership fee for access to premium credit card services. Since higher income requirements must be met to qualify for general purpose credit cards, an element of prestige may be attached to carrying such cards as well as some presumption that cardholder creditworthiness is less subject to question than with other credit cards. Therefore, these programs appeal to customers who travel and/or entertain frequently, for whom an easily accepted credit card with a relatively high credit limit can be especially convenient.

A variety of ancillary services is typically offered as part of a general purpose credit card package. Travel accident insurance, discounts on travelers checks, on hotel accommodations, and on car rental, and access to check cashing or cash advances from company or affiliated offices or from card-activated cash dispensers are examples of these additional services.

In addition to membership fees, card issuers also derive revenues from merchant discount charges paid by retailers. Another important feature of general purpose credit cards is the requirement that balances be repaid within 30 days after billing. Thus, although the average balance for such accounts may be large, credit remains outstanding for only a relatively short period of time, so that gross financing costs incurred by the card issuers are kept fairly low in relation to the volume of billings.

"Gold cards" for a select clientele were first developed as variants of general purpose credit cards. As with bank credit card plans that later adopted this strategy, these gold card plans provide additional services and a larger credit limit at a higher fee and with a more stringent income requirement.

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1. Also frequently referred to as "travel and entertainment cards." Major issuers of such credit cards include American Express, Carte Blanche, and Diner's Club.

Gold cards also permit repayment of balances over an extended period, in contrast to regular travel and entertainment cards that require payment within 30 days of billing.

General purpose credit cards are held by almost 15 percent of families, up sharply from only 8 percent in 1977 (table 2.1). The percentage of families that uses general purpose credit cards has almost doubled since 1977 (table 2.2).

#### 2.4 Retail Store Credit Cards

Two-party credit cards issued by retail stores are the most widely held and used type of credit card. Over three-fifths of families in the United States held some kind of retail store credit card in late 1982 (table 2.1), and most of these families used such cards to some extent (table 2.2). Holding and use of retail store cards have continued to expand in recent years, even though retail credit cards have long been available and despite increasing competition from third-party credit cards, some of which now are accepted by many leading department stores and specialty shops.

Retail store cards typically offer lower credit limits and have less demanding credit qualification requirements in comparison with third-party credit cards. Of course, use of retail credit cards is limited to the variety of merchandise carried by the issuing merchant. Retail revolving credit plans usually provide customers the option of repaying over an extended period of time. Typically, three-fifths of retail credit card customers usually pay the entire balance billed to their accounts, about the same proportion of non-revolvers as is found with bank credit cards.

Retail credit card plans may be administered and financed either "in-house" by the retailer or by an outside firm that contracts with the retailer to furnish "private label" credit card services. All costs of

operating in-house credit card plans are borne directly by the retailer. In-house credit card plans derive revenues from finance charges on credit card balances that are not repaid before the end of a billing cycle. Retailers have not adopted the strategy followed by many commercial banks of charging periodic fees for access to credit card services. To some extent, retail establishments may have more leeway than financial institutions in pricing credit card services, since--except under conditions of intense price competition--some costs of providing credit cards may be recouped from profits on sales of merchandise.

Except for the fact that credit cards bearing the retailer's name are issued to its customers in both cases, private label and in-house credit card plans differ in most respects. Indeed, private label retailer credit card plans more closely resemble bank credit card programs. A bank or a finance company vendor agrees to conduct and finance a credit card program for the retailer, in return for a fee analogous to the merchant discount fee paid to banks by retailers who accept bank credit cards. Private label credit card plans are used mainly by small- and medium-sized retail firms that prefer to purchase the managerial experience and the legal and financial resources of a large financial organization instead of bearing the expense of developing such capabilities internally.

## 2.5 Other Credit Cards

The remaining category of credit cards used by consumers is highly specialized and appears to be growing slowly. Such credit cards mainly are issued by some airlines and car-rental firms. About 7 percent of families held this type of credit card in 1981 (table 2.1) and about 5 percent used it to some extent (table 2.2).

The larger car-rental firms offer credit card accounts that have no annual fees and require full payment by the end of each billing period. Some companies provide credit card accounts only for businesses. A number of major airlines provide credit card plans that are available to individuals, permit extended payments, and have no periodic fees. In addition, many carriers accept Universal Air Travel Plan credit cards, although this account is mainly available for business travel and requires full payment during each billing period.

The revenue, cost, and usage characteristics associated with the major types of credit card plans reviewed in this chapter reflect efforts by card issuers to provide financial services that appeal to customers with varied financial requirements. To simplify the discussion in the following chapters, the analysis distinguishes mainly between third-party credit cards and in-house credit cards, with some separate attention to gasoline company credit cards. In the next chapter, in addition, the contrast is sharpened between transactions use--a feature of all credit cards--and longer-term borrowing, which occurs only with credit cards that permit extended payment terms.

### 3. IMPACT OF CREDIT CARDS ON CONSUMER SPENDING

#### 3.1. Patterns of Credit Card Usage

Approximately two-thirds of the households in the United States hold credit cards of some type, as noted in Chapter 2, but the use made of these credit cards varies substantially among households. Two basic contrasting patterns of usage may be described as "convenience use" for transactions purposes and "installment use" for borrowing activity.

Credit cards enable their holders to make purchases on a deferred payment basis. To some card holders, especially "convenience users," the significance of this payment deferral mechanism is that it permits them to carry smaller amounts of cash than might otherwise be necessary (or to obtain cash less frequently), sometimes provides an easier means of transacting a purchase than a personal check, and generates receipts that may facilitate merchandise returns or expense reimbursement. The use of a credit card also provides short-term "bridge" credit between paychecks or in advance of other receipts of funds.

Bridge credit in small amounts is essentially a convenience that helps a card user to adapt to nonsynchronous flows of income and expenditures. To the "installment user," the credit card offers an attractive means to obtain credit on a more extended basis. Payment for purchases may be stretched over several billing periods in accordance with account agreements which commonly require minimum periodic payments of 5 to 10 percent of the total amount owed. In this respect, credit cards are more an alternative to fixed-amount installment sales contracts or personal loans than to drawing down cash or checking account balances.

The advantages of borrowing by credit cards are several. For instance, card users may borrow in the exact amount they wish to spend (within their credit limit). In contrast, personal loans generally are available only for some minimum amount. Installment sales contracts are likewise usually limited by creditors to some minimum feasible size, such as for a major appliance or set of furniture. Also, credit card users make only one credit application, at the time they request a card, and thereafter can borrow with ease (as long as they meet a minimum payment schedule); installment sales contracts and personal loans, on the other hand, usually require a separate time-consuming process of application and approval for each extension of credit.

Of further benefit to installment users of credit cards is the payment flexibility of most credit card accounts. Card holders may routinely repay any portion of the balance owed, from the minimum amount required up to the entire balance, at any time. Other forms of installment credit generally specify a fixed monthly payment established at the signing of the contract. On such loans, a smaller than scheduled payment may place the loan in delinquent status and trigger penalty fees. Partial or full pre-payments may result in rebates of prepaid interest on a basis not particularly advantageous to the borrower. Even for installment users, then, "convenience" is an important attribute of credit cards--convenience in borrowing, primarily, rather than convenience in transacting.

Not every card holder fits neatly into one usage category or the other. Convenience users who ordinarily pay credit card bills in full may sometimes repay by installments--for example, after making an especially large purchase. Installment users, in turn, may at times pay off credit card debts in full--for example, after receiving a large tax refund. Nevertheless,

card holders generally can be classified into one category or the other according to their customary payment habits. From responses to questions concerning repayment practices on credit card accounts contained in the Board's 1977 Consumer Credit Survey, it appeared that about half of U.S. card holders were convenience users and the other half installment users.

### 3.2. Impact of Credit Cards on Expenditures

Isolating the impact of credit cards on consumer spending is difficult. Credit cards are so widely held, and the volume of business transacted through cards is so large, that it seems only reasonable to suppose that credit cards affect the way people spend. Using a credit card to make some unplanned purchase, or a purchase larger than intended, is perhaps a widely shared experience. Yet the precise nature and magnitude of the credit card's impact on spending remain elusive. Do credit cards in fact cause overall spending to be larger than would otherwise be the case? Or do they primarily affect the timing of purchases? Or perhaps the composition, rather than the total amount, of consumer spending?

The relevance of these issues to the discount-for-cash debate stems most directly from the possible offset to credit card costs at card-honoring retailers that may arise from any increase in sales volume associated with acceptance of credit cards. Any effect of credit cards on individual spending behavior would seem to carry some implications for aggregate spending as well. Examining the relationship between credit cards and aggregate consumption, therefore, can help in assessing whether the relationship of credit card use and sales volume at retail stores is significant. If use of credit cards stimulates aggregate spending, retailers as a group should derive increased sales; but if card use has no appreciable impact on total spending, then retailers as a group would realize no net sales gain to offset the

industry-wide costs of honoring credit cards. Of course, merchants who honor credit cards might gain sales from those who do not accept them, but that situation becomes less likely as credit cards reach a mature stage of development and retailer acceptance of credit cards becomes widespread.

The macroeconomic impact of credit cards is an important issue in its own right. Any factor that may influence spending habits of consumers is relevant to public policy concerns focused on the general level of prices and the scale of economic activity. However, these issues--to be discussed briefly in Chapter 5--appear secondary to the fundamental concern with consumer equity embodied in the Cash Discount Act, which is to identify and to minimize any possible subsidy of credit card users by cash users.

Microeconomic evidence. One way to gain insights into how credit cards affect consumer spending is to question a representative sampling of persons about their spending and card use habits. Some information of this type was surveyed in Chapter 2, and more recent survey results concerning unplanned purchases are discussed below.

Credit cards are sometimes believed to induce people to spend more than they otherwise would by weakening the discipline on spending imposed by in-pocket cash or checking account balances. Accordingly, many retailers feel that they can boost their sales by accepting credit cards, and critics sometimes assail the card for promoting ill-considered outlays that could lead to financial problems for some households.

As suggested above, however, the common view that credit cards influence spending does not necessarily imply greater spending in total, for either a given household or in the aggregate. It may be that only the timing or the composition of spending is affected. The convenience user, for example, may buy on one day what he would otherwise wait a week or so to buy, with no

difference in his total spending during the period. The installment user, of course, would likely alter the timing of his purchases more substantially, since without a credit card he might have to save for a purchase for a considerably longer time than would a convenience user.

For any credit card purchase, a compositional effect may be linked with the timing effect. Insofar as the credit card purchase must ultimately be paid for by transferring funds, the card user may at some point cut back on other expenditures, with no direct long-term impact on his overall spending. An article of clothing purchased by credit card--perhaps on impulse--might be "paid for" later by forgoing an alternative clothing purchase, or by sacrificing some unrelated expenditure, such as an expensive dinner.

To obtain some notion of the possible link between credit cards, unplanned or impulsive purchases, and changes in a household's total spending, the Federal Reserve commissioned the Survey Research Center to include several special questions on this subject in its January 1983 monthly survey of households. The answers to these questions did not indicate an especially strong connection between credit card usage and household spending, a result consistent with the finding from other surveys that about one half of card-holding households typically use cards for convenience rather than to augment purchasing power on a longer-term basis through installment use.

In the January 1983 survey, respondents were first asked if in the past three months they had made any purchase larger than \$20 that they "had not planned to shop for when [they] went into the store." Respondents were then asked, for each instance mentioned, what they had purchased, the price of the item, why they had made the purchase, and whether they had done so with cash, check, or credit card. Those who had used a credit card were

then asked if they would have purchased the item had they not had a credit card, and, if not, whether they would have purchased the item within the next few months.

Forty-one percent of the survey respondents indicated that they had made at least one unplanned purchase of \$20 or larger in the preceding three months. About 40 percent of those respondents reported more than one unplanned purchase. The most common unplanned purchase fell in the broad category of clothing, jewelry, and personal items, followed by household items including major durables. Hobby, recreational, and educational items comprised the next largest category. The purchased items covered a broad price range. Twenty-five and thirty dollars were the most frequently mentioned amounts (for the first purchase discussed), but 35 percent mentioned purchase amounts of \$100 or more, and almost 7 percent reported purchases of \$500 or more.

For each unplanned purchase, respondents were asked "what was the main reason that you decided to purchase the item at that time?"<sup>1</sup> Not surprisingly, nearly half the respondents answered that they "needed/wanted/liked" the item purchased. After all, any purchase presumably is made in order to meet some perceived need or desire, even if the perception of that need develops only a few moments in advance of the purchase. Some of the other responses were also need-related--for example, some said the item was purchased to replace an older item that was "worn out" or "needed replacing anyway." The primary reason for purchase not directly related to need was attractive pricing of the item, variously described as being "on sale," a "bargain," or a "good deal." Thirty percent of the respondents cited this reason. Thirteen percent said they bought the item as a gift or "to surprise

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1. Reasons given for purchase were unprompted; i.e., respondents answered in any manner they chose, and not, for instance, by selecting their answer from a list of possible reasons.

someone." Reasons mentioned by less than 2 percent of the respondents were that they "had extra money" or that the item "was hard to find" elsewhere or at other times.

TABLE 3.1  
UNPLANNED PURCHASE ACTIVITY

	Number of Responses	As Percent of:	
		Category Responses	Total Responses
<u>Total Responses</u>	644	100.0	100.0
No unplanned purchase	380	59.0	59.0
Made unplanned purchase	264	41.0	41.0
<u>How Paid for Unplanned Purchase</u>	259 <sup>1</sup>	100.0	
"Other"	8	3.1	1.2
Cash	135	52.1	21.0
Check	46	17.8	7.1
Credit card	70	27.0	10.9
<u>Behavior If Had No Credit Card</u>	70	100.0	
Buy at same time	40	57.1	6.2
No purchase at time	30	42.9	4.7
<u>Subsequent Behavior</u>	30	100.0	
Purchase within few months	19	63.3	3.0
No purchase at all	11	36.7	1.7

1. Five respondents making unplanned purchases did not provide information about method of transaction.

Responses to household survey, 1983.

A particularly interesting result of the survey is that only slightly more than one-fourth of those making an unplanned purchase used a credit card to do so (see table 3.1). Unfortunately, no "control group" data exist on the proportion of planned purchases made by credit card in the relevant categories (clothing and personal, household goods, hobby and recreational). Still, a frequency of one card purchase in four would not seem to establish a particularly

strong relationship between unplanned purchases and credit card use.<sup>1</sup> A full 70 percent of the unplanned purchases were made either by cash (52 percent) or by check (18 percent). About 3 percent were made by other, unidentified, means. When purchases were classified by size, the incidence of card use appeared to increase as purchases became larger, but not to a striking extent. For unplanned purchases above \$100, 31 percent were transacted by credit card compared with 25 percent for transactions of \$100 or less.

In all (considering only the first item mentioned), 70 respondents made an unplanned purchase by credit card. Forty of these purchasers (57 percent) said they would have made the purchase at the time even if they had not carried a credit card--they were not asked how--and 30 respondents (43 percent) said they would not have made the purchase at that time without their credit card. Finally, the 30 respondents who would not have made the purchase were asked if they would have made it within the next few months--19 said yes, they would have, and 11 said no.

Responses to hypothetical questions, of course, have considerable limitations. Statements as to what one would do if circumstances were different entail varying degrees of reliability for different respondents. Still, in the absence of a compelling reason to suspect a large bias in the answers provided, the survey results suggest that in only a small number of cases might credit cards ultimately prove decisive in the completion of an unplanned purchase. Seventy-three percent of the unplanned purchases studied were transacted by means other than credit card; another 15 percent would

<sup>1</sup>. In the Board's 1983 survey of retailers, among stores accepting credit cards, about 22 percent of total sales at clothing stores were transacted by card, and about 16 percent of furniture and appliance store sales were by card. This survey is discussed in Chapters 4 and 6.

have been made at the same time even without access to a card; another 7 percent would have been carried out at some later time. Only 4 percent of all the completed purchases (11 of 259), or 16 percent of credit card purchases (11 of 70), would never have been made without a credit card, in the judgment of the purchasers themselves.

Unplanned purchases, of course, represent only a fraction of total purchases. If the above proportions are reasonably accurate, it seems likely that far less than 4 percent of all purchases--planned and unplanned--could be described as sales that would never have taken place at all without credit cards. Moreover, even for those unanticipated purchases identified as entirely dependent on credit cards, it is still not possible to say that they represent a net addition to total spending. In the absence of the card-dependent purchases and subsequent payment for them, it may be that different purchases would have been made at some point, so that the total spending and total saving of the individuals would have been the same over time in either case.

Macroeconomic evidence. If individuals alter their spending behavior as a result of holding credit cards, summation of individual outlays should result in a corresponding alteration of aggregate consumption spending. If such a link could be detected, it would tend to substantiate the argument that incremental sales from credit cards offset the purportedly higher cost of credit card transactions (thereby making it less certain that credit card costs are imbedded in retail prices).

As discussed in the preceding subsection, credit cards could generate changes in the timing, the composition, or the amount of spending. Credit cards could cause incidental variations in the timing of purchases within a short period (e.g., between paydays) and have few significant macroeconomic

effects.<sup>1</sup> Or, through household exercise of the borrowing function, they could assist a more fundamental longer-term shift in the timing and/or the composition of purchases.

The most direct way in which credit cards might influence the total of consumption spending would be by increasing consumer propensities to spend (reducing consumer propensities to save). If consumers are considered to have some desired rate of saving in a cardless environment, then total spending could be enlarged by the existence of cards only if actual saving by consumers fell below the initial desired level. This outcome might seem to hinge upon a widespread lack of consumer self-discipline in saving, resulting in a condition of chronic overindebtedness. An alternative explanation, advanced by T. Russell and also tested by E. Montgomery, is that prior imperfections in credit markets may have created a situation in which consumer borrowing and total consumption were constrained to lower than desired levels.<sup>2</sup> To the extent that credit cards served to mitigate these imperfections, they would tend to reduce the saving rate and boost consumption.

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1. Changes in the timing of purchases due to card use could theoretically affect the cyclicity of aggregate consumption spending, and therefore economic activity in general. Since credit cards (like all consumer credit instruments) make possible a greater dichotomy between current spending and current income, they could tend to be cyclically destabilizing by boosting spending even further during a boom period, or by retarding spending at other times as repayment obligations impose a competing claim to spending as an end use of current income. On the other hand, credit cards could just as well serve a stabilizing function, for instance, by enabling households to maintain a desired long-run spending path during periods of temporary unexpected shortfalls in income. There is little documentation to suggest that these possible cyclical effects are very important in actuality. It is also possible that individual cycles of credit card use and repayment are differently phased and largely cancel out, resulting in little overall impact on economic aggregates.

2. Thomas Russell, The Economics of Bank Credit Cards (New York, Praeger, 1975).

Edward B. Montgomery, "Tests of Alternative Explanations of the Decline in the Personal Saving Rate" (Ph.D. dissertation, Harvard University, 1982).

If credit cards stimulate total spending--whether by relaxing capital market constraints on consumption or by undermining the consumer's will power to save--the impact should be evident in a declining aggregate saving rate as credit cards become more prevalent. During the 1970s, third-party credit cards were gaining broad distribution and use and, by and large, the saving rate did drop somewhat from earlier levels. By itself, however, without regard to the myriad other factors that influence spending, this fact is of little analytical value.

Russell's discussion of the link between credit cards and the saving rate was largely theoretical, in the context of a model in which the consumer arrives at an optimal allocation of lifetime income over time. Credit cards are introduced into the model as one method of diminishing restraints on the ability of younger consumers to borrow in anticipation of future income. For the U.S. economy, however, with its already well-developed consumer credit markets providing other means of obtaining credit, it becomes a difficult empirical question as to what extent credit cards might introduce any further appreciable relaxation of capital market constraints. Also, it should be noted, the Russell model would result only in a redistribution of consumption spending over time, unless total desired lifetime consumption is altered by the existence of credit cards.

In one of the few explicit macroeconomic studies of this issue, Montgomery calculated a maximum possible reduction in the saving rate of 0.3 percentage points during 1978 that might be associated with credit cards.<sup>1</sup> He also concluded from cross-sectional data that credit cards appeared to exert more of a downward impact on the saving rate in 1977 than in 1970

<sup>1</sup> Montgomery, "Alternative Explanations," p. 26.

but that the magnitude of the impact was probably very small.<sup>1</sup> G. Garcia, summarizing her investigation of the literature in this area, concluded in 1980 that "the issue of the effects of credit cards on consumption remains a subject for further research...The relationship of credit to the expansion of and inflation in the economy remains to be adequately explained both at the theoretical and empirical level."<sup>2</sup>

On the whole, the household survey on unplanned purchases discussed above as well as existing macroeconomic research provide little grounds for believing that credit cards generate incremental sales in sufficient volume to offset credit card costs to any measurable degree.

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1. Ibid., p. 166.

2. Gillian Garcia, "Credit Cards: An Interdisciplinary Survey," Journal of Consumer Research, vol. 6 (March 1980), p. 333.

#### 4. EFFECT OF CREDIT CARD TRANSACTIONS ON COSTS OF RETAILERS

In Section 202 of the Cash Discount Act, the Congress designated "the effect of charge card usage on merchants, including the effects on merchant costs," as a major topic to be examined in the Federal Reserve study. This part of the report primarily addresses the question of the costs incurred by retailers from credit card transactions, following some further discussion of the impact of credit cards on merchant revenues.

##### 4.1. The Incentive to Engage in Credit Card Transactions

An individual merchant has two obvious possible motivations to sell goods and services on credit. One is to increase sales: without credit, a particular sale might not be completed at all; in addition, the provision of credit through the merchant's own credit plan might establish a bond with the customer, leading to additional future transactions. A second reason for a merchant to sell on his own credit plan might be to enhance revenues by earning finance charges on receivables. Most empirical studies, however, have concluded that the direct variable and overhead expenses of operating a credit program (including the cost of funds) have not been fully covered by finance charge revenues. In practice, the sales generation motive appears to have been the dominant consideration underlying selling on credit.

The provision of open-book credit to known and trusted customers is a practice perhaps as old as retail trade itself. The broadening and formalizing of charge account credit was pioneered by the large full-line department stores in the 1940s and 1950s with the issuing of credit cards to customers for use in the issuing store and its branches. Initially, convenience was the primary attraction to consumers of the store credit card account, since most stores required full payment within the billing period of 30 to sometimes 90 days. In time, major retailers adopted the practice of providing qualified

customers an extended payment option (with finance charges accruing on unpaid balances). As a result, open-ended "revolving credit" began to substitute for longer-term closed-end credit as well as for cash transactions. Third-party card issuers subsequently entered the field by offering cards that could be used at any business that contracted with the issuer for this purpose.

For both in-house and third-party credit card plans, generation of incremental sales above the cash-only volume was the dominant consideration underlying their adoption. In many instances, the strategy may have been defensive--to avoid losing sales to card-honoring competitors--but was nevertheless attuned to achieving higher sales than deemed otherwise possible. It was generally believed that a card-holding customer, unfettered by the limitation of pocket cash or current checking account balance, would spend larger amounts than otherwise likely.

To businesses issuing their own card, the building of customer loyalty was an important sales-stimulating aspect of credit cards. People in possession of a store's credit card might habitually gravitate to that store to shop, and the monthly billing statement served as a convenient vehicle for presenting information about new products and services, special sales, or anything else designed to spur additional purchases.

To smaller businesses, the honoring of credit cards issued by banks or other third parties expanded their sales potential without the necessity for merchants to manage their own credit card plans. Expenses of application review, billing, and collection would be handled for a fee by the third-party issuer operating with the advantage of cost-minimizing economies of scale. Today, any clothing boutique or similar occupant of the modern shopping mall would likely suffer a decided competitive disadvantage if it did not accept credit cards. Even so, it is questionable whether the existence of credit

cards generates any incremental revenues for the retailing industry as a whole.

As discussed in Chapter 3, little support has been found for the view that card-holding consumers over the longer run spend more (save less) of their income than they would without credit cards. But if they do not, then it would seem that card-honoring merchants can benefit only at the expense of nonhonoring merchants. On the other hand, if most merchants honor credit cards, as may be true today, then none enjoys an advantage over any other by doing so, and competition must focus upon other factors such as product differences, pricing, and merchandise return policies.<sup>1</sup> In this situation, any selling costs incurred from honoring cards, above the cost of selling for cash, could be regarded as a net additional cost, in view of the absence of any offsetting incremental sales revenue for the industry as a whole.<sup>2</sup>

A good analogy to the impact of credit cards on retailers might be found in the grocery store industry's issuance of trading stamps several years ago. The first stores to offer stamps apparently were able to attract customers from competing stores, and to more than cover the costs of stamps through incremental sales volume. However, when others followed suit in self-defense, it became questionable whether any store--or the industry as a whole--benefitted from giving out stamps, since it is unlikely that people began to eat more in order to obtain stamps. In time, grocery stores grew dissatisfied

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1. Given the present stage of widespread credit card possession, it is not even clear that card-honoring merchants as a group take net sales away from non-honoring merchants as a group. If non-honoring merchants are able to appeal to price-sensitive cash buyers by offering lower prices, then they may gain as much in sales to such customers as they lose from credit users forced to shop elsewhere.

2. The timing effects associated with card use could redistribute sales among retailers, but this result might be largely random, and likely to "even out" for given retailers over a period of time.

with the expense of administering stamp giveaways, and many customers became suspicious that the cost of the stamps might be imbedded in the prices they were paying. Customers who disliked the bother of collecting and redeeming stamps might legitimately have complained that they were subsidizing the avid stamp collectors by paying the same prices for their groceries. In response to all these negative aspects, some stores dropped their stamp programs and began to advertise heavily a policy of lower prices. Eventually, nearly all grocery stores abandoned trading stamp issuance.

This analogy by no means implies that retailers will some day abandon credit cards, or even that they would be wise to do so. It may well be that the consumer benefits of credit cards--the ability to alter the timing of their purchases, to carry minimal amounts of cash, to borrow for short periods, and so on--are of more substance than the perceived benefits of receiving trading stamps from grocery stores, which was, in essence, an inefficient means for consumers to obtain price discounts. The primary point of the analogy is to illustrate that the apparent gains to particular retailers from offering some service can evaporate if competitors offer an identical service, raising costs but leaving total industry-wide sales unaffected.

If, in fact, the benefit of added sales volume from credit cards is largely illusory on an industry-wide basis, the crucial consideration to the subsidy issue becomes whether credit card transactions are more costly to carry out than cash (or check) transactions. If they are more costly, and those costs are not covered by the finance charges and user fees paid by card holders, then it would appear that cash buyers may indeed subsidize card users by paying identical prices, or that retailers as a group may accept smaller profit margins than otherwise available, or some combination of these outcomes.

#### 4.2. Costs to Retailers of Credit Card Transactions

Comparative costs to retailers of accepting different means of payment have been examined in a small number of earlier studies. Also, in connection with this report to Congress, the Federal Reserve Board conducted a survey of retail businesses on the costs of accepting cash, check, and credit cards. The results of this survey are discussed below.<sup>1</sup>

At first glance, it might appear a foregone conclusion that credit card transactions are more costly than other means of payment insofar as merchants pay some percentage of their third-party credit card sales to the card issuers, or incur various costs in operating their own credit card plans that have no corollary in cash transactions. Many retailers tend to view the costs of handling cash transactions as equivalent to the cost of doing business--a sales clerk, for instance, must be on hand to conduct transactions of whatever type. Thus there is a tendency to regard the marginal cost of selling for cash as zero, but this view should not be adopted without critical examination.

There are many elements of cost associated with the handling of a sales transaction. Some costs may be higher for check or credit card transactions, but others may be higher for cash. Included among the relevant cost concepts, for example, would be the time required to complete a transaction, which may in turn influence the number of check-out stations and sales clerks that a store needs. Credit card transactions absorb time because credit slips must be written and frequently some sort of authorization procedure undertaken. Personal checks usually trigger certain time-consuming precautionary steps, such as inspecting and copying down identification data

<sup>1</sup>. Appendix B provides some information on the specifications of this survey conducted in the spring of 1983.

or summoning a manager from elsewhere in the store to approve acceptance of the check. Cash transactions most likely consume less time than check or credit card transactions, but the counting of cash received, the making of change, and the stocking and replenishment of cash registers with currency and coin are cash-related activities that occupy an employee's time. Time consumed in reconciling sales records with cash, checks, and credit slips on hand may vary with the proportion of sales transacted by each means, and from one business to another.

Security-related expenses comprise a large family of costs in which further variation may be found among the different means of payment. Included in such a concept would be both direct expenses of security precautions plus an allowance for any uncovered risk associated with each transaction medium. An obvious risk, for example, is the possibility of theft. This particular risk is likely to be more pronounced for cash because the full negotiability of cash makes it an attractive target. Acceptance of personal checks entails the risk that the check may be uncollectable, because the writer may not have sufficient funds on deposit or for some other reason. Security risks borne by operators of in-house credit card plans include the costs associated with delinquent and uncollectable accounts.

For a fee, of course, merchants can generally protect themselves from many of these risks. Employment of in-store security personnel, rental of armored car service, use of more technologically sophisticated equipment, payment of bonding and insurance fees, and subscription to a check guarantee service all represent costs that retailers can incur to minimize losses from theft, fraud, and other causes. The costs arising from loss and protection against loss may well differ among the types of payment and among different businesses, and it is by no means obvious which means of transaction carries

the highest security-related costs, or how consistent the allocation of such costs by transaction type would be from firm to firm.

Still other costs to retailers can be associated with the method of transaction. Every method other than cash involves some delay in receipt of funds by the retailer, and therefore an implicit financing cost in forgone interest on the funds eventually to be transferred. And in-house credit card plans involve a broad spectrum of bookkeeping and collection costs. These expenses, of course, may be offset at least partially by finance charge revenues.

Perhaps the most visible transactions cost to retailers is a factoring fee called the "merchant discount"--the fee paid by retailers to third-party card issuers, figured as some percentage of the volume of credit card sales. This fee generally varies between 1 and 5 percent for different merchants, depending chiefly on total credit card sales volume and per unit transaction size. It can be thought of as partly covering various operating expenses that are shifted from the merchant to the card issuer, such as billing and collecting costs that might otherwise arise if in-house card plans were maintained, or the cost of loss and loss prevention associated with cash and check. However, since the card issuer obtains the revenues from finance charges and related fees as well as absorbing the costs of providing credit, the existence of the merchant discount may also reflect some deficiency in the card issuer's coverage of credit costs solely through financing income.

Empirical studies. A number of studies have examined the costs of credit card operations, or compared some aspects of credit costs with the cost of cash and checks. These include a study by Touche Ross & Co. of costs and revenues from revolving credit at department stores in New York, a

study by Payments Systems, Inc. of comparative costs for cash, check and credit transactions, and a study by R. Grant comparing the costs of these modes of transactions in Great Britain.<sup>1</sup>

The Touche Ross study collected detailed cost and revenue data for a 12-month period in 1972-73 from 17 retail firms in New York State operating in-house revolving credit plans (generally linked to a store-issued credit card). The analysis covered all costs relating to new accounts processing, account servicing, collection, space and equipment, payroll, and management. Touche Ross also calculated the cost of capital associated with each store's investment in receivables using two alternative methods--one based on each firm's own capital structure and one based on an assumed capital cost rate of 8 percent.

The principal finding of the study was that "retail stores in New York do not collect sufficient finance charge revenues on their revolving credit accounts to cover the costs of extending and servicing such accounts. For the 17 stores surveyed, the deficiency totalled...3.71 percent of credit sales. Each of the 17 stores incurred deficits on their revolving accounts."<sup>2</sup> Summary cost information from the Touche Ross study is presented in table 4.1. As the table indicates, the cost of capital was the largest component, accounting for about half of total credit costs (based on the

1. Payments Systems, Inc. Cost of Cash: A Strategic Analysis (Atlanta, 1981).

Touche Ross & Co. "Economics of New York State Retail Store Revolving Credit Operation for the Fiscal Year Ended January 31, 1973," in Robert P. Shay and William C. Dunkelberg, Retail Store Credit Card Use in New York. Studies in Consumer Credit, No. 4 (Graduate School of Business, Columbia University, 1975).

Robert M. Grant, "Transaction Costs to Retailers of Different Methods of Payment. Result of a Pilot Study" (Report prepared at The City University, London, 1982; processed).

2. Shay and Dunkelberg, Retail Store Credit Card Use in New York, p. 9.

individualized estimate of capital cost). Personnel costs and bad debt losses were the next largest elements of cost.

TABLE 4.1  
 REVOLVING CREDIT REVENUE AND COSTS  
 AT 17 NEW YORK RETAIL STORES  
 AS A PERCENT OF REVOLVING CREDIT SALES

	All Stores (17)	
	Amount \$(000)	Percent of Sales
NET REVOLVING CREDIT SALES (excluding finance charge revenue)	<u>\$776,453.5</u>	<u>100.00%</u>
FINANCE CHARGE REVENUE (net)	<u>59,033.9</u>	<u>7.60%</u>
CREDIT COSTS:		
Personnel costs:		
New accounts	3,914.3	.50%
Account servicing	8,060.9	1.04
Account collection	3,265.9	.42
Additional sales personnel	999.1	.13
Supporting services	866.8	.11
Management	376.7	.05
Data processing	<u>1,941.2</u>	<u>.25</u>
Total personnel costs	<u>19,424.9</u>	<u>2.50%</u>
Data processing equipment	1,261.0	.16
Credit investigation	1,075.8	.14
Bad debt losses	10,853.5	1.40
Collection agency fees	1,329.1	.17
Credit space and equipment	1,555.4	.20
Postage	3,078.0	.40
Communication	1,161.5	.15
Supplies and other	3,602.5	.46
Cost of capital	<u>44,533.6</u>	<u>5.73</u>
Total credit cards	<u>87,875.3</u>	<u>11.31%</u>
EXCESS/(DEFICIENCY) OF REVENUE OVER COSTS	<u>\$(28,814.4)</u>	<u>(3.71)%</u>
EXCESS/(DEFICIENCY) OF REVENUE OVER COSTS (at 8 percent cost of capital)	<u>\$(16,835.9)</u>	<u>(2.17)%</u>

Source: Touche Ross & Co., "Economics of Revolving Credit," from exhibit II, p. 76.

The Touche Ross study reflected considerable effort to determine relatively precise cost estimates from accounting records and from extensive on-site discussions with store personnel. Although much judgmental estimation was necessary to allocate certain types of costs between credit and non-credit sales, the study did a credible job of establishing that the costs to retailers of revolving credit operations exceeded financing revenues at the stores examined.<sup>1</sup> The study did not address the issue of incremental sales revenue that might be attributable to credit cards, nor did it evaluate the store-card as a marketing tool. The relationship of the deficits incurred on credit card operations to the overall profit margin on goods sold on credit was also outside the scope of the study.

In 1980, Payments Systems, Inc. (PSI) made an extensive study of the costs associated with cash transactions, measured on a per transaction basis. The study compared certain aspects of these costs, termed "handling costs," with corresponding costs for checks and credit cards, and concluded that "the per retail transaction cost of credit cards and cash is near the same--about \$.45--and checks only carry a small margin of higher costs." PSI asserted that "the costs of handling cash are many times higher than previously believed...(thus) retailers should take a new look at operating efficiencies in payment acceptance and at the comparative acceptance of new payment methods."<sup>2</sup>

1. In evaluating an earlier Touche Ross & Co. study using similar methodology, the National Commission on Consumer Finance found the allocation procedures used by Touche Ross to be reasonable, and accepted the Touche Ross finding that in-house revolving credit plans operate at a deficit. While the Touche Ross studies and National Commission commentary are at least 10 years old, subsequent increases in the cost of capital in excess of finance charges have likely preserved the validity of those earlier findings. See National Commission, Consumer Credit in the United States (Government Printing Office, 1972) p. 145.

2. Payment Systems, Inc., Cost of Cash: A Strategic Analysis, p. viii.

The PSI study also calculated a "total system" cost of cash transactions, which added security costs and theft losses to handling costs, raising the estimated cost of cash to about 55 cents per transaction. No estimate was presented for a total system cost for checks or credit cards, however. Thus the major costs of billing, collecting, bad debt expenses, and use of capital (for in-house card plans) were omitted from cost comparisons, as was the merchant discount fee for third-party cards, and losses on uncollectable checks for that type of transaction. The PSI estimates for total system costs of cash are reproduced in table 4.2, and the comparative handling costs for the three payment methods are provided in table 4.3.

On the whole, the PSI study likely succeeded in making its readers more conscious of the non-trivial costs associated with cash and therefore with the possibility of cost reduction through improved cash handling. But because the comparison with other means of transaction concentrated on handling costs to the exclusion of other major elements of cost, the study was not directly relevant to the issue of subsidization of credit buyers by cash buyers. Indirectly, by demonstrating a rough equivalence in point-of-sale and other "handling" costs among the three payment methods, the PSI study imparted credibility to the practical guideline of many retailers that the marginal cost of cash is in effect zero and the marginal cost of (third-party) credit cards approximates the merchant discount.

Aside from limitations that stem from the incomplete coverage of costs, several other limitations of the PSI study can be noted. Among problems pointed out by PSI are certain difficulties with some of the cost allocations, such as for security costs. PSI, in fact, considered the allocation problem to be the study's major limitation.<sup>1</sup>

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1. Ibid., p. 199.

TABLE 4.2

TOTAL SYSTEM COSTS OF CASH

	Per Retail Transaction	
	Mean	Median
Handling costs of retailers	\$ .41	\$ .30
Handling costs of banks	.04	.04
Armored car service	.02	.02
Retailer and Bank Security	.06	--
Retailer and Bank Theft and Loss	.02	.01
	<u>\$ .55</u>	<u>\$ .37</u>

Source: Payments Systems, Inc., Cost of Cash: A Strategic Analysis, p. 267.

TABLE 4.3

HANDLING COSTS OF CASH BY MODE OF TRANSACTION

	Per Transaction (Means)		
	Cash	Checks	Credit Cards
Point-of-sale transaction	\$ .24	\$ .40	\$ .36
Replenish registers	.05	--	--
Reconcile registers	.08	.05	.03
Reconcile in-store control	.02	.01	.01
Reconcile out-store control	.02	.01	.01
Prepare deposits	.03	.02	.02
Transport deposits by internal employee	.01	.01	.01
Total	\$ .45	\$ .50	\$ .44

Source: Payments Systems, Inc., Cost of Cash: A Strategic Analysis, p. 268.

Some questionable decisions were made in the PSI study that served to narrow the gap between estimated cash costs and other costs. Most notably, PSI chose to use mean cost for the various functions examined rather than the median cost, even though at one point it described median costs as "representing the more stable and conservative data and analysis."<sup>1</sup> Use of median costs would have lowered the estimated handling cost of cash by about 10 cents,

1. Ibid., p. 228.

placing cash measurably below the other modes of transactions. Also, though cautioning the reader that not all stores experienced certain types of costs, PSI included each functional cost calculation in the all-retailer estimates of table 4.3 without any weighting to reflect its prevalence among retailers. These costs were only minor components of the total, however.

In a study of retailer experience in the United Kingdom, R. Grant concluded that the costs associated with credit cards exceeded the costs of cash or check transactions, by approximately the amount of merchant discount fees or in-house administration costs, but that per unit reductions in fixed costs resulting from net additional sales more than offset the higher direct costs of credit cards. The economization on fixed costs through incremental sales, however, was based entirely on assumption, rather than on empirical evidence.

Grant's cost calculations are shown in table 4.4. Categories listed in the table roughly coincide with those examined by PSI. Information on average merchant discounts and any other charges imposed by suppliers of payment services were obtained from the suppliers, cross-checked with interview information from retailers. The other operating costs were estimated on the basis of intensive interviews with five retail organizations and from more limited contacts with a number of other retailers. Grant noted considerable difficulty in identifying such costs accurately. "None of these costs," he stated, "were separately identified in retailers' accounting systems in part because of the difficulties of allocating joint labor, administrative and overhead costs, first to payment functions in general and, second, between individual types of payments."<sup>1</sup>

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1. Grant, "Transaction Costs to Retailers," p. 4.

TABLE 4.4

AVERAGE COSTS OF CASH, CHECKS, CREDIT CARDS, AND IN-HOUSE CREDIT  
AS A PERCENTAGE OF THE RETAILER'S REVENUE FROM EACH TYPE OF PAYMENT, 1981

	Cash %	Check %	Bank Credit Card %	T&E Cards %	In-house credit account %
Discount charge	-	-	2.55	3.80	-
Salesperson's time	0.17	0.27	0.19	0.80	0.28
Additional cost of administration of cash and credit accounts	0.40	-	-	-	3.73
Cost of bank visit	0.35	0.17	0.66	-	-
Bank charges	0.28	0.40	0.37	0.04	0.15
Cost of credit	0.06	0.06	0.12	0.54	-
Losses from error, theft, fraud	0.25	0.15	0.01	0.01	0.12
Insurance	0.05	0.01	0.01	0.01	-
<b>TOTAL OF POSITIVE COST ITEMS</b>	<b>1.56</b>	<b>1.06</b>	<b>3.91</b>	<b>4.48</b>	<b>4.28</b>
Reduction in unit overhead costs arising from increased sales generated by credit cards and credit accounts	-	-	-5.57	-8.33	-8.25
<b>NET COST</b>	<b>1.56</b>	<b>1.06</b>	<b>-1.66</b>	<b>-3.85</b>	<b>-3.97</b>

Source: R. Grant, "Transaction Costs to Retailers," table 1, p. 5.

As shown in the table, Grant calculated that the cost of cash averaged 1.56 percent of the total volume of cash sales, that the cost of checks average 1.06 percent of check sales, and that the costs of credit card plans ranged from about 4 to 4-1/2 percent of sales. The major difference between cash and checks was attributable to "additional administrative cost," which for cash represented primarily the cost of security precautions. For bank credit cards, the 2.55 percent discount charge represented the main reason that credit card costs were higher than for other types of payment. Subtracting that fee from total direct costs of bank cards indicates that

retailer operating costs for these cards lay midway between the cost of cash and the cost of checks.

In discussing the possibility that acceptance of credit cards boosts sales, Grant cited testimony of retailers before a government commission that the principal effects of credit cards were "encouraging impulse purchase, increasing the average value of purchases by consumers, and facilitating purchases by overseas visitors."<sup>1</sup> The possible fallacy in this view as applicable on an industry-wide basis has already been addressed. In any case, Grant calculated the reduction in fixed cost by assuming that, for bank credit cards, 20 percent of revenues represented incremental sales; for T&E and in-house cards, incremental sales were assumed to be 30 percent of revenues. Thus the seemingly important finding that credit cards lower per unit costs when added sales are considered--and that T&E and in-house cards lower per unit costs by more than bank cards--flows almost entirely from the assumption that this is the case.

While Grant's study sheds no empirical light on whether or not credit cards affect sales, it demonstrates that the cost-reduction benefit of any sales boost would depend importantly on the ratio of fixed costs to total revenues, and that this ratio varies widely across industries. If fixed costs are very low relative to sales, then any incremental sales gain will result in only a very small reduction in per unit fixed costs. Grant identified "petrol dealers" (gasoline stations) as an extreme example of a business with a low fixed cost-to-revenue ratio, which, coupled with a relatively low profit margin, implied that "even very large increases in petrol sales (due to credit card acceptance) would fail to offset the higher costs of credit transactions."<sup>2</sup>

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1. Ibid, p. 12.

2. Ibid, p. 15.

1983 survey of retailers. In order to obtain an assessment of the relative costs to retailers of cash, check, and credit card transactions from a broad spectrum of businesses in the United States, the Federal Reserve commissioned a survey of approximately 700 retail organizations. The survey was conducted by the Survey Research Center in April and May, 1983.

The survey focused on retail sellers of merchandise operating in lines of business in which honoring credit cards was believed to be common practice. Grocery stores, for instance, were excluded from consideration, whereas department stores and retailers of apparel, home furnishings, and several other product lines were included. In order to concentrate on sellers of merchandise, most types of service providers were excluded, even though credit card use may be common in some service trades. Airlines and hotels, for instance, were not studied. To assure adequate coverage of different sizes of business, the population was stratified into five size groups for sample selection purposes.

Certain factual information was compiled about each respondent, including type of business, dollar volume of sales, and the proportion of business transacted by cash, check, and credit card. For respondents honoring third-party credit cards, the size of the factoring fee paid to the card processor on credit card sales was recorded.

Unweighted averages of the proportions of sales volume transacted by cash, check, credit card and "other" means reported by each respondent are shown in table 4.5. Retailers are grouped by the types of transactions they engage in, and results are shown separately for gasoline stations and all other respondents. A further breakdown by size category is provided in table 4.6 for acceptors of cash, checks, and third-party cards, for businesses other than gas stations.

A large majority of the businesses interviewed--nearly 80 percent--honored third-party credit cards. About one in six of these retailers also transacted business through its own proprietary card.<sup>1</sup> Most respondents--almost 95 percent--also reported accepting checks to transact sales, although many placed significant limitations on check acceptance. About 15 percent restricted acceptance of checks to those drawn on local banks, and nearly 10 percent took checks only from persons known to the retailer.

Reflecting these practices, about three quarters of the respondents were categorized as engaging in cash, check, and third-party credit card transactions. Among such retailers outside the gasoline category, non-credit sales were about equally apportioned between cash and check transactions. The average proportion of sales on third-party credit cards was 12.5 percent for non-gasoline merchants that also issue their own card, and 14.6 percent for those without proprietary cards, as shown in table 4.5. Proportions for both the smallest and largest businesses (table 4.6) were 2 to 3 percentage points below these overall averages. Non-gasoline retailers that issue their own credit cards typically transacted 37 percent of sales through the store card.

Besides sales transacted through cash, personal check, or credit card, retailers also transacted sales by travelers check, layaway plan, checks drawn on businesses, and credit transactions in which credit cards were not involved, all grouped in tables 4.5 and 4.6 under the heading "other means."

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1. Only a very few respondents that honored a proprietary card said that they did not also honor third-party cards, and all but one of these respondents were gasoline stations. However, some gas station operators apparently treated a gasoline company credit card as a third-party card whereas others treated it as proprietary, partly from failure of the question sequence to specify a particular treatment. Thus the distinctions in table 4.5 between third-party and store cards are not especially meaningful for gas stations.

TABLE 4.5

DISTRIBUTION OF SALES BY MODE OF TRANSACTION

Types of Transactions Accepted	Number of Respondents	Average Proportion of Business Transacted By <sup>1</sup>				
		Cash	Personal Checks	Store Card	3rd-Party Card	Other Means
<u>All Respondents</u>						
Cash	9	99.8	0	0	0	0.2
Cash, checks	130	39.2	43.3	0	0	17.4
Cash, credit cards <sup>2</sup>	19	62.2	0	4.2	30.0	3.4
Cash, checks, store cards	12	42.7	21.9	28.7	0	6.7
Cash, checks, 3rd-party cards	458	37.8	34.1	0	15.0	13.1
Cash, checks, both cards	71	30.7	20.4	35.7	11.3	2.0
<u>All Respondents Except Gas Stations</u>						
Cash	5	96.0	0	0	0	4.0
Cash, checks	123	37.9	43.9	0	0	18.1
Cash, credit cards <sup>2</sup>	11	60.6	0	3.6	31.6	4.1
Cash, checks, store cards	1	22.0	22.0	56.0	0	0
Cash, checks, 3rd-party cards	422	36.2	35.5	0	14.5	13.7
Cash, checks, both cards	46	25.6	23.0	37.0	12.5	1.9
<u>Gasoline Service Stations</u>						
Cash	4	100.0	0	0	0	0
Cash, checks	7	62.6	32.6	0	0	4.9
Cash, credit cards <sup>2</sup>	8	64.6	0	5.0	27.9	2.5
Cash, checks, store cards	11	44.5	21.9	26.3	0	7.3
Cash, checks, 3d-party cards	36	56.1	17.4	0	20.4	6.1
Cash, checks, both cards	25	40.1	15.6	32.9	9.2	2.2

1. Each respondent was asked to provide its proportion of sales by each transaction method. Arithmetic averages of the responses appear in the table, with no attempt to weight responses by size of the business. Figures provide a typical response rather than an estimate of the true proportion of sales industry-wide made through each type of transaction.

2. Credit cards in this category may be store cards, third-party cards, or both.

Note: Rows may not add to 100.0 percent because of rounding and because of slight discrepancies from 100.0 percent in answers provided by some respondents. Individual cases in which the sum of the proportions deviated more than slightly from 100.0 percent were eliminated from the calculations.

Responses from survey of retailers, 1983.

TABLE 4.6

DISTRIBUTION OF SALES BY MODE OF TRANSACTION  
FOR ALL RESPONDENTS EXCEPT GASOLINE STATIONS  
BY SIZE OF BUSINESS

Retailers Accepting Cash, Checks, and Third-Party Cards						
Annual Volume of Sales	Number of Respondents	Average Proportion of Business Transacted By:				
		Cash	Check	3rd-Party Card	Store Card	Other Means
Less than \$100 thousand	35	47.6	40.3	11.0	...	1.1
\$100 - 999 thousand	198	36.9	35.4	14.6	...	13.1
\$1 - 9.99 million	130	28.8	36.0	15.6	...	19.6
\$10 - 99.9 million	37	37.4	35.2	15.2	...	12.3
\$100 million and over	22	54.6	27.9	11.4	...	6.1

  

Retailers Accepting Cash, Checks, and Both Credit Cards						
Annual Volume of Sales	Number of Respondents	Average Proportion of Business Transacted By:				
		Cash	Check	3rd-Party Card	Store Card	Other Means
Less than \$100 thousand	0	--	--	--	--	--
\$100 - 999 thousand	9	40.3	22.9	9.6	23.1	4.1
\$1 - 9.99 million	10	25.6	19.3	15.6	38.2	1.5
\$10 - 99.9 million	12	21.9	24.5	14.9	37.1	1.6
\$100 million and over	14	19.6	22.0	9.7	47.5	1.2

Responses from survey of retailers, 1983.

In questioning merchants about their transactions costs, a principal objective was to direct the attention of respondents to all aspects of cost, not merely to such explicit or easily ascertainable costs as the merchant discount fee. To achieve this objective, inquiries were made regarding three separate categories of transaction costs, which were described to respondents at the beginning of each series of questions. These categories were called "point-of-sale and accounting costs," "loss and security costs," and "deposit and financial costs." Respondents were also asked to compare total transaction costs--combining these separate categories--among the types of transactions. Certain explicit fees--the merchant discount fee and check guarantee service costs--were excluded from the comparisons within each category of cost, but included in the comparison of total transactions costs.

At the same time, it was recognized that many--probably most--retailers would not maintain detailed accounting information suitable for quantitative cost comparisons among modes of transactions. But it was also anticipated that retailers nevertheless would be familiar with and could evaluate aspects of their business that might have important implications for their costs of operation. Therefore, respondents were asked to make qualitative cost comparisons rather than dollar-and-cents estimates for the different components of transactions cost.

Within each cost category, respondents were asked to make two-way comparisons for each possible pair of transaction modes involving cash, check, and third-party credit card (and store card, where applicable). Respondents were asked to designate whether costs in a particular category for one method of transaction were more than, about the same as, or less than the cost of a second method of transaction. A summary of the cost comparisons by category is presented in table 4.7, with a further breakdown of overall transactions costs by size of business presented in table 4.8.

"Point-of-sale" costs were described to the retailers interviewed as including "equipment and personnel costs for writing sales slips, making change, obtaining verification and approval for checks and credit cards, reconciling daily receipts, record keeping, and other point-of-sale costs you may have." In this category, a large number of merchants regarded cash as the least costly mode of transaction compared with either checks or credit cards. Nearly 80 percent said credit cards were more costly than cash. Somewhat more than one half of the respondents regarded credit cards as also more costly than checks in the point-of-sale category (table 4.7).

TABLE 4.7

QUALITATIVE COMPARISON OF TRANSACTION COSTS FOR CASH,  
CHECK, AND THIRD-PARTY CREDIT CARDS<sup>1</sup>

Cost Categories and Transaction Pairings	Frequency of Citation As:			
	More Costly			About the Same
	Cash	Check	Card	
(Frequency of response in percent)				
<u>Point-of-sale costs</u>				
Check vs. cash	2	42	...	56
Card vs. cash	1	...	79	20
Card vs. check	...	9	54	37
<u>Security-related costs</u>				
Check vs. cash	2	58	...	40
Card vs. cash	5	...	40	55
Card vs. check	...	34	19	47
<u>Deposit and financial costs<sup>2</sup></u>				
Check vs. cash	1	35	...	64
Card vs. cash	2	...	43	55
Card vs. check	...	12	25	63
<u>All costs combined<sup>3</sup></u>				
Check vs. cash	1	58	...	41
Card vs. cash	1	...	88	11
Card vs. check	...	13	61	26

1. For respondent engaging in all three modes of transaction.
2. Excludes merchant discount on credit cards and check guarantee fees.
3. Includes merchant discount and check guarantee fees.

Responses from survey of retailers, 1983.

"Loss and security" costs encompassed "loss or theft of cash, bad or returned checks, credit card fraud, bonding and insurance fees, safekeeping and other security costs." The category thus included losses suffered by retailers from theft or fraud as well as direct expenses to prevent or provide compensation against such occurrences. In this category, as in the others, cash was regarded as the more expensive means of payment by only a small proportion of retailers. Loss and security costs, however, was the one category in which credit cards were regarded by the retailers surveyed

as less costly than some other means of payment. In comparing third-party cards with checks, one-third of the retailers said checks were more costly and only one-fifth cited cards as more costly. About one-half said there was little or no difference in security-related costs.

"Deposit and financial" costs were described as including "bank service charges for deposits, costs to take deposits to a bank, and costs associated with the delayed receipt of funds." Check verification fees and credit card factoring fees belong in this category, but were excluded from the pair-wise comparisons so that attention could be focused on costs aside from these explicit fees. Within the category, more than half of the respondents saw little difference in cost for each of the paired comparisons. Again, very few respondents thought cash was a more costly method.

After comparing transactions methods by category of costs, respondents were asked to consider all elements of cost, including fees for check verification and credit card processing. The total cost comparison is shown in the bottom tier of table 4.7. In comparing checks with cash, nearly 60 percent of the retailers thought checks were more costly; virtually all the rest saw little difference in costs. Credit cards were viewed by 88 percent of the retailers as more costly than cash, when all aspects of cost were considered.<sup>1</sup> Credit cards were regarded as more costly than checks by 61 percent of the retailers. However, 13 percent thought checks, in total, were more expensive than credit cards.

Perceptions of relative transaction costs varied considerably among different size categories of retailers, as shown in table 4.8, particularly in

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1. Tabulations not shown in the table indicate that only 2 percentage points of that figure were due strictly to merchant discount fees; 86 percent of the card-honoring retailers had ranked credit cards as more costly than cash in at least one separate category of cost (and not lower than cash in any other category).

TABLE 4.8

QUALITATIVE COMPARISONS OF TOTAL TRANSACTION COSTS  
BETWEEN SELECTED MEANS OF PAYMENT  
BY SIZE OF BUSINESS

Types of Transactions and Annual Volume of Sales	Frequency of Citation As:			
	More Costly			About the Same
	Cash	Check	Card	
<u>Check vs. Cash</u>				
(Frequency of response in percent)				
By size of business				
Less than \$100 thousand	0	47	...	53
\$100 - 999 thousand	1	50	...	49
\$1 - 9.99 million	2	56	...	42
\$10 - 99.9 million	0	81	...	19
\$100 million and over	3	87	...	10
<u>Card vs. Cash</u>				
By size of business				
Less than \$100 thousand	0	...	84	16
\$100 - 999 thousand	1	...	87	12
\$1 - 9.99 million	1	...	87	12
\$10 - 99.9 million	0	...	88	12
\$100 million and over	0	...	100	0
<u>Card vs. Check</u>				
By size of business				
Less than \$100 thousand	...	16	70	14
\$100 - 999 thousand	...	10	63	27
\$1 - 9.99 million	...	12	61	27
\$10 - 99.9 million	...	23	46	32
\$100 million and over	...	28	48	24

Responses from survey of retailers, 1983.

the comparisons involving checks. In comparing checks with cash, for instance, smaller retailers were about evenly divided as to whether checks were more costly or about the same cost as cash. But in the two largest size groups, 80 percent or more of the retailers considered checks more costly. Similarly, a higher proportion of large retailers than of small retailers regarded checks as more costly than credit cards, and the proportion citing credit cards as more costly declined steadily as the sales volume category increased.

On the whole, then, retailers showed broad agreement in considering credit cards to be a more costly mode of transaction than cash, and a majority

believed cards to be more costly than checks as well. In general, checks were regarded as more costly than cash, particularly by larger retailers, although a large number of respondents saw little difference between them. Within categories of cost, retailers clearly felt that credit cards generated the highest point-of-sale costs, while checks were more likely to result in higher loss and security-related costs than the other methods. Cost differences were seen least frequently for deposit and financial costs.<sup>1</sup>

Table 4.9 provides statistics on average merchant discount and check verification fees paid. As shown on the top line of the table, retailers reported paying a 3.1 percent merchant discount fee, on average, and those who subscribed to a check verification system paid an average of 3.0 percent for that service. The table also provides average fees paid among various categories of retailers--by size, type of store, and proportion of sales by credit card or check.

The merchant discount fee appears to vary with the size of a business, measured by annual sales volume. Businesses of less than \$100 thousand in sales reported an average factoring fee of 4.1 percent, while the largest businesses (\$100 million and over) paid an average fee of 2.5 percent. Among types of businesses, those in the department store/general merchandise category paid an average fee somewhat below the norm, which may in part reflect a high proportion

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1. Comparative costs are subject to change, of course, particularly as changes occur in technology. For instance, card issuers are currently addressing considerable attention to reducing credit card costs by curtailing the unauthorized use of cards. Electronic terminals at the point of sale that can access up-to-date account information represent one avenue of possible reduction in credit card costs. Efforts to enhance the security of card systems include development of the "smart" credit card containing a small computer memory chip that can store information such as the credit limit for the account, amounts already charged, and a personal identification code that must be matched before the card can be used. New credit card designs containing holographic images that would be difficult and expensive to duplicate are being tested as a possible barrier to counterfeiting.

of large firms in that category. Groups composed of furniture/appliance stores, apparel stores, and gasoline stations each paid an average merchant discount fee that was very close to the overall average, while a large group of widely varied businesses paid a fee somewhat above average. However, the proportion of a business's sales transacted by credit card did not appear by itself to be closely related to the size of the merchant discount fee.

TABLE 4.9

MERCHANT DISCOUNTS ON CREDIT CARDS AND CHECK VERIFICATION FEES

Categories of Retailers	Merchant Discount		Check Verification	
	Number of Respondents	Average fee (percent)	Number of Respondents	Average fee (percent)
<u>All Respondents</u>	497	3.1	41	3.0
<u>By Annual Sales</u>				
Less than \$100 thousand	35	4.1	0	...
\$100 - 999 thousand	225	3.3	8	2.8
\$1 - 9.99 million	153	3.1	18	3.2
\$10 - 99.9 million	51	2.6	12	2.9
\$100 million and over	33	2.5	3	2.5
<u>By Type of Store</u>				
Department/Gen'l Mdse.	37	2.6	5	2.8
Furniture/Appliance	102	2.9	5	2.6
Apparel	68	3.2	8	2.6
Gas Stations	62	3.2	3	4.2
All Other	228	3.4	20	3.1
<u>Proportion of Sales by Card</u>				
5 percent or less	168	3.4	...	...
5.1 - 10 percent	119	3.0	...	...
10.1 - 15 percent	44	2.8	...	...
15.1 - 25 percent	75	3.0	...	...
More than 25 percent	80	3.1	...	...
<u>Proportion of Sales by Check</u>				
10 percent or less	...	...	11	3.0
10.1 - 20 percent	...	...	10	2.8
20.1 - 35 percent	...	...	11	2.6
35.1 - 50 percent	...	...	6	3.5
More than 50 percent	...	...	0	...

Responses from survey of retailers, 1983.

Considerably fewer observations were available for check verification fees than for merchant discounts, which makes comparisons among size groups and types of business rather tenuous for check fees. It appears, for instance, that the largest stores may pay smaller check verification fees, but only three observations were available in that category.

In addition to the series of questions seeking qualitative cost comparisons, retailers were also asked about the typical size of transaction, and what they estimated the total transaction cost to be for each method of payment accepted. In essence, they were asked to make their best quantitative summary of the cost comparisons previously discussed. Responses were expressed as a percentage of the amount of the transaction. For analytical purposes, differences between cost estimates were computed for each pair of transaction methods; mean and median differences and some distributional data are presented in table 4.10.

On average, check transactions were estimated to be 1 percentage point more costly than cash transactions, although as many as 10 percent of the respondents thought the costs of checks exceeded the costs of cash by more than 3 percentage points. Compared with cash, third-party credit card transactions averaged 2-1/4 percentage points higher in cost, and nearly 20 percent of the respondents indicated that the cost of cards exceeded cash by more than 4 percentage points. Compared with checks, credit cards were about 1-1/2 percentage points more costly.

The quantitative estimates tend to substantiate the qualitative comparisons insofar as cash ranks as the least costly method of transaction and credit card as the most costly. Yet the average differences in costs appear rather small in light of other data collected in the survey. As

noted, about four-fifths of the qualitative responses indicated that credit cards were more costly than cash even before consideration of merchant discount fees, which makes it likely that overall credit card costs would exceed cash costs by at least somewhat more than the average size of the merchant discount. However, the average estimated difference between credit card and cash costs, at 2.19 percentage points, was nearly 1 percentage point less than the average merchant discount. While the quantitative cost estimates can hardly be regarded as precise, they nevertheless suggest that retailers regard the differences in in transaction costs among payment method as relatively small proportions of transaction amounts.

TABLE 4.10  
QUANTITATIVE ESTIMATES OF COST DIFFERENCES

Type of Measure	Average Cost Difference in Percentage Points		
	Check Compared with Cash	Credit Card Compared with Cash	Credit Card Compared with Check
Mean	0.97	2.19	1.42
Median	0	2.00	1.50

Cost Difference Categories (in percentage points)	Percentage Distribution of Cost Differences		
	Check Compared with Cash	Credit Card Compared with Cash	Credit Card Compared with Check
Less than 0	6.4	9.5	13.9
0	44.6	14.4	21.1
0.1 to 1.0	21.1	12.9	13.4
1.1 to 2.0	11.3	16.4	21.1
2.1 to 3.0	6.4	18.4	12.9
3.1 to 4.0	3.4	9.0	6.2
Over 4.0	6.9	19.4	11.5

Responses from survey of retailers, 1983.

## 5. EFFECT OF CREDIT CARDS ON PRICES OF GOODS AND SERVICES

The Cash Discount Act specifies that the Federal Reserve study should address "the effect of charge card usage on the pricing of goods and services," and links this inquiry to a comparison of costs among methods of payment. This comparison was presented in Chapter 4. If, as indicated there, credit card costs are higher than for other types of payment, the primary issue becomes: do retailers incorporate the cost of credit into the prices they charge, so that everyone pays a higher price than would be paid in the absence of credit cards?

In addition to this essentially microeconomic question of price determination, the possible effects of credit card usage on movements in the general level of prices are sometimes discussed in legislative debate. The latter issue is really an aspect of a broader question about the macroeconomic impact of credit cards, and is best viewed in a comprehensive framework that considers jointly the impact of credit cards on the aggregate propensities to consume and on the demand for money balances, under various assumptions about resource utilization and policy actions.

### 5.1. Retailer Pricing Behavior: Microeconomic Perspective

A popular maxim is that "there's no such thing as a free lunch." According to this dictum, retailers unquestionably recoup their credit-related costs in the prices they charge for goods or services. The costs of doing business must be covered in the long run, since no firm can stay in business indefinitely if it is unprofitable. The coverage of credit card costs is not simply a matter of retailers calculating that cost and arbitrarily distributing it across the prices they charge, with no concern about any possible repercussions upon sales volume; rather, the cost of providing credit is one of many elements that determine the retail supply curves for particular

products. Prices in the marketplace are a result of both supply and demand forces, reflecting all costs, including credit costs, that shape the supply curve of retailers, and reflecting as well the incomes, tastes, and other factors that determine the demand schedules of consumers.

In the short run, whether a credit cost increase is included in a retailer's price becomes a question of that merchant's power to put the price of a product or a service at whatever level he chooses. The extent of this power is determined largely by the degree to which raising prices to cover the cost of credit will decrease the volume of sales. If a retailer's potential customers are not particularly sensitive to price changes, then any increase in costs to a retailer--such as in the cost of carrying receivables owing to rising interest rates--can be passed through more easily into the retail price. If buyers are resistant to price increases, then the retailer in the short run may have to accept a smaller profit margin when costs rise.

Magnitude of price effect. At the heart of the debate over the objectives of the Cash Discount Act is the issue of whether consumers who pay cash "subsidize" those who use credit cards, by virtue of the incorporation of credit costs (not offset by finance revenues) into retail prices of goods and services. While it seems evident that any added cost associated with credit cards would be incorporated in prices, the magnitude of the price impact would be a key determinant of the practical significance of the subsidy.

From the discussion in Chapter 4, it appears that there may be some costs linked to cash or check transactions that exceed corresponding costs for credit card use, but other costs associated with cards that are negligible in cash sales. From interviews with retailers and from independent studies, it would appear to be not far off the mark to view the purely transactional

of credit administration and financing of receivables as a rough approximation of credit card costs. These costs are partially offset by finance charge revenues and user fees, with the net difference showing up at the retail level as a credit department's operating deficit or as payment of the merchant discount fee to a third-party card issuer.

The merchant discount fee and the credit department deficit have been expressed in Chapter 4 as percentages of credit sales volume typically ranging from 1 to 5 percent, and averaging about 3 percent. From the survey of retailers, however, credit sales appear to represent only about 15 percent (third-party cards) to 30 percent (store cards) of total sales at stores that typically accept credit cards, so that the uncovered portion of credit card costs is spread over a total sales base considerably larger than the credit sales volume itself. Thus, total sales might be expected to incorporate a premium for credit costs (uncovered by credit revenues) ranging from less than 1/2 percent to perhaps 1-1/4 percent, some part of which would still be borne by credit card users in proportion to their 15 to 30 percent share of total sales. The implications for two-tier pricing that flow from the magnitude of the price effects attributable to credit cards are discussed in Chapter 6.

Price determination and credit surcharges. The extent of short-run pricing discretion of retailers is particularly relevant to one aspect of the debate over discounts for cash and surcharges for credit associated with the Cash Discount Act. A central question concerned whether retailers, if given the legislative license to add a surcharge for credit, would--or could--set the credit price substantially above the cash price without first lowering the cash price appreciably. A small surcharge reflective of actual credit costs would presumably conform with the intent of the Act; but a price hike

to credit card buyers far in excess of credit costs would thwart the Act's objectives. An expectation of the latter result would rest on either or both of two implicit assumptions: (1) that the retailer has the market power to raise prices without significant loss of sales, or (2) that demand for goods and services paid for by credit card is much less elastic than the demand of cash buyers.

As discussed above, in a highly competitive situation, any attempt by a seller to raise prices above a market-determined level would result in a pronounced shift of sales to competitors. Even in a less competitive situation, the seller still faces a demand schedule on which higher prices are associated with a smaller quantity demanded; if prices are raised, at least some sales are lost. Thus, to hike prices substantially and not suffer a decline in total sales revenues, a retailer must face demand that is relatively inelastic, i.e., insensitive to price changes. If this situation exists, though, the question arises why goods would not already be priced at a profit-maximizing level before enactment of any legislation to permit surcharges for credit. If demand at a given retailer can accommodate a large surcharge, it could have supported a boost in the nominal price in any case-- unless the underlying demand schedules for card users and nonusers differ radically.

Only if credit card users are insensitive to price changes whereas cash buyers are responsive, would the conditions exist in which a price increase aimed at all customers might reduce sales revenue while a selective price increase for card users increased revenue. That is, even if markets are not competitive, the market power of retailers is not necessarily enhanced by the ability to charge different prices to credit card users, unless the demand of such customers is significantly less elastic than that of cash customers.

However, there appears to be no convincing theoretical argument or empirical evidence to suggest that such a dichotomous demand situation exists in fact.

Competition in retailing. From the above discussion, it is clear that the degree of competitiveness in retailing can be a key factor governing the adjustment of prices to changing credit costs in a one-tier pricing system, or the size of the premium that can be included in the credit price in a two-tier system. If markets are competitive, then changes in price by any seller are constrained by the presence of many other sellers to whom potential customers could turn. The textbook case of pure competition includes such primary characteristics as a large number of sellers (with small shares of the market) and ease of entry for new firms, undifferentiated products, and complete information available to buyers. In practice, few markets exhibit all of these characteristics, or any one of them in pure form, except perhaps markets for some agricultural commodities.

Retailing would appear to be characterized by a large number of sellers for any given product, though it is arguable that some sellers might be of sufficient dominance in some localities to exercise considerable control over price. In most markets, though, the number of retail outlets strongly suggests a reasonable approximation to the competitive model.

In addition to multiple sellers in retail markets, similarity of merchandise is also observable, even though many forms of product variation can be found that permit some degree of price differences. Much effort, in fact, goes into differentiating products by quality, styling, or special features. In many cases the ambiance, selling policies, or reputation of a store becomes an element of differentiation for any item offered for sale. Nevertheless, for most products, the exact same brand will be available in competing stores, closely comparable brands will be offered by other

competitors, and substitutes clearly distinct in some aspect will be available in still other stores.

In such a retailing environment, it becomes difficult to envision any merchant successfully tacking on a substantial surcharge above true credit costs to his usual price without a significant loss of customers over time. A customer taken by surprise might pay such a surcharge once rather than leave an intended purchase at the sales counter, but there would seem to be little reason for that customer to patronize the store in the future. Only stores where little repeat business is anticipated would appear potentially able to gain from excessive surcharges.

The above observations on the competitiveness of retailing are based for the most part on general impressions. Unfortunately, few rigorous studies exist that examine competition in markets that are relevant to this report. A rather extensive literature has developed regarding competition in the sale of groceries, but since groceries are seldom purchased by credit card, the findings of these studies are not directly useful for this report. Neither are there published studies available that estimate the elasticity of demand separately for credit card buyers as compared with cash buyers.

## 5.2. Impact of Credit Card Use on Price Movements and Economic Activity

Some observers have argued that credit cards, by enabling their holders to spend beyond the limits of their income, are a source of inflationary pressure in the economy.<sup>1</sup> The concern that credit expansion may exacerbate inflation is, of course, not confined to credit cards, although interest has often focused upon these instruments.

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1. The Credit Control Act of 1969, for instance, which expired in 1981, had authorized the President to direct the Federal Reserve "to regulate and control any or all extensions of credit...whenever the President determines that such action is necessary or appropriate for the purpose of preventing or controlling inflation generated by the extension of credit in an excessive volume..." This law, as noted earlier, was invoked once during its statutory existence, by President Carter in March 1980.

The demand-side effects of credit cards on price movements are best understood as a special case of the broader relationship between credit cards and economic activity. In macroeconomic theory, two principal avenues exist by which credit card use might affect overall economic activity and the price level. If the introduction of credit cards into an economy reduces the desired saving rate, it would tend to increase output and aggregate income through the stimulative effect of increased consumption (assuming some initial slack in resource utilization that would permit expansion of output).<sup>1</sup>

A second route by which credit cards could affect economic activity is through their possible impact on the demand for money. As a convenient supplementary means of implementing purchases, credit cards might be expected to reduce the transactions demand for money for any given level of income and interest rates. With credit cards available, consumers could carry less currency and maintain smaller average checking account balances. The availability of a line of credit, moreover, might also reduce the precautionary demand for money. Thus, by enabling a given level of money supply to support a larger nominal volume of transactions, which would show up in an increased velocity of money, credit cards could contribute to expansion in real economic output (given less than full employment initially).

Some qualifications to the foregoing analysis are necessary, however. One qualification concerns the assumption of an initial condition of

<sup>1</sup>. Further secondary effects would be governed by various elasticities present in underlying relationships, and such factors as whether the money supply remained fixed as the effects of credit cards emerged. For instance, with the rise in consumption, the transactions demand for money balances would also tend to rise. Assuming a fixed supply of money, interest rates would have to rise in order to hold money demand constant. At higher interest rates, some investment spending would be discouraged, limiting the initial tendency towards economic expansion induced by credit cards. A full exploration of the many possible outcomes that could arise from a card-induced increase in consumption is beyond the scope of this report.

less than full employment. If the economy is operating at a level approaching full employment, then the output effects are by definition quite limited. Any tendency of credit cards to boost the propensity to consume or to induce the holding of smaller money balances would mainly result in a bidding up of prices.

Second, the foregoing analysis describes what is essentially a shift in equilibrium outcomes within an economy. It describes a tendency to shift to a higher output level or to a higher level of prices, given some change in underlying circumstances, but the analysis does not help to interpret ongoing economic processes such as the rates of change in output and prices over time. That is, nothing in the foregoing analysis implies any significant long-run impacts of credit cards on inflation or economic growth, except insofar as a change in the equilibrium saving rate may alter the long-run capital intensity of the economy.<sup>1</sup>

Third, the foregoing analysis assumed a given money supply, whereas in actuality some adjustments in the money supply might be expected if a measurable response by the economy to deployment of credit cards were detected. For credit cards to raise the general level of prices by reducing the need for transactions balances, the further condition must pertain that the monetary authorities would fail to recognize the shifting relationships between the money stock and aggregate spending, and would aim for monetary growth targets that were too high. If this were the case, the resulting inflation might be more properly seen as stemming as much from an error in

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1. It is true, of course, that the utilization of credit cards has developed gradually rather than as a one-time change in economic structure. Thus, a series of continual shifts in equilibrium over a number of years could appear to be enhancing the process of economic growth or contributing to the process of price inflation. It would still need to be recognized that the inflationary or growth effects would dissipate as the utilization of credit cards reached a limit.

policy as from credit cards, per se, since the authorities could adjust monetary targets to a more appropriate growth path.

The impact of credit cards on the saving rate has already been discussed in Chapter 3. Several studies in recent years have examined the relationship between credit cards and the demand for money. E. Marcus,<sup>1</sup> in 1960, first examined the potential of credit cards to reduce the necessary average level of money balances by enabling a better synchronization of payments and receipts. M. Flannery and D. Jaffee, and T. Russell, developed models in which the transactions demand for money would be reduced as a result of credit card use.<sup>2</sup> K. White used cross-sectional data to conclude that average balances held per dollar of credit card transactions are considerably smaller than balances held for other types of transactions.<sup>3</sup> G. Garcia and S. Miller examined empirically the impact of credit cards on various components of alternative money concepts.<sup>4</sup> Both found that the demand for M1 is negatively related to a credit card variable, and that demand for time deposits and for M2 was also negatively associated with credit cards. In general, however, while some economists claim to have detected a statistically significant reduction of money demand associated with credit cards, the magnitude of the impact has usually been small.

1. Edward Marcus, "The Impact of Credit Cards on Demand Deposit Utilization," Southern Economic Journal, vol. 26 (April 1960), pp. 314-16.

2. Mark J. Flannery and Dwight M. Jaffee, The Economic Implications of an Electronic Monetary Transfer System (Lexington, Mass.: Lexington Books, 1973).

3. Kenneth White, "Consumer Choice and Use of Bank Credit Cards: A Model and Cross-Section Results," Journal of Consumer Research, vol. 2 (January 1975), pp. 10-18.

4. Gillian Garcia, "A Note of Bank Credit Cards Impact on Household Money Holdings," Journal of Economics and Business, vol. 29 (Winter 1977), pp. 152-54.; and "Bank Credit Cards, Time Deposits, and M2," Journal of Economics and Business, vol. 30 (Spring/Summer 1978), pp. 230-35.

Stephen M. Miller, "The Money Supply Process and Credit Card Use: An Empirical Analysis," Eastern Economic Journal, vol. 8 (April 1982), pp. 89-99.

In summary, it seems clear that some small impact on the level of prices can be attributed to the positioning of retailer supply curves to reflect credit card costs not borne by card users, but no demand-related or other effects are discernible on the levels of output or of prices. All told, there is little persuasive evidence that credit card use has caused any appreciable alteration in the demand for money, and the impact of credit cards on the aggregate saving rate is also apparently quite small.

## 6. SEPARATE PRICING OF CREDIT CARD SERVICES AND RETAIL PRODUCTS

The Cash Discount Act of 1981 and its antecedents were designed to remove legal impediments to the charging of separate prices for goods sold for cash (or check) and for goods sold via credit cards. The fundamental objective of the Act was to foster a payments system in which the costs of open-end credit were borne by those who use such credit, and not in any way by those who do not use it.

Encouragement of a two-tier retail pricing structure was, of course, one way to approach the desired allocation of credit costs; an alternative way might have been to promote elimination of legal ceilings on consumer interest rates and removal of any other barriers that prevent creditors from charging the full cost of credit to its users. In this section, two alternative methods for achieving optimal allocation of credit card costs will be examined: (1) removing the barriers to recovery of credit costs through finance charges and user fees, and (2) establishing a two-tier retail pricing system through (a) discounts for the use of cash or (b) surcharges for the use of credit.

### 6.1. Cost Recovery Through Financing Revenues

Maximum interest rates that may be charged on consumer credit are regulated by individual states, generally through complex sets of laws that deal separately with different types of credit or different classes of creditors. Most laws governing consumer interest rates were enacted many years ago to create exceptions to statutory or constitutional provisions that had set a maximum "legal rate of interest," a rate generally recognized as much too low to make feasible the extension of relatively small consumer loans. With some notable exceptions, the special rate ceilings established

for consumer lending originally were set sufficiently high to avoid significant restraint on the volume of credit. Typically, 1-1/2 percent per month (18 percent annually) has been the maximum interest rate on credit card lending. In several states, that rate has applied on balances up to certain amounts, such as the first \$500, with a lower rate applicable to amounts owed above the threshold level. A few states maintained maximums as low as 1 percent per month, and a few set ceilings as high as 1-3/4 percent.

Meanwhile, with the substantial rise in interest rates from the mid- to late-1970s, the cost of carrying credit card receivables increased considerably. Given the inflexible statutory ceilings on credit card interest rates, the rise in financing costs meant that earnings from such lending deteriorated. For bank issuers of credit cards, this declining profitability is evident in figures from annual Federal Reserve System surveys on costs associated with various banking functions, reported in the Functional Cost Analysis.<sup>1</sup> Table 6.1 reproduces from this report selected data on credit card costs for recent years, with banks grouped into three deposit-size classifications. While the actual cost of funds may differ from one institution to another, it is clear that on average the cost of funds was the major factor in the shift from positive to negative profitability on bank credit card operations between 1977 and 1981.<sup>2</sup>

The shrinking profitability of credit cards in the late 1970s provoked a number of responses among creditors and state legislatures. With rate increases impeded by state law and many card users escaping interest charges by paying monthly bills in full, the imposition by creditors of

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1. Federal Reserve Bank of Boston, Functional Cost Analysis (Federal Reserve Bank of Boston, annual editions).

2. Comprehensive statistics for retail firms operating their own card plans are not available for a similar time period, but retailers are subject to the same general money and capital market forces as other suppliers of consumer credit.

"membership" fees unrelated to account activity was becoming increasingly common in 1979. It then spread rapidly in 1980 when federal credit controls created an additional incentive to raise the price of consumer credit.<sup>1</sup> Such user fees were illegal in certain states, but in some cases the legislatures revised their statutes to permit these non-interest assessments. By the late 1970s, lawmakers had also begun to raise or remove the restrictive interest rate ceilings as well.<sup>2</sup> In some cases, state legislatures were prodded into action by the fact or likelihood of banks moving their credit card operating arms to other states considered to have a more accommodating environment for such business.

In all, between the end of 1978 and the close of 1981, 32 states revised their laws governing interest rates on revolving credit accounts. At the end of 1978, five states had ceilings below 1-1/2 percent for the entire balance and 20 more states had ceilings below 1-1/2 percent applicable to a part of the balance. By the end of 1981, just one state constrained rates to below 1-1/2 percent on any amount owed, and only nine states maintained a limit below that level on some part of the balance.<sup>3</sup>

1. For certain types of credit, particularly "open-end" credit, creditors were required under the controls program to post a special non-interest-bearing deposit with the Federal Reserve for any increase in credit outstanding above a specified "base" amount.

2. Ohio, for example, has revised its consumer lending statutes twice since 1979. Effective in March of 1980, it brought allowable interest rates on revolving credit up to 1-1/2 percent per month from a previous graduated ceiling capped at 1 percent on balances over \$400. Then in early 1982 it authorized creditors to charge whatever rate were established by contract with the borrower, not to exceed 25 percent per year. Several other states, including New Jersey and New York, now likewise limit finance charges to the rate "set by contract." Washington and Minnesota, two states which formerly capped credit card interest rates at 1 percent per month, have revised their laws. In Minnesota, customers now have the option of paying a 1 percent monthly finance charge plus an annual fee (maximum of \$15), or a finance rate of 1-1/2 percent per month with no fee permitted. In Washington, the ceiling was raised to 1-1/2 percent per month in 1981, and Washington voters subsequently rejected an initiative item that would have restored the pre-1981 1 percent limit.

3. Charles H. Gushee, ed., The Cost of Personal Borrowing in the United States (Boston: Financial Publishing Company, 1979, 1982).

TABLE 6.1

NET EARNINGS ON CREDIT CARD PLANS AT COMMERCIAL BANKS  
FOR SELECTED YEARS BY DEPOSIT SIZE CATEGORIES

Bank Categories by Deposit Size	Earnings and Costs as Percent of Receivables			
	1977	1979	1980	1981
<u>Less than \$50 million</u>				
Net earnings before cost of money	4.63	3.89	4.70	4.96
Cost of money	4.97	5.80	6.90	8.49
Net earnings after cost of money	-.33	-1.91	-2.20	-3.53
<u>\$50 - \$200 million</u>				
Net earnings before cost of money	6.40	6.42	6.85	7.98
Cost of money	4.77	6.10	7.12	9.05
Net earnings after cost of money	1.62	-.32	-0.27	-1.07
<u>More than \$200 million</u>				
Net earnings before cost of money	7.95	8.32	6.17	10.86
Cost of money	4.63	6.52	7.95	9.53
Net earnings after cost of money	3.32	1.80	-1.78	1.33

Source: Federal Reserve Bank of Boston, Functional Cost Analysis, 1978, 1980, 1981, 1982.

While rate ceilings have been perhaps the principal barrier to fully recovering the cost of credit directly from credit users,<sup>1</sup> other factors such as the customary interest-free "grace period" on accounts paid in full may also affect a creditor's ability to cover costs. The costliness of any grace

1. In 1968, G. Lynch found that prices paid on selected appliances in Little Rock, Arkansas (where finance rates were subject to a constitutional ceiling of 10 percent) were from 3 to 7 percent higher than prices paid in cities located in less restrictive states. The National Commission on Consumer Finance concluded that: "Regardless of the costs of providing any form of sales credit, a reduction by legislative fiat of the permitted gross income from finance charges necessitates adjustments in goods prices, fees, or availability. If not, lowered profits will force some retailers--probably small ones--out of business. While credit sellers may recover part of their lost income by reducing other services or adding fees for services previously furnished without charge, the most likely offset is an increase in cash prices resulting in a subsidy of credit by cash purchasers. (See: Gene C. Lynch, "Consumer Credit at Ten Per Cent Simple: The Arkansas Case," University of Illinois Law Review (1968), pp. 592-601, and National Commission, Consumer Credit in the United States, p. 107.)

period, of course, would vary with the cost of funds involved in financing receivables.<sup>1</sup>

The assessment of user fees and a moderate boosting of finance rates since around 1980 have been gradually shifting more of the cost of credit card operations onto the users of credit cards. Some card issuers have also acted to circumscribe the grace period by charging interest from the date of billing to the date of payment on accounts paid in full, or by charging a monthly "maintenance fee" on such accounts. These developments may be reducing the need to cover credit costs through merchant discount fees<sup>2</sup> or through higher prices charged for goods and services. The survey of retailers summarized in Chapter 4 suggests that merchant discounts indeed may have been pared down on average in recent years. The average fee reported there of 3 percent (unweighted in any way for size of firm) and the proportion of respondents paying a 5 percent fee are both lower than corresponding

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1. At least one economist, however, has concluded that "the impact of the so-called 'free ride' is probably substantially less than often suggested." From an examination of account records at a large retail chain in 1973, E. R. McAlister found that the 26 percent of active account holders who paid no finance charge during a 12-month period represented a much smaller share (4 percent) of total balances outstanding. (See E. Ray McAlister, with Edward DeSpain, An Empirical Analysis of Retail Revolving Credit (West Lafayette, Ind.: Krannert Graduate School of Management, Purdue University, 1975), pp. 47-48.) But McAlister, in turn, may have understated the magnitude of the "free ride." For one thing, the 49 percent who paid a finance charge "some of the time" also obtained a "free ride" on occasion, perhaps frequently, but McAlister did not report in detail on experience with these credit users. The significant rise in the costs of financing receivables since 1973 would also serve to temper McAlister's dismissal of the grace period's importance in the overall credit cost structure.

2. A study of four states having widely different rate ceilings found that the average merchant discount fee in a low-ceiling state (Arkansas) was considerably higher than in a high-ceiling state (Illinois). See Robert W. Johnson, Retailers: CRC 1979 Creditor Survey (West Lafayette, Ind.: Krannert Graduate School of Management, Purdue University, 1980). For a similar finding comparing merchant discounts in California and Washington State, see G. G. Gordon and others, The Impact of a Consumer Credit Interest Limitation Law (Seattle: University of Washington, 1970), p. 19.

measures generally believed to prevail a few years ago.<sup>1</sup> Legal barriers in several states still limit recourse to some or all of the methods for covering credit card costs discussed here, but certainly to a lesser extent than a few years ago. Continued state legislative action on this front could in time relegate the approach of the Cash Discount Act to a secondary role.<sup>2</sup>

## 6.2. Two-tier Pricing Structure

If the costs of credit are not fully met by financing revenues, they could theoretically be recovered from users of credit by charging them an appropriately higher price than paid by cash buyers. That is, any particular item could carry two prices, a cash price and a higher credit price.<sup>3</sup> This is the approach encouraged by the Cash Discount Act. As noted earlier, the Act also makes a further distinction between discounts for cash and surcharges for credit. A two-tier price structure established through discounts for cash is favored by the Act; two-tier pricing arrived at through a surcharge for credit is effectively barred.

The distinction between surcharges and discounts has little apparent foundation in economic theory. Economically speaking, the two are functional equivalents; in a two-tier system tied to the cost of credit, there are simply two separate prices, with the difference between them representing credit

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1. Comparable survey data are not available for earlier periods, but personnel at a major card interchange system confirm that merchant discount fees have generally dropped in the past three to five years.

2. The effective removal of artificial barriers to finance rates and other fees would result in the determination of direct charges to credit users and factoring fees to retailers by market forces. The "merchant discount" would not necessarily be eliminated entirely, but would be established in a more fully competitive environment.

3. In fact, several price tiers would be allowable under the Act, apparently as long as the credit price--the "regular" price--occupied the highest tier. Given that the costs of checks for many retailers are less than for credit cards and more than for cash, some merchants might wish to adopt a three-tier pricing system. Discounts for cash could also vary by the size of the transaction or by the type of merchandise purchased. Three-tier and other possible pricing structures are not discussed in detail in this report.

costs not offset by financing revenues. Whether that difference is called a "surcharge" in reference to the lower price or a "discount" in reference to the higher price should not matter. Nevertheless, there may exist some practical considerations that warrant a legal distinction between surcharges and discounts.

From one viewpoint, it might appear obvious that surcharges and discounts would result in different pairs of prices. After all, if an item regularly sells for \$20, a \$1 discount for cash establishes a \$20/\$19 price structure, while a \$1 surcharge for credit creates a \$21/\$20 price structure. The root problem with this view is the implicit assumption of a fixed, identifiable, "regular price" from which all adjustments would be made. In fact, of course, prices at the retail level may be altered repeatedly. Merchandise already labeled with a single price of \$20 (for example) could be first repriced to \$21, then offered on a discount-for-cash basis at some later point. Banning surcharges would not prevent establishment of a \$21/\$20 price structure, at least in the long run. For seasonal merchandise, such as clothing, the notion of an identifiable regular price is even more elusive--old stock is periodically removed and new items are offered for sale with freshly tagged prices. For a newly stocked item with a price tag of, say, \$39 credit/\$37 cash, no original one-tier regular price could be identified. Perhaps the item would have been priced at \$38 under a single-price system; in fact, there is no way to tell.

Another way to view this issue is to ask why a merchant charging all customers \$20 for a certain item would willingly reduce the price to \$19 for some segment of his customers. If he could get \$20, why would he charge \$19? One possibility is that, by tying the discount to payment by cash, the merchant might hope to stimulate a shift from credit card use to cash that

would reduce his credit costs, thereby "paying for" the selective price reduction. The success of such a policy would require that the initial proportion of sales on credit cards be high and that a substantial switch from credit to cash occur in response to the offered discount (or that the cost of providing credit be very high).

For instance, if only 20 percent of sales are on credit prior to the discount, then any merchant choosing to discount from his "old" regular price would be reducing the price to the 80 percent of his clientele who already use cash (and pay his regular price) as well as to the much smaller target group of credit users who can be persuaded to switch to cash. If even half of those who normally use credit shift to cash (10 percent of the total clientele in this example), the cost of credit would have to be 8 times larger than any discount from the regular price if net profits are to be undisturbed. Based on the likely relationship between the costs of cash and the costs of credit discussed in earlier sections, the merchant in this situation almost certainly would have to raise his regular price before applying a discount in order to avoid a reduction in profits.<sup>1</sup>

But the offer of a discount might increase sales, it could also be argued, which could provide an additional offset to credit costs. This possibility requires careful analysis, however. The wholesale cost to the retailer of additional merchandise would have to be covered, as well as the reduced profit margins on items that could have been sold at the higher price, and any other increase in selling costs associated with higher volume. These requirements suggest the necessity that the merchant face a highly elastic

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1. A more detailed example of how prices in a two-tier system might compare with the price in a single-price system is presented in Appendix C. The hypothetical example, for a gasoline service station that switches to a discount-for-cash system, utilizes some survey data on consumer reactions to gasoline discounts discussed below in Chapter 6, section 3.

demand curve. From the point of view of a single merchant who offers a discount (while most competitors do not), the sales increase argument seems to depend on competitors observing a loss of customers without retaliating through their own pricing strategies. If compensating actions of competitors are assumed, so that a sales increase for a typical merchant would have to represent "new" business not attracted from competitors--then the sales gain argument requires that industry-wide demand for the product be highly elastic; that is, that a reduction in price stimulates enough additional sales to increase total revenues by more than the cost of additional merchandise. But if this demand configuration exists, it generates a motivation--completely apart from the discount issue--to lower the price and reap additional sales. It then becomes necessary to explain why retailers would operate at an inferior pricing position prior to the time that discounts for cash became an option.

Perhaps the most straightforward argument for making a distinction between a surcharge and a discount--an argument that was employed in Senate floor discussions--is that to allow both approaches to two-tier pricing could breed unnecessary and detrimental confusion among consumers. If only discounts are allowed from the posted price, potential purchasers would always know that they would be charged no higher than the posted price; if surcharges are allowed as well, customers would be less sure whether the posted price is the higher credit price or the lower cash price. If advertising or in-store displays fail to make a surcharge policy clear, credit card customers may be attracted by a low advertised cash price and wind up paying an unexpectedly higher credit price.

The force of the above argument depends in part upon the degree of competitiveness in the marketplace, as noted in Chapter 5. In the long run, if retailing is competitive, stores that mislead customers about surcharge

practices stand to lose customers to more forthright competitors. Consumers might be caught unaware by a surcharge in some instances, but would be unlikely to be "stung" repeatedly.<sup>1</sup> Experience would lead consumers to avoid future visits to stores with poorly publicized surcharge policies, to come prepared to pay cash, or at least to shop with the knowledge that the credit price at certain stores is higher than the tagged price. Similarly, competition would tend to minimize the size of any surcharge, presumably to the approximate cost of uncovered credit costs.

### 6.3. Buyer and Seller Attitudes to Discounts

The first sections of this Chapter discussed the possible implementation of discount-for-cash plans primarily from a theoretical standpoint. Earlier sections addressed the cost conditions and card use habits that would affect the feasibility of two-tier pricing. But whatever the feasibility, the questions remain whether retailers operating in the marketplace would find two-tier pricing an attractive alternative, and to what extent consumers would respond to discounts for cash by switching from credit cards to cash.

Recent surveys provide some indication of consumer reaction to discounts for cash. The Federal Reserve has sponsored two surveys, one concerning gasoline purchases and the other dealing with likely responses to offers of discounts in various hypothetical situations. A pair of independent researchers has also obtained consumer responses to hypothetical discount offers, which they have integrated into a mathematical model for determination of an optimal size of discount.

Survey of gasoline purchases. By early 1983, gasoline purchase was the one area of retailing in which price discounts for cash payment were

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<sup>1</sup>. Stores that do not depend upon repeat business, of course, would be better positioned to maintain a policy of high but poorly communicated surcharges.

offered to consumers on a widespread basis. The major gasoline refining and marketing companies, rather than local dealers, have been the principal proponents of two-tier pricing for gas. Faced from the mid-1970s until lately with steady increases in the cost of funds necessary to carry consumer receivables, the gasoline companies have sought various means to dissuade customers from using credit cards. Some companies had experimented with two-tier pricing in selected localities for several years, but it was not until the summer of 1982 that discounts for cash were made widely available. To document consumer reaction to these discounts, a survey of households about their gasoline buying behavior was conducted for the Federal Reserve by the Survey Research Center in January 1983.

In that survey, 52 percent of the almost 700 respondents possessed either a bank credit card, a gasoline company credit card, or a general purpose credit card (or combination of such cards). Just over half of these cardholders, however, reported that they "never" used credit cards to buy gasoline. By contrast, slightly more than 20 percent said they "always" used a credit card to buy gas. The remainder designated a frequency of credit card purchase ranging from one-fourth to three-fourths of the time. Respondents who held gasoline company cards--about 30 percent of the full sample--were also asked whether they used gasoline cards on a weekly, a monthly, or a lesser frequency. Nearly one-half of that subgroup said they used gasoline cards weekly; about 10 percent said they did not use the cards at all.

Respondents who held a bank, gasoline, or general purpose credit card were questioned further about their experience with discounts for cash. Results of some of these questions are presented in table 6.2. By January 1983, 60 percent of these respondents, at least once in the past year, had

been to a gasoline station that offered a discount for cash. Those thereby exposed to discounts were asked how they had paid for their purchase of gas on the most recent occasion that a discount had been available. About three-quarters of those answering the question had paid by cash. Since somewhat more than 60 percent of card holders had reported generally using cash,<sup>1</sup> it appears that the offer of a discount for cash generated a modest increase in the proportion of customers paying cash.

Certain characteristics of those who pay cash and those who use credit cards when offered discounts can be observed. When respondents are classified either as frequent credit card users or as frequent cash users, it can be seen, as might be expected, that virtually all of those who paid by credit card when offered a discount for cash were classified as frequent users of credit cards. Table 6.2 also shows that of 78 respondents classified as frequent users of credit cards,<sup>2</sup> 59 percent had used their credit card to buy gas the last time that a discount was offered, and 41 percent had paid with cash. Roughly speaking, then, about 40 percent of the target population surveyed (those who often use credit cards) used cash when offered a discount. Some of these, of course, might have used cash anyway, reducing the number of consumers that can be regarded as having altered their means of payment in response to the discount for cash.

To further investigate responses to discounts, respondents who had paid cash on the most recent offer of a discount were asked how they would

1. Those "generally using" cash included the approximate one-half of card holders that "never" used a credit card to buy gasoline, and some others--about 10 percent of the sample--who sometimes used a card but more frequently used cash.
2. Eighty-five respondents were identified as frequent card users, but 7 did not answer the question about their most recent purchase when a discount was available.

TABLE 6.2

USE OF CREDIT CARDS OR CASH IN PAYMENT FOR GAS  
AND EXPOSURE TO DISCOUNT FOR CASH

	All		Use Card <sup>1</sup>		Use Cash <sup>2</sup>	
	Card Holders		Frequently		Frequently	
	Number	Percent	Number	Percent	Number	Percent
1. Card holding respondents <sup>3</sup>	<u>354</u>	<u>100</u>	<u>129</u>	<u>100</u>	<u>220</u>	<u>100</u>
a. Not offered discount <sup>4</sup>	143	40	44	34	94	43
b. Were offered discounts <sup>4</sup>	211	60	85	66	126	57
2. Respondents offered discount <sup>4</sup>	<u>199</u>	<u>100</u>	<u>78</u>	<u>100</u>	<u>121</u>	<u>100</u>
a. Paid by credit card <sup>5</sup>	49	25	46	59	3	2
b. Paid by cash <sup>5</sup>	150	75	32	41	118	98
3. Respondents paying cash when offered discount <sup>5</sup>	<u>147</u>	<u>100</u>	<u>32</u>	<u>100</u>	<u>115</u>	<u>100</u>
a. Would have used cash <sup>6</sup>	124	84	20	63	104	90
b. Would have used card <sup>5</sup>	23	16	12	37	11	10

1. Use a credit card for one-half or more of gasoline purchases, or for one-fourth of purchases if gasoline card usage is weekly.
2. Use a credit card for one-fourth or less of purchases, and gasoline card usage is less than weekly.
3. Holders of bank, gasoline company, or general purpose credit cards. Those who hold only retail store credit cards are excluded.
4. Respondents were asked if on any occasion in the past year they had been offered a discount to pay cash for gasoline. Respondents on line 2 are fewer than on line 1.b. because some respondents did not provide answers for 2.a. and 2.b.
5. Those exposed to a discount at least once in past year were asked how they paid for gas on the most recent occasion that they were offered a discount. Respondents on line 3 are fewer than on line 2.b. because some respondents did not provide answers for 3.a. and 3.b.
6. Respondents who paid cash when offered a discount were asked how they would have paid for the gasoline purchase in the absence of a discount offer.

Responses from household survey, 1983.

have paid for the gas in the absence of a discount. Eighty-four percent said they would have paid cash anyway. Twenty-three respondents (16 percent) said they would have used a credit card. Looking only at the 32 frequent card users who paid cash when offered a discount, 20 said they would have paid

cash in the absence of a discount, and only 12 said they would have used a credit card. Thus, based on responses to this hypothetical question, the proportion of people who would actually alter their intended means of payment when offered a discount may be considerably smaller than the 40 percent suggested by a simple breakdown of frequent card users into categories of cash payment and credit payment. Of 78 frequent card users in the survey, 32 used cash, but for only 12 of these did use of cash actually represent a change in how they would have paid for the specific purchase in question.

Some of these results can be used to construct a hypothetical example of gasoline pricing before and after adoption of a discount for cash program. The example illustrates the argument advanced earlier that when a relatively large number of consumers use cash initially and/or when a relatively small number shift from card to cash when offered a discount, a seller must raise the "regular" price before applying the discount if a given level of profitability is to be maintained. The details of this example are given in Appendix C.

Survey of hypothetical reactions to discounts. In another monthly SRC survey, in October 1982, consumer reactions to discounts for cash on purchases of furniture and appliances and clothing were probed through a series of questions about certain hypothetical situations. Respondents identified as possessing at least one type of credit card among bank, store, and "general purpose" cards were asked to what extent they used a credit card to transact purchases in the durable goods and clothing categories. Choices were: "never, one-fourth of the time, about half, three-fourths, or all of the time." Dollar amounts of purchase were not specified, but it seems likely that furniture and appliance purchases would represent a fairly large dollar amount, while clothing would cover a broader range.

Respondents who said that they used a credit card some or all of the time (all responses other than "never") were then asked what they thought their card use would be if a discount of 3 percent were offered for paying by cash or check. Respondents who still indicated they would use a credit card at least some of the time were then asked about their reaction to a 5 percent discount; this procedure was repeated for discounts of 7 and 9 percent. There are obvious reservations that attach to this line of questioning. Aside from possible variance between hypothetical and actual reactions to a situation, the progressive nature of the questions risked inviting a response that credit cards would not be used if discounts were available. Nevertheless, it was believed that responses to such questions would provide a rough approximation of consumer sensitivity to discounts for cash.

Results for durable goods purchases are shown in table 6.3. The top panel presents responses relative to the number of card holders in the survey--around two-thirds of the panel. Among card-holding respondents, 48 percent said they never used credit cards to purchase furniture or appliances;<sup>1</sup> 52 percent would sometimes use a credit card, including 12 percent who said they used credit cards all of the time. If a discount of 3 percent were to be offered, the proportion of those who would sometimes use a credit card drops 20 percentage points to 31 percent of the card holders. As shown, each further increment in the hypothetical discount diverts additional respondents away from card use, but the largest shift occurs between no discount at all and the 3 percent level. At the highest level of discount discussed,

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1. Those who never use credit cards, of course, might use other forms of credit to finance such purchases, including cash loans from banks, credit unions or other institutions. The proceeds of such loans would finance a "cash" transaction at the retail store.

15 percent of the card-holding respondents would use a card at least part of the time, and 2 percent would still use one all of the time.

The bottom part of table 6.3 incorporates respondents who do not have credit cards into the analysis. When they are added into the "never use card" column, an estimated 66 percent of all respondents would purchase durables without using credit cards, even when no discount for cash were offered.<sup>1</sup> At a 3 percent discount for cash, 80 percent would entirely dispense with credit cards, and at the highest discount considered--9 percent--90 percent would never use a credit card.

Respondents indicated a more frequent use of credit cards for clothing than for durable goods purchases. In the initial "no discount" situation, 30 percent said they would never use a card to buy clothing. At a 3 percent discount, 53 percent would never use a card. At the highest discount considered, 81 percent would cease using a credit card entirely. The comparison between durables and clothing as to non-use of cards is shown in table 6.4.

Although a measurable shift from credit to cash appears likely, the survey results, especially for durables, suggest that a discount-for-cash program might be of limited cost effectiveness. It appears that the offer of a 3 percent discount may persuade 20 percent of the card-holding customer base to switch from credit to cash, thus generating savings on credit costs. But from 30 to 50 percent of the customer base that would pay cash anyway would have to be given the same discount given to the "switchers," strongly suggesting that the "credit price" in any two-tier system would have to be above the regular price in a one-price system.

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1. This estimate is likely biased upward to some extent in that the group of respondents that have no credit cards may include some persons who buy few or no consumer durable goods.

TABLE 6.3

USE OF CREDIT CARDS FOR PURCHASES OF FURNITURE AND APPLIANCES  
AT VARIOUS LEVELS OF DISCOUNT FOR CASH

Responses as Percentage of Number of Card Holders							
Discount (Percent)	Would Use Card		Proportion of Time Would Use Card				
	Never	Sometime	None	1/4	1/2	3/4	All
0	48	52	48	22	12	6	12
3	69	31	69	16	8	2	5
5	75	25	75	12	7	2	4
7	82	18	82	9	5	2	3
9	85	15	85	9	3	1	2

Responses as Percentage of All Respondents							
Discount (Percent)	Would Use Card		Proportion of Time Would Use Card				
	Never	Sometime	None	1/4	1/2	3/4	All
0	66	34	66	15	8	4	8
3	80	20	80	10	6	1	3
5	84	16	84	8	4	2	3
7	88	12	88	6	3	1	2
9	90	10	90	6	2	1	1

Responses from household survey, 1982.

TABLE 6.4

PROPORTION OF CREDIT CARD HOLDERS  
THAT WOULD "NEVER" USE CARD

Discount (percent)	Type of Purchase	
	Durables	Clothing
0	48	30
3	69	53
5	75	64
7	82	74
9	85	81

Responses from household survey, 1982.

Independent study of feasible discounts. In a 1982 journal article, C. Ingene and M. Levy<sup>1</sup> set out the conditions under which a discount for cash can be advantageous to retailers and their customers, and used results from a consumer survey on credit buying habits and attitudes toward discounts to assess the feasibility of discount plans.

The authors began by presenting an equation for the "present value" of the sales of a retail merchant. The equation included terms for the proportions of sales on cash and third-party credit cards, respectively, as well as the proportion of the sales price retained on cash sales (which varies with the size of any discount for cash), and the proportion of the price retained on credit card sales (which depends upon the factoring fee paid to the card issuer and upon the number of days between the sale and the collection of funds from the card issuer). Given some cost of credit, the authors observed that the optimal discount for cash depends upon the proportion of credit customers that can be converted from credit to cash at various sized discounts.<sup>2</sup> All calculations were based on the assumption of an unchanged regular price that becomes the credit price when discounts are introduced.

To make an empirical estimate of the extent to which discounts for cash might induce customers to pay cash rather than use a credit card, Ingene and Levy conducted a random telephone sample of 248 respondents in a major southwestern metropolitan area. The questions presented hypothetical

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1. Charles A. Ingene and Michael Levy, "Cash Discounts to Retail Customers: An Alternative to Credit Card Sales," Journal of Marketing, vol. 46 (Spring 1982), pp. 92-103.

2. This formulation ignores the possibility that a store offering a cash discount might attract additional customers. This outcome is excluded on the grounds that, in equilibrium, competitive conditions would result in other retailers offering similar discounts, negating the incentive for prospective customers to switch stores to obtain discounts.

situations in which consumers were asked to report their intended purchase behavior. As the authors described the survey, "respondents were asked, for example, if they would use a credit card or cash (or check) for a typical \$100 purchase. If they indicated they would use a card, then the interviewer asked if they would prefer to use their card on a \$100 item or pay \$97 in cash or check; that is, would they accept a 3% discount. If they chose to use their card, they were asked if they would still use their card in lieu of \$96 in cash, a 4% discount."<sup>1</sup> This iterative questioning procedure continued until the respondent indicated a preference for paying cash, or until a 7 percent discount level was reached. Part of the sample was asked questions regarding a \$100 purchase, and another part was asked about a hypothetical \$25 purchase. These questions, while quite similar to the Federal Reserve questions discussed earlier, differ from them in some respects. For instance, they concern purchases of a specified dollar amount rather than of particular types of products.

For the case of a \$100 purchase, only 12 percent of the respondents indicated that they would typically not use a credit card; almost 90 percent would use a card.<sup>2</sup> In response to questions about discounts, only 8 percent said they would not switch from credit to cash for a 7 percent discount. Taking account of those that would have used cash without any discount and those who would stick with credit cards despite cash discounts, it appeared that 80 percent would switch from credit to cash for a discount of somewhere between 2-1/2 and 7 percent. At a discount of 3 percent, 50 percent of the sample thought that they would use cash for a \$100 purchase--the 12 percent

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1. Ibid., p. 96.

2. This proportion of credit users is far higher than indicated in the Federal Reserve surveys, which may be partly due to the specification of a dollar amount of purchase in the Ingene-Levy study.

who would always use cash and 38 percent who would switch to cash for a discount of 3 percent.

When another set of respondents was asked about a \$25 purchase, 34 percent indicated they normally would use cash (or check). All but 4 percent of the panel would pay with cash at some level of discount. Assuming that the propensities uncovered in these surveys truly reflected conditions faced by a typical retailer, the authors calculated that the optimal discount for purchases in the \$100 range would be about 3 percent, but that for \$25 purchases optimal results would be achieved with no discount at all.

The statistical summary of the findings for a \$100 purchase is presented in table 6.5, reproduced from the Ingene and Levy article. In order to calculate the present value of sales, it was necessary to determine or assume the costs associated with cash and credit. The authors assumed that a retailer would pay a factoring fee of 5 percent to the card processor. They also assumed a six-day lag between a credit card sale and collection from the card processor, and used an interest rate of .05 percent per day to figure the present value of such receipts. The only explicit cost of cash was the hypothetical discount, which varied from zero to 7 percent.

As the discount for cash increased, the present value of cash sales would be diminished by the rising discount, offset to varying degrees by the cost saving on factoring fees no longer required for sales diverted from credit cards. The table shows, for progressive levels of discount, the proportion of people that would pay cash, and the calculated present value of sales. For the \$100 case, peak profitability is reached at a 3 percent discount. The value of sales at a 4 percent discount still exceeds that at the no-discount level by a small margin. At higher discounts, the incremental number of switchers is relatively small, resulting in little additional

reduction in credit-related costs, but a widening decline in revenues because all cash customers must be given the higher discount.

TABLE 6.5  
DISCOUNTED PRESENT VALUES FOR DISCOUNTS THAT  
CONSUMERS REQUIRE TO PAY CASH RATHER THAN  
USE CREDIT CARDS ON \$100 PURCHASES

Discount	Cumulative Proportion Paying Cash	Discounted Present Value as a Percent of Sales*
0	.1176	95.34
2-1/2	.2745	95.48
3	.5000	95.86
3-1/2	.5784	95.75
4	.5980	95.45
4-1/2	.7157	95.27
5	.8235	94.95
5-1/2	.8627	94.53
6	.8824	94.13
6-1/2	.9020	93.62

\*Assuming a factoring fee of 5%, a daily interest rate of .05% and a six-day lag between sales and collection from the factor.

Source: Ingene and Levy, "Cash Discounts to Retail Customers," table 1, p. 97.

A crucial determinant of these results is the linkage between the optimal discount and the size of the factoring fee. The authors, as noted, assumed a 5 percent factoring fee in their calculations, but a fee of around 3 percent may now be more nearly typical, even for smaller retailers, according to the Federal Reserve's retailer cost survey described in Chapter 4. When the Ingene-Levy estimates of present value of sales are recomputed for a 3 percent factoring fee, the benefit to the retailer of a discount for cash (with unchanged regular price) disappears entirely, notwithstanding the high incidence of credit card use in the no-discount situation.

At a 3 percent discount for cash, the calculated present value of sales is 24 cents lower per \$100 of sales than when no discount at all is given. With a 4 percent factoring fee, the 3 percent discount for cash is optimal by a small margin--by 13 cents per \$100 of sales, compared with the no discount case. Under these conditions, if the initial proportion of credit customers or the proportion of switchers from credit to cash were even slightly overestimated in the surveys, the small remaining advantage to the retailer from offering discounts could easily be eliminated.<sup>1</sup> With apparently so little to gain, then, it would not be surprising to find retailers hesitant to undertake programs to offer discounts for cash. Or that, if they do offer discounts, they adjust their structure of prices upward compared with the single-price level.

Results of retailer poll on attitudes to two-tier pricing. The Federal Reserve's survey of retailers in April-May 1983 included a number of questions about the extent to which retailers had adopted discount-for-cash programs and about retailer attitudes toward such programs. As will be seen, discounts for cash were considerably more widespread among gasoline retailers than among other retailers. In both cases, however, the offering of a discount for cash was not a typical practice.

Retailers offering a discount for cash were asked the size of the discount, how the size of the discount was decided upon, whether the discount was available for check payment as well as cash, what limitations (if any) applied to the discount, whether the program was permanent or was a temporary promotional measure, and whether the discount was automatically given to cash

1. Moreover, in this relatively simple model, the costs of cash and checks are treated as equivalent, and payers by check also receive discounts. In fact, checks apparently are more costly to handle than cash. If customers switching from credit cards frequently choose to pay by check, the gains to the retailer would be minimized further.

customers or had to be requested. Discount-for-cash retailers were also asked what proportion of their customers received discounts for cash.

Retailers not offering discounts for cash at the time of the survey were asked a series of questions about whether they had ever offered such a discount and, if so, why they had discontinued the practice, or whether they had ever considered offering such discounts and, if so, why they had decided against it. Remaining respondents were also asked why they chose not to offer discounts for cash, and all non-discounting retailers were asked how large a discount they thought they could offer (assuming no change in sales) and still maintain the same level of profits.

Finally, all survey respondents were asked whether they thought it a good idea or a bad idea for a retailer to offer a discount to customers who pay in cash instead of by credit card, and respondents were probed for the reasons behind their assessment. They were also asked whether a surcharge for credit was preferable to a discount for cash, and why.

Table 6.6 presents a listing of businesses offering discounts for cash, and includes information on type of business, sales volume, proportion of sales on credit card, size of merchant discount paid, and the size and other characteristics of the discount for cash. Summary statistics by size and type of business are provided in table 6.7.

About one-fourth of the gasoline stations surveyed said that they provided discounts for use of cash. Other providers of discounts were widely scattered by type of business, representing about 6-1/2 percent of all non-gasoline retailers interviewed.

Aside from gasoline stations, lumber and building supply dealers were most frequently found to offer discounts for cash. Some dealers have customarily provided building contractors with discounts for immediate cash

TABLE 6.6

## SELECTED CHARACTERISTICS OF BUSINESSES OFFERING DISCOUNTS FOR CASH

Type of Business	Sales Volume (\$ thou.)	Proportion of Sales on		Merchant Discount Paid	Size of Discount for Cash	Discount Also for Checks	Limitation on Cash Disc. <sup>1</sup>	Automatic or "Ask for"	Proportion of Customer Using
		Store	3rd-Party						
Lumber, Bldg. Supply	118,000	--	20	3.0	n.a.	no	n.a.	auto.	n.a.
Lumber, Bldg. Supply	1,000	--	5	1.9	2.0	yes	--	auto.	95
Lumber, Bldg. Supply	3,000	--	1	3.0	4.0	yes	min.	auto.	10
Lumber, Bldg. Supply	3,000	--	5	5.5	5.0	yes	mdse.	auto.	70
Lumber, Bldg. Supply	2,000	--	79	3.5	5.0	yes	--	auto.	21
Lumber, Bldg. Supply	1,100	--	1	2.0	10.0	yes	--	ask for	50
Lumber, Bldg. Supply	29,000	--	3	5.0	2.0	no	--	auto.	100
Paint, wallpaper	1,060	--	10	3.5	10.0	yes	--	auto.	100
Gas Stations	900	50	--	5.0	4.0	yes	mdse.	auto.	50
Gas Stations	1,100	40	10	5.0	3.0	no	--	auto.	25
Gas Stations	5,990	--	5	3.5	n.a.	yes	n.a.	auto.	55
Gas Stations	17,000	--	20	3.0	5.0	yes	--	auto.	50
Gas Stations	156,000	5	3	3.5	5.0	yes	--	auto.	95
Gas Stations	1,500	20	10	5.0	3.0	no	mdse.	auto.	50
Gas Stations	3,000	--	10	3.5	5.0	yes	mdse.	auto.	90
Gas Stations	1,500	--	20	3.0	3.0	yes	mdse.	auto.	95
Gas Stations	1,000	--	30	3.0	n.a.	yes	n.a.	auto.	65
Gas Stations	9,000	--	30	3.5	5.0	yes	mdse.	auto.	40
Gas Stations	750	--	40	3.0	4.0	yes	--	auto.	50
Gas Stations	4,000	--	20	3.0	4.0	yes	--	auto.	80

1. Discounts are limited to minimum size purchases (min.), to maximum size purchases (max.), or certain types of merchandise (mdse.).

"n.a." means a response was not available.

-- means that no limitations were imposed on discount availability.

Responses from survey of retailers, 1983.

TABLE 6.6 (continued)

## SELECTED CHARACTERISTICS OF BUSINESSES OFFERING DISCOUNTS FOR CASH

Type of Business	Sales Volume (\$ thou.)	Proportion of Sales on Credit Card		Merchant Discount Paid	Size of Discount for Cash	Discount Also for Checks	Limitation on Cash Disc.	Automatic or "Ask for"	Proportion of Customer Using Disc.
		Store	3rd-Party						
Gas Stations	820	10	--	n.a.	4.0	yes	min.	auto.	90
Gas Stations	100	35	5	3.0	3.0	yes	--	auto.	90
Gas Stations	1,330	15	--	3.0	3.5	yes	--	auto.	30
Gas Stations	12,100	--	25	4.0	4.0	yes	mdse.	auto.	50
Gas Stations	325	--	20	3.0	4.0	no	mdse.	auto.	60
Gas Stations	600	50	5	3.0	n.a.	yes	mdse.	auto.	40
Gas Stations	850	30	30	n.a.	3.0	no	--	auto.	60
Gas Stations	1,100	--	6	n.a.	3.5	no	mdse.	auto.	93
Gas Stations	1,340	--	10	3.0	3.0	yes	--	auto.	37
Gas Stations	107,000	15	25	n.a.	3.5	no	mdse.	auto.	70
Apparel	437	--	8	2.5	10.0	no	max.	auto.	n.a.
Apparel	30	--	20	n.a.	25.0	no	mdes.	auto.	65
Apparel	381	--	10	3.7	5.0	no	--	auto.	100
Apparel	40	--	3	5.0	5.0	no	--	ask for	5
Apparel	10	--	7	4.0	5.0	yes	min.	auto.	90
Furniture	875	--	5	3.0	5.0	yes	--	ask for	n.a.
Furniture	2,510	--	5	3.0	3.0	yes	--	auto.	70
Furniture	953	--	2	4.0	10.0	yes	--	auto.	100
Furniture	1,750	--	1	2.0	2.0	no	--	auto.	n.a.
Furniture	350	--	10	2.0	2.0	yes	max.	auto.	5
Furniture	1,500	--	15	1.5	5.0	yes	mdse.	auto.	15
Furniture	1,500	--	10	4.0	n.a.	yes	--	ask for	n.a.
Floor Covering	700	--	5	4.0	5.0	yes	--	ask for	70
Floor Covering	3,000	--	5	2.5	2.0	yes	--	auto.	100
Floor Covering	600	--	5	2.7	4.5	no	--	ask for	5
Drapery & Upholstery	300	--	10	2.5	5.0	yes	--	ask for	50

TABLE 6.6 (continued)

## SELECTED CHARACTERISTICS OF BUSINESSES OFFERING DISCOUNTS FOR CASH

Type of Business	Sales Volume (\$ thou.)	Proportion of Sales on Credit Card		Merchant Discount Paid	Size of Discount for Cash	Discount Also for Checks	Limitation on Cash Disc.	Automatic or "Ask for"	Proportion of Customer Using Disc.
		Store	3rd-Party						
Appliance & TV	700	--	15	2.5	2.0	yes	mdse.	ask for	30
Appliance & TV	293	--	5	2.0	n.a.	yes	mdse.	ask for	50
Appliance & TV	32	--	2	5.0	10.0	no	--	ask for	60
Music	220	--	1	4.7	4.0	no	min.	auto.	50
Music	47	--	4	4.0	4.0	yes	mdse.	auto.	50
Music	385	--	1	3.0	5.0	yes	--	auto.	80
Drug Stores	100	--	2	4.0	4.0	no	--	ask for	1
Drug Stores	800	--	1	5.0	10.0	no	mdse.	auto.	6
Sporting Goods	750	--	3	2.0	3.0	no	--	auto.	95
Stationery	791	--	1	4.0	10.0	yes	min.	auto	13
Stationery	8,500	--	5	4.0	3.5	yes	mdes.	auto.	20
Jewelers	359	--	45	3.0	10.0	no	--	auto.	45
Jewelers	865	--	40	3.0	5.0	no	--	ask for	5

payment (or, commonly, for payment within 10 days), which may be reflected in the high incidence of reported discounts in this group. Among other types of retailers, discounts of 10 percent were fairly common and one retailer reported a 25 percent discount. This latter respondent may have been citing a broader discount pricing approach,<sup>1</sup> in that a discount of 25 percent is likely much larger than the cost saving realizable from shifting some customers to cash from credit cards. The discounts of 10 percent also appear larger than supportable by cost differences alone, and thus may partly reflect expectations of or attempts to gain increased sales. Nevertheless, insofar as such discounts are tied to use of cash and not available to credit card users, they are appropriately treated as discounts for cash.

Summary statistics (table 6.7) show that the average size of the discounts for cash was just under 4 percent at gasoline stations and nearly 6 percent at other types of retailers (column 6). At 62 percent of the gasoline stations and at 43 percent of other retailers, a size-of-purchase or type-of-merchandise restriction limited eligibility for the discount (column 9). Several retailers--27 percent of the gas stations and 38 percent of the other retailers--excluded check transactions from their discount offer (column 8). The discount was automatically available at all of the gasoline stations, but had to be requested at a third of the other retailers (column 7), indicating that the availability of discounts in several cases was narrower than contemplated in the Cash Discount Act.

Among other statistics of note, average factoring fees paid to credit card issuers were slightly higher at retailers that offered discounts (3.4 percent) than at card-honoring retailers generally (3.1 percent, from

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1. Some "discount stores," for instance, advertise goods at prices substantially lower than a specified list price or one described as commonly available.

TABLE 6.7

PROPORTION OF RETAILERS OFFERING DISCOUNTS FOR CASH AND  
SELECTED STATISTICS BY TYPE AND SIZE OF RETAILER

Categories of Retailers	Total Number of Respondents	Respondents Offering Discounts for Cash							
		Number of Re-tailers	As Percent of:		Size of Merchant Discount	Size of Discount for Cash	Proportion of retailers with discount:		
			All Retailers	Card Acceptors			Given Only On Request	Not Given For Checks	Subject to Other Limits <sup>1</sup>
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	
All Retailers	712	61	8.6	10.7	3.4	5.1	21	34	49
Gas Stations	92	22	23.9	26.2	3.5	3.8	0	27	62
All Other	620	39	6.3	8.0	3.3	5.8	33	38	43
All other, by sales									
Less than \$100 thousand	79	5	6.3	13.2	4.5	9.8	40	60	60
\$100-999 thousand	270	18	6.7	8.4	3.1	5.9	44	50	39
\$1 - 9.99 million	169	13	7.7	9.1	3.1	4.6	23	8	38
\$10 - 99.9 million									
\$100 million and over	100	3	3.3	9.7	4.0	2.6	0	67	67

1. Limits most commonly mentioned included restrictions on the type of merchandise eligible for discounts or on the minimum size of purchase to which a discount would be applied.

Responses from survey of retailers, 1983.

table 4.9). The proportion of sales on credit cards at discount-offering retailers was somewhat lower than average.

Table 6.7 also indicates that the size of the discount for cash tended to vary with the size (sales volume) of the retailer, although the small number of observations limits the confidence that can be accorded the size-group breakdown. Still, differences in average discounts for cash among retailers of different size were rather striking. The pattern of difference is consistent with the factoring fee structure for credit cards whereby smaller merchants pay larger fees (and therefore have a greater incentive to offer larger discounts for cash).

The propensity of smaller merchants to give larger discounts is also consistent with the responses given by non-discounting merchants to the question of how large a discount they thought that they could offer and still maintain a given level of profits. Shown in table 6.8, this distribution of estimated "equal-profit" discounts shows smaller differences among retailer size groups, but the inverse association of size of business with size of discount holds across all categories of retailer.

Table 6.9 provides certain information about the retailers that reported not offering discounts for cash. A small number (about 4 percent of all respondents) once offered discounts for cash, but no longer do so. A larger group (about 18 percent) said they had considered offering discounts for cash, but had decided against such an action. Of those retailers that were not offering discounts, therefore, the majority had not seriously considered such an option. All retailers in these categories were asked why they were not offering discounts for cash. Responses are shown in the table for gasoline stations and all other retailers separately.

In general, there were few major differences among the categories of retailers in reasons for not offering discounts for cash. Many reasons were mentioned, with no single reason dominating the responses. Most often mentioned was the lack of need for such a measure, frequently because little or no business was transacted by credit card. Mentioned almost as often was the view that a discount for cash would be "too costly," would "cut profits," or might "start price wars." Several different reasons were mentioned by about 7 to 10 percent of the respondents. These included the assertions that discounts were "too confusing" or that "customers don't like" them, that discounts are "unfair" or "discriminatory" to some customers, and that the retailer might "lose sales" or "not gain any sales" by offering discounts. Bookkeeping and paperwork problems were mentioned by several gas stations but by only a few retailers in other lines of business.

TABLE 6.8

ACTUAL AND POSSIBLE DISCOUNTS FOR CASH AT NON-GASOLINE RETAILERS

Sales Categories of Retailers	Actual Discounts for Retailers That Offer Discounts	Possible Discount With Unchanged Profits for Non-discounters
Less than \$100 thousand	9.8	5.3
\$100 - 999 thousand	5.9	4.5
\$1 - 9.99 million	4.6	3.7
\$10 - 99.9 million		2.5
\$100 million and over	2.6	2.2

Responses from survey of retailers, 1983.

TABLE 6.9

## REASONS GIVEN BY RETAILERS NOT OFFERING DISCOUNTS FOR CASH

Categories of Retailers	Number of Retailers	Proportion Citing as Reason for Not Offering Discount							
		No Need; Not Many Card Sales	Too Costly; Cut Profits; Price Wars	Might Lose Sales; No Sales Gain	Unfair to Customers; Discriminates	Difficult For Sales Clerks	Confusion; Customers Don't Like	Bookkeeping Paper Work Problems	All Other Reasons
Used to Offer Discount, Don't Now	20	20	40	5	5	--	10	10	10
Gas Stations	4	(too few observations, proportions not meaningful)							
All Other	16	25	44	6	-	--	6	13	6
Have Considered, Don't Offer Discount	89	18	17	7	8	5	13	9	23
Gas Stations	15	13	20	-	7	-	13	33	13
All Other	74	19	16	8	8	6	12	4	26
Others not Offering Discount	391	33	19	7	6	3	11	3	18
Gas Stations	45	24	29	9	7	-	7	11	13
All Others	346	34	20	6	6	3	11	2	18

Responses from survey of retailers, 1983.

All survey respondents were asked whether they thought it a good idea or a bad idea for a retailer to offer discounts for cash. These responses, with the reasons given, are shown in table 6.10. While questions of this theoretical open-ended nature warrant conservative interpretation, the proportion labeling discounts a "good idea" is nevertheless impressively high at 41 percent of the panel. The figure is somewhat surprising in view of the far smaller number of retailers that actually offer discounts for cash. It may be that some respondents believe discounts are a good idea for retailers generally but, for some reason, not in their own situation. More likely, the assessments mainly reflect spontaneous reactions to an issue by respondents who had given it little serious thought before,<sup>1</sup> a situation that might tend to yield a relatively even division between "good" and "bad" assessments.

In view of the higher proportion of gas stations offering discounts than of other types of retailers, it is anomalous that a smaller proportion of gas stations viewed discounts favorably (34 percent) than was the case among other retailers (42 percent). Curiously, among the 21 gas stations actually offering discounts, 9 described that policy as a "bad idea." Reasons for regarding discounts as a "good idea" were rather evenly divided among such benefits as improved cash flow, generation of incremental sales or profits, a sense of fairness to cash-using customers, and better coverage of credit card costs.

How non-gasoline retailers of different size regarded the practice of giving discounts for cash is shown in Table 6.11. Clearly, smaller retailers were more likely to view discounts favorably; those in the lowest

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1. As table 6.9 shows, only about 22 percent of retailers not offering discounts for cash had ever considered doing so (or had actually done so).

sales category were twice as likely to term discounts a good idea as were retailers in the highest sales category. This result is, of course, consistent with findings already presented that higher proportions of smaller retailers provide discounts for cash, that they pay higher factoring fees to card issuers, and offer larger discounts for cash.

TABLE 6.10  
ASSESSMENT OF DISCOUNT FOR CASH AS GOOD OR BAD IDEA, WITH REASONS CITED

Categories of Retailers	Proportion <sup>1</sup> Responding "Good Idea"	Reasons for Regarding as Good Idea (percent of "good" responses)				
		Better Cash Flow; Prompter Receipt	Attract Customers; Sales Higher	Increase Profits	Fair to Customer	Cover Cost of Cards; Reduce Fees
All Retailers	41	15	14	11	13	8
Gas Stations	34	16	19	--	29	10
All Others	42	15	13	12	10	8

  

Categories of Retailers	Proportion <sup>1</sup> Responding "Bad Idea"	Reasons for Regarding as Bad Idea (percent of "bad" responses)				
		Too Costly; Cut Profits; Price Wars	Unfair to Customer; Discriminates	Confusion; Customers Don't Like	No Need; Not Many Card Sales	Might Lose Sales; No Sales Gain
All Retailers	57	23	20	15	11	8
Gas Stations	66	17	25	13	3	12
All Other	56	24	19	15	13	7

1. Proportions of "good idea" and "bad idea" responses do not add to 100 percent within particular categories because of "don't know" responses.

Response: from survey of retailers, 1983.

Finally, respondents were asked whether, instead of a discount for cash, adding an extra fee when customers use credit cards was a good idea or a bad idea. (Results are shown in table 6.12.) Twenty-nine percent of all respondents who answered the question thought that surcharges for credit

TABLE 6.11

## ASSESSMENT OF DISCOUNT FOR CASH AS GOOD OR BAD IDEA BY SIZE OF RETAILER

Category of Retailer By Sales Volume	Total Non-Gasoline Respondents	Number Citing Discounts for Cash As:		Proportion Citing Discounts for Cash As:	
		Good Idea	Bad Idea	Good Idea	Bad Idea
All Respondents	613	257	341	41.9	55.6
Less than \$100 thousand	80	40	38	50.0	47.5
\$100 - 999 thousand	266	113	144	42.5	54.1
\$1 - 9.99 million	168	73	94	43.5	56.0
\$10 - 99.9 million	56	20	35	35.7	62.5
\$100 million & over	41	10	29	24.4	70.7

Responses from survey of retailers, 1983.

represented a better approach to two-tier pricing than did discounts for cash.<sup>1</sup> Among non-gasoline retailers, smaller businesses were more likely than large businesses to regard surcharges as a better idea than discounts. On the whole, it did not appear that authorization of surcharges would have a major impact on the frequency of two-tier pricing. As indicated in previous tables, 42 percent of non-gasoline retailers described discounts for cash as a good idea, but only 6-1/4 percent actually were offering discounts in the spring of 1983. Judging from these results, if about 6 percent of those who thought surcharges to be the better approach would adopt two-tier pricing, an additional 2 percent of all non-gasoline retailers would employ a two-tier system.

TABLE 6.12

RETAILER COMPARISON OF CREDIT CARD SURCHARGE TO CASH DISCOUNT

Type of Retailer and Volume of Sales Categories	Number of Respondents	Percentage of Retailers That Said Surcharge Good or Bad Idea Compared to Discount for Cash	
		Good Idea	Bad Idea
All Retailers	700	29	71
Gasoline Stations	89	33	67
All Other	<u>611</u>	<u>28</u>	<u>72</u>
Less than \$100 thousand	78	41	59
\$100 - 999 thousand	267	31	69
\$1 - 9.99 million	167	21	79
\$10 - 9.99 million	55	20	80
\$100 million and over	42	26	74

Responses from survey of retailers, 1983.

1. It made little difference whether the respondent had previously described discounts as a good idea or a bad idea.

## BIBLIOGRAPHY

- Board of Governors of the Federal Reserve System. Bank Credit-Card and Check-Credit Plans. Washington, 1968.
- Durkin, Thomas A., and Gregory E. Elliehausen. 1977 Consumer Credit Survey. Washington: Board of Governors of the Federal Reserve System, 1978.
- Federal Reserve Bank of Boston. Functional Cost Analysis. Boston, annual editions.
- Flannery, Mark J., and Dwight M. Jaffee. The Economic Implications of an Electronic Monetary Transfer System. Lexington, Mass: Lexington Books, 1973.
- Garcia, Gillian. "A Note on Bank Credit Cards' Impact on Household Money Holdings," Journal of Economics and Business, vol. 29 (Winter 1977), pp. 152-54.
- \_\_\_\_\_. "Bank Credit Cards, Time Deposits, and M2," Journal of Economics and Business, vol. 30 (Spring/Summer 1978), pp. 230-35.
- \_\_\_\_\_. "Credit Cards: An Interdisciplinary Survey," Journal of Consumer Research, vol. 6 (March 1980), pp. 327-37.
- Gordon, G.G., and others. The Impact of a Consumer Credit Interest Limitation Law. Seattle: Graduate School of Business, University of Washington, 1970.
- Grant, Robert M. "Transaction Costs to Retailers of Different Methods of Payment. Result of a Pilot Study." Processed. Report prepared at The City University, London, 1982.
- Gushee, Charles H., ed. The Cost of Personal Borrowing in the United States. Boston: Financial Publishing Company, 1979, 1982.
- Ingene, Charles A., and Michael Levy. "Cash Discounts to Retail Customers: An Alternative to Credit Card Sales," Journal of Marketing, vol. 46 (Spring 1982), pp. 92-103.
- Johnson, Robert W. Retailers: CRC 1979 Creditor Survey. West Lafayette, Ind.: Krannert Graduate School of Management, Purdue University, 1980.
- Katona, George, Lewis Mandell, and Jay Schmiedeskamp. 1970 Survey of Consumer Finances. Ann Arbor, Mich.: Survey Research Center, Institute for Social Research, University of Michigan, 1971.
- Lynch, Gene C. "Consumer Credit at Ten Per Cent Simple: The Arkansas Case," University of Illinois Law Review (1968), pp. 592-601.

- Mandell, Lewis, and others. Surveys of Consumers: 1971-72. Ann Arbor, Mich.: Institute for Social Research, University of Michigan, 1973.
- Marcus, Edward. "The Impact of Credit Cards on Demand Deposit Utilization," Southern Economic Journal, vol. 26 (April 1960), pp. 314-16.
- McAlister, E. Ray and Edward DeSpain. An Empirical Analysis of Retail Revolving Credit. West Lafayette, Ind.: Krannert Graduate School of Management, Purdue University, Monograph No. 1, 1975.
- Miller, Stephen M. "The Money Supply Process and Credit Card Use: An Empirical Analysis," Eastern Economic Journal, vol. 8 (April 1982), pp. 89-99.
- Montgomery, Edward B. "Tests of Alternative Explanations of the Decline in the Personal Saving Rate." Ph.D. dissertation, Harvard University, 1982.
- National Commission on Consumer Finance. Consumer Credit in the United States. Washington: Government Printing Office, 1972.
- Payments Systems, Inc. Cost of Cash: A Strategic Analysis. Atlanta, 1981.
- Russell, Thomas. The Economics of Bank Credit Cards. New York: Praeger, 1975.
- Shay, Robert P., and William C. Dunkelberg. Retail Store Credit Card Use in New York. New York: Graduate School of Business, Columbia University, Studies in Consumer Credit, No. 4, 1975.
- Touche Ross & Co. "Economics of New York State Retail Store Revolving Credit Operations for the Fiscal Year Ended January 31, 1973," in Robert P. Shay and William C. Dunkelberg, Retail Store Credit Card Use in New York. New York: Graduate School of Business, Columbia University, Studies in Consumer Credit, No. 4, 1975.
- White, Kenneth. "Consumer Choice and Use of Bank Credit Cards: A Model and Cross-Section Results," Journal of Consumer Research, vol. 2 (January 1975), pp. 10-18.

APPENDIX A

TEXT OF CASH DISCOUNT ACT OF 1981

95 STAT. 144

PUBLIC LAW 97-25—JULY 27, 1981

Public Law 97-25  
97th Congress

An Act

July 27, 1981  
[H.R. 31]

To amend the Truth in Lending Act to encourage cash discounts, and for other purposes.

Cash Discount Act.  
15 USC 1601 note

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That this Act may be cited as the "Cash Discount Act"*

TITLE I—CASH DISCOUNTS

SEC. 101. Section 167(b) of the Truth in Lending Act (15 U.S.C. 1666f(b)) is amended to read as follows:

“(b) With respect to any sales transaction, any discount from the regular price offered by the seller for the purpose of inducing payment by cash, checks, or other means not involving the use of an open-end credit plan or a credit card shall not constitute a finance charge as determined under section 106 if such discount is offered to all prospective buyers and its availability is disclosed clearly and conspicuously.”

15 USC 1605.

SEC. 102. (a) Section 103 of the Truth in Lending Act (15 U.S.C. 1602) is amended by adding at the end thereof the following:

“(z) As used in this section and section 167, the term ‘regular price’ means the tag or posted price charged for the property or service if a single price is tagged or posted, or the price charged for the property or service when payment is made by use of an open-end credit plan or a credit card if either (1) no price is tagged or posted, or (2) two prices are tagged or posted, one of which is charged when payment is made by use of an open-end credit plan or a credit card and the other when payment is made by use of cash, check, or similar means. For purposes of this definition, payment by check, draft, or other negotiable instrument which may result in the debiting of an open-end credit plan or a credit cardholder’s open-end account shall not be considered payment made by use of the plan or the account.”

“Regular price.”

15 USC 1602 note.

(b) Effective April 10, 1982—

94 Stat 169.

(1) subsections (x) and (y) of section 103 of the Truth in Lending Act (as redesignated by section 603(b) of Public Law 96-221) are redesignated as subsections (y) and (z), respectively; and

(2) subsection (z) of such section (as added by subsection (a)) is redesignated as subsection (x) and is inserted after subsection (w).

15 USC 1666f note.

SEC. 103. Any rule or regulation of the Board of Governors of the Federal Reserve System pursuant to section 167(b) of the Truth in Lending Act, as such section was in effect on the day before the date of enactment of this Act, is null and void.

Supra.

TITLE II—BAN ON CREDIT CARD SURCHARGES

SEC. 201. Section 3(c)(2) of Public Law 94-222 (15 U.S.C. 1666f note) is amended to read as follows:

“(2) The amendments made by paragraph (1) shall cease to be effective on February 27, 1984.”

**SEC. 202.** Not later than two years after the date of enactment of this Act, the Board of Governors of the Federal Reserve System shall prepare a study, on the basis of a review and analysis of such data and studies as it finds appropriate, and shall submit its findings to the Committee on Banking, Housing, and Urban Affairs of the Senate and the Committee on Banking, Finance and Urban Affairs of the House of Representatives on the effect of charge card transactions upon card issuers, merchants, and consumers, including to the extent possible—

Study findings, submittal to congressional committees.  
15 USC 1601 note.

- (1) the effects of charge card transactions on retail sales;
- (2) the effect of charge card usage on consumers and on merchants, including the effects on merchant cost; and
- (3) the effect of charge card usage on the pricing of goods and services, with a comparison of the costs resulting from payment by (A) currency and coin, (B) by personal check or similar instrument, (C) by in-house credit plans, and (D) by charge card.

**TITLE III—MISCELLANEOUS**

**SEC. 301.** Section 625(c) of Public Law 96-221 is amended by adding at the end thereof the following: "Any creditor who elects to comply with such amendments and any assignee of such a creditor shall be subject to the provisions of sections 130 and 131 of the Truth in Lending Act, as amended by sections 615 and 616, respectively, of this title."

94 Stat. 185.  
15 USC 1602 note.

**SEC. 302.** Section 5137 of the Revised Statutes (12 U.S.C. 29) is amended by adding at the end thereof the following new paragraph: "Notwithstanding any other provision of this section, any national banking association which, on the date of enactment of this paragraph, held title to and possession of real estate which was carried on the association's books at a nominal value on December 31, 1979, may continue to hold such real estate until December 31, 1982, if the earnings from such real estate are separately disclosed in the financial statements of the association."

94 Stat. 180, 182.  
15 USC 1640, 1641.  
94 Stat. 186.

**SEC. 303.** (a) Section 204 of the Public Health Service Act is amended by inserting after the first sentence the following new sentence: "The President may appoint to the office of Surgeon General an individual who is sixty-four years of age or older."

42 USC 205.

Presidential appointee.

(b) Section 211(a)(1) of such Act is amended by adding at the end thereof the following new sentence: "This paragraph does not apply to the Surgeon General of the United States."

42 USC 212.

Approved July 27, 1981.

**LEGISLATIVE HISTORY—H.R. 31 (H.R. 3132) (S. 414):**

HOUSE REPORT No. 97-159 (Comm. of Conference).  
SENATE REPORT No. 97-23 Accompanying S. 414 (Comm. on Banking, Housing, and Urban Affairs)

CONGRESSIONAL RECORD, Vol. 127 (1981):

- Feb. 24, considered and passed House.
- Mar. 5, S. 414 considered in Senate.
- Mar. 12, considered and passed Senate, amended, in lieu of S. 414
- May 4, H.R. 3132 considered and passed House.
- May 20, June 24, House considered and agreed to conference report.
- July 14, Senate agreed to conference report.



## APPENDIX B

### FEDERAL RESERVE SURVEYS ON CREDIT CARDS AND RELATED MATERIALS

The Federal Reserve Board has sponsored a number of consumer and retailer surveys, mentioned in the text of this report, that focus on credit cards to some extent. Three surveys--two of consumers in 1982 and 1983, and one of retailers in 1983--were designed specifically to address issues discussed in the report. All of the consumer and retailer surveys summarized below were conducted on behalf of the Federal Reserve Board by the Survey Research Center (SRC), Institute for Social Research, University of Michigan. In addition, the Federal Reserve Board initiated, and served as a joint sponsor of, a benchmark Survey of Consumer Finances in 1983. Information from over 4,000 households was collected by SRC mainly in the spring and summer of 1983. Results are not yet available.

1977 Consumer Credit Survey. A survey of 2,563 households, conducted in August and September of 1977, explored consumer use of different types of credit, and measured consumer awareness, understanding, attitudes, and behavior regarding credit and its regulation. Field work was jointly sponsored by the Federal Reserve Board, the Office of the Comptroller of the Currency, and the Federal Deposit Insurance Corporation. An analysis of the information obtained in the survey was published in Thomas A. Durkin and Gregory E. Elliehausen, 1977 Consumer Credit Survey (Washington: Board of Governors of the Federal Reserve System, December 1978).

1978 Follow-up Survey of Consumers. In August and November of 1978, SRC conducted reinterviews with many of the same households questioned in the 1977 Consumer Credit Survey. An analysis of some of the reinterview findings appeared in Charles A. Lockett, "Household Financial Behavior:

Implications for Consumer Spending," West Lafayette, Ind.: Krannert Graduate School, Credit Research Center Working Paper No. 37 (1980).

Consumer holding and use of credit cards. On several occasions in 1981, 1982, and 1983, SRC included a set of Board-sponsored questions on credit card holdings and use in its regular monthly Survey of Consumer Attitudes that covers about 700 households. Results appear at various places in this report.

Consumer reactions to discounts for cash. In October 1982 SRC included a set of Board-sponsored questions about cash discounts in its regular monthly Survey of Consumer Attitudes. Approximately 700 households were queried about their reactions to discounts for cash on purchases of furniture and appliances and clothing through a series of questions about certain hypothetical situations. Results are discussed in Chapter 6 of this report.

Means of payment for gasoline purchases. In its January 1983 Survey of Consumer Attitudes, SRC asked approximately 700 households a set of Board-sponsored questions about consumer use of credit cards to purchase gasoline, and about consumer experience with discounts for cash in buying gasoline. Results are discussed in Chapter 6 of this report.

Retailer credit policy. SRC conducted a Board-sponsored survey in April-May 1983 of a sample of retail organizations, primarily to develop information about relative costs to merchants of cash, check, and credit card transactions, merchant preferences regarding these modes of transactions, merchant experience with cash discounts, and merchant attitudes toward discounts for cash and surcharges for credit.

The survey was based on telephone interviews with 713 retail establishments selected as a stratified random sample among types of firms

likely to accept several means of payment, including credit cards. The study population encompassed all retail establishments in the coterminous United States with a primary Standard Industrial Classification code from one of the following categories: 52 (building materials and garden supplies), except 527 (mobile home dealers); 53 (general merchandise stores); 553 (auto and home supply stores); 554 (gasoline service stations); 56 (apparel and accessory stores); 57 (furniture and home furnishing stores); 591 (drug stores and proprietary stores); 594 (miscellaneous shopping good stores); 5961 (mail order houses); 5983 (fuel oil dealers); 5984 (liquefied petroleum gas dealers); and 5992 (florists). Results of the survey are discussed in various places in this report, especially Chapters 4 and 6.

Other Federal Reserve materials on credit cards. In 1968, a Federal Reserve System Report was published on Bank Credit-Card and Check-Credit Plans (July 1968). At the end of 1972, the Bank Report of Condition contained a special statistical supplement on credit cards, analyzed by David F. Seiders in "Credit-Card and Check-Credit Plans at Commercial Banks," Federal Reserve Bulletin (September 1973), pp. 646-53. In addition, in its monthly statistical release entitled "Consumer Installment Credit" (G.19), the Federal Reserve Board regularly publishes estimates of the amount of revolving credit at commercial banks, gasoline companies, and retailers.

## APPENDIX C

### HYPOTHETICAL EXAMPLE OF TWO-TIER PRICING OF GASOLINE

This Appendix presents a hypothetical example of gasoline pricing before and after adoption of a discount-for-cash program. The example assumes that there are no shifts in underlying wholesale gasoline prices, that sales volume remains constant, and that the gasoline retailer has an objective of maintaining a constant level of profits.<sup>1</sup> The purpose of the example is to indicate the relationship that could be expected between a former single price for gasoline and a new two-tier set of prices, using estimates about certain aspects of buyer behavior that were discussed in Chapter 6, section 2.

The example, shown in table C.1, is constructed with 100 customers each buying one gallon of gasoline. Drawing on the household survey results, the assumption is made that about 40 customers would use credit cards and 60 would pay in cash in the absence of a discount offer. For sake of illustration, it is assumed that gross receipts of \$120 would cover all costs, including credit card costs, and yield the gasoline seller some desired level of profits. Obviously, under a single-price system, the retail price of a gallon of gas would be \$1.20 to each customer.

Introduction of a discount-for-cash policy complicates the price structure. In line with the discussion in Chapter 6 and statistics in table 6.2, when a discount is offered, the proportions of cash and credit buyers are assumed to shift from .60 and .40, respectively, to .75 and .25.

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1. It is recognized that the introduction of a discount-for-cash program may affect a station's volume of sales, at least at first. The station may hope to increase sales by attracting cash users away from competitors. But--to repeat a point made elsewhere in this report--competitive response by other stations is likely to minimize any sales advantage initially accruing to a dealer that sets up a two-tier system. Unless two-tier pricing were to stimulate total industry-wide gasoline sales, it would be inappropriate to assume some permanent sales gain for any particular retailer.

In the present example, then, 75 persons would buy for cash and 25 would use a credit card under two-tier pricing, for a net shift of 15 customers from credit to cash. Since this shift would reduce the seller's cost of carrying receivables, the gross revenue needed to maintain level profits would drop by 15 times the per gallon cost saving. In the example, a credit-handling cost of 3 cents per gallon of gas sold on credit is used, which approximates the cost estimated by several major gasoline companies. By influencing 15 customers to switch from credit card to cash, the gas station in the example could save 45 cents in credit servicing costs, thus reducing the level of gross revenues needed to maintain constant profits to \$119.55 from \$120.

Assuming that the cash price and credit price would be set to differ by the amount of credit-related costs per gallon, it can be calculated (as shown in table C.1) that the gasoline seller would need to price gas at \$1.188 for cash sales and \$1.218 for credit sales.<sup>1</sup> Because the lower price for cash must be offered to those who would pay cash anyway, the cash price cannot be reduced from the old \$1.20 price by the full amount of the per gallon cost of credit. Instead, the two-tier price would points bracket the old single price point.

Retail gasoline prices in the real world often fluctuate a few cents from week to week. Thus it is difficult to judge how closely an actual station's two-tier price structure vis-a-vis an alternative single price policy might compare with the example sketched here. However, as noted,

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1. Alternatively, rather than assuming a price differential equal to the difference in cost between credit card and cash transactions, then solving for the two prices, one could assume the credit price to be set equal to the price that would be charged in a one-tier system (\$1.20 in this example), then solve the equations for the cash price. Under this approach, it can be calculated that, given the credit price of \$1.20 in the two-tier system, the cash price would have to be at least \$1.194 to maintain the target level of profits.

values of the key variables in the example were chosen--based on survey results--to realistically reflect conditions faced by typical gasoline retailers. Moreover, as further calculations under alternative assumptions would show, the implications of the example do not depend narrowly on the specific values of the variables used. That is, under widely different customer purchasing habits, the new two-tier price schedule would still bracket the old one-tier price. For instance, if it were assumed that as many as 60 percent (instead of 40 percent) of the customers would use credit cards in a single-price system, and that only 20 percent would use credit cards in a two-tier system,<sup>1</sup> the "equal-profit" prices would be \$1.182 for cash and \$1.212 for credit, compared with the one-tier price of \$1.20.

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1. In other words, 40 percent of the total customer base would switch from credit card to cash in this alternative, compared with 15 percent who switched in the original example.

TABLE C.1

HYPOTHETICAL GASOLINE PRICING WITH CONSTANT PROFITS  
UNDER ONE-TIER AND TWO-TIER PRICING SCHEMES

<u>Single-price case</u>		<u>Two-tier pricing:</u>
$aX + bY = R$	revenue function	$(a+s)X + (b-s)Y = R - cs$
$X - Y = 0$	price structure	$X = Y - c$
calculations:		
$60X + 40Y = \$120$		$(60+s)X + (40-s)Y = \$120 - \$.03s$
$X - Y = 0$		$X - Y = -c$
<hr/> $100X = \$120$		<hr/>
$X = \$ 1.20$		$75X + 25Y = \$119.55$
$Y = \$ 1.20$		$X - Y = -\$ .03$
		<hr/> $100X = \$118.80$
		$X = \$ 1.188$
		$Y = \$ 1.218$

where: X = cash price  
 Y = credit price  
 a = number of customers per 100 that typically pays cash  
 b = number of customers per 100 that typically uses credit card  
 R = desired gross revenue for initial cash/credit sales mix  
 s = number of customers that shifts to cash from credit  
 c = cost of financing receivables per gallon of gas sold on credit

assumptions:  
 a = 60, b = 40  
 R = \$120  
 s = 15  
 c = .03  
 each customer buys one gallon of gas