

**Retailer Payment Systems:  
Relative Merits of Cash and Payment Cards**

---

**Executive Summary**

---

**Economists Incorporated**

**November 19, 2014**

## **Executive Summary**

Some merchants do not accept credit or debit cards (“payment cards”) because they feel that it is more profitable for them to only accept cash payments. This perception has been linked to the belief that merchants do not incur costs when they accept cash payments and the commonly associated belief that merchants are not disadvantaged by a cash-only policy. However, the reasoning underlying these perceptions is flawed both because there are significant costs associated with cash transactions and because a “cash only” policy may lead to lost sales or smaller sales. As a result, a more thorough analysis of the decision not to accept payment cards is required.

This study, which reports the findings of five case studies of merchants and which reviews the existing literature, identifies and weighs the costs and benefits for merchants of different payment systems. The principle findings are: (1) that the difference in the costs a merchant incurs when accepting cash rather than payment cards typically is relatively small; (2) that merchants can expect significant increases in sales when they add payment cards to their mix of accepted forms of payment, rather than only accepting cash; and (3) that, as a result, the additional benefits that most merchants obtain from accepting payment cards are large relative to any incremental costs they incur.

As is described in more detail below, our study found (consistent with earlier economic studies) that there are significant costs to cash acceptance that should be considered by merchants when assessing the relative merits of cash and payment card acceptance. In particular, the five merchants in our study all spent considerable time processing the cash that flows through their business – collecting cash from customers, counting change, counting cash going into and out of their registers, counting cash that goes to and from their bank, and moving cash to and

from their bank. All of these activities represent costs that can be measured. For example, for the convenience store in our case study, cash processing required an average of 14 hours per week of employee time and nearly 11 hours a week of owner time. Of course, because our study participants handle cash, they also incur costs to invest in cash theft prevention, whether through the purchase of video cameras, safe technologies or otherwise. Moreover, they all incur costs associated with transporting cash to their bank. While none of our study participants was large enough to use an armored car service, they all incur time cost moving cash themselves. For example, the small independent grocery store and the gas station in our study each spent about 1.3 hours per week and the convenience store spent approximately 2.8 hours per week transporting cash to their bank.<sup>1</sup> Thus, cash transactions are not cost free. Given that cash transactions are typically smaller than payment card transactions, these costs add up when cash and payment card transactions are normalized by considering the cost per \$100 of sales.

As is shown in **Table I.1**, the costs of using cash per \$100 in revenues approach the costs associated with credit card transactions (and sometimes are larger). For example, for a full-service restaurant the costs associated with \$100 in revenues generated through cash sales is only \$0.30 less than that for \$100 in revenues generated through payment card sales. For the small independent grocery store, credit cards involve lower costs per \$100 in revenues than does cash (\$3.93 cash cost vs. \$3.09 credit card cost).

---

<sup>1</sup> See **Table VI.1** for details.

**Table I.1  
Cash & Payment Card Cost Analysis**

Costs	Fast-Food Restaurant	Full-Service Restaurant - with Tip	Gas Station - Gas Only Purchase	Gas Station - Cashier Purchase	Convenience Store	Grocery Store
<b>Cash Costs</b>						
Cash: Deposit Cost per Transaction	\$0.0207	\$0.1490	\$0.0299	\$0.0279	\$0.0081	\$0.0915
Cash: Owner's Cash Handling Cost per Transaction	\$0.0083	\$0.4938	\$0.0653	\$0.0609	\$0.0473	\$0.2053
Cash: Employee's Cash Handling Cost per Transaction	\$0.0153	\$0.2739	\$0.0423	\$0.0394	\$0.0210	\$0.0000
Cash: Tender Cost per Transaction (in Employee Hourly Wage)	\$0.0530	\$0.0521	\$0.1807	\$0.0323	\$0.0428	\$0.0678
Cash: Average Transaction Size	\$7.81	\$35.18	\$21.17	\$21.16	\$5.15	\$9.27
<b>Total Cash Cost per \$100 Revenue</b>	<b><u>\$1.245</u></b>	<b><u>\$2.754</u></b>	<b><u>\$1.503</u></b>	<b><u>\$0.758</u></b>	<b><u>\$2.313</u></b>	<b><u>\$3.933</u></b>
<b>Credit Costs</b>						
Credit: Fees per Average Transaction	\$0.2581	\$2.0727	\$0.8517	\$0.7030	\$0.2475	\$0.4990
Credit: Tender Cost per Transaction (in Employee Hourly Wage)	\$0.0436	\$0.0791	\$0.0000	\$0.0646	\$0.0459	\$0.0579
Credit: Owner's Credit Reconciliation Cost per Transaction	\$0.0036	\$0.0177	\$0.0014	\$0.0124	\$0.0019	\$0.0050
Credit: Average Transaction Size	\$9.06	\$70.93	\$37.59	\$30.15	\$8.45	\$18.19
<b>Total Credit Cost per \$100 Revenue</b>	<b><u>\$3.370</u></b>	<b><u>\$3.059</u></b>	<b><u>\$2.270</u></b>	<b><u>\$2.587</u></b>	<b><u>\$3.494</u></b>	<b><u>\$3.089</u></b>
<b>Credit Costs Relative To Cash Costs</b>	<b>\$2.12</b>	<b>\$0.30</b>	<b>\$0.77</b>	<b>\$1.83</b>	<b>\$1.18</b>	<b>-\$0.84</b>

<sup>a</sup> Total transactions per week taken from transactions data. Includes gift card and debit card transactions.

**Note:** A separate debit cost analysis was not included because there was only substantial, distinguishable Debit Card payment data at the Convenience Store. At most retailers, the processing of debit cards was indistinguishable from the processing of credit cards at the transaction level. "Gas Station - Gas Only Purchase" captures gasoline-only credit sales at the outdoor pump and gasoline-only cash sales in store. "Gas Station - Cashier Purchase" captures all indoor purchases.

The credit card rates and fees used are as follows: Fast-Food Restaurant: 1.75% plus \$0.10; Full-Service Restaurant: 2.78% plus \$0.10; Gas Station: 2.00% plus \$0.10; Convenience Store: 1.75% plus \$0.10; Grocery Store: 2.01% plus \$0.13. Since information was not provided by the Fast-Food Restaurant owner regarding credit card rates and fees, the Convenience Store rates and fees were used, since both are franchises. Additionally, the rate and fee for the Gas Station were estimated using the total credit card cost share of sales, which was 2.37%.

With respect to the revenue effects of shifting from a “cash only” business to one that also accepts payment cards, our study found evidence that merchants experience significant increases in revenues when they accept payment cards. This relationship is evidenced in two ways. First, we studied how a merchant’s sales changed when they shifted from only accepting cash to also accepting payment cards. Second, we studied the relative size of cash transactions and payment card transactions.

To explore how sales levels change “after” a firm starts accepting payment cards, we used sales data we obtained from a florist who switched from “cash only” to “cash and credit card” payment. This analysis found that the florist’s sales increased after credit cards were accepted. More specifically, the florist’s business grew 9.2% the first year and 19.8% in two years. As is explained in more detail below, this finding aligns with that of other studies that compared sales levels “before” and “after” the introduction of credit cards.<sup>2</sup>

<sup>2</sup> See discussion in Section V.D and Chart IV.1 below.

Our analysis that compared the size of cash purchases and payment card purchases also supports the view that merchants increase their sales when they accept credit cards. More specifically, for the retailers included in our case studies, we observed that on average payment card transactions involved larger dollar payments than cash transactions. As is shown in **Table I.2** below, at the retailers in our study, the average size of credit card transactions were always larger than the average size of cash transactions. Moreover, in some cases, the average size was much larger (e.g., roughly twice as large at the full-service restaurant and small independent grocery store). Similarly, average debit card transactions were often larger than cash purchases.

As is shown in **Table I.3**, which provides more details on relative transaction sizes, credit cards are used for the very largest transactions, as well as many smaller transactions. In contrast, while cash is sometimes used for fairly large transactions, the use of cash tops out at less than \$200 (except for car repairs that in one case involved a cash payment of around \$400). While we had less data on debit card transactions because most of the retailers processed debit cards as credit cards, the limited data we had indicated that debit cards transactions are not used on particularly small transactions and tend not to be used on the largest transactions where credit cards are preferred. Similarly, **Table I.4** shows that increased sales associated with credit card transactions more than cover the incremental transaction costs. In particular, the increased costs associated with credit cards are often less than 5% of the increased revenues that are associated with credit card sales (and never more than 20% of increased revenues). Again, these findings line up with what has been reported in earlier studies.<sup>3</sup>

---

<sup>3</sup> See discussion in Section V below.

**Table I.2**  
**Average Transaction Size**

Average Transaction Size	Fast Food Restaurant	Full-Service Restaurant (w/ tip)	Gas Station - Gas Only Purchase	Gas Station - Cashier Purchase	Convenience Store	Grocery Store
Cash	\$7.81	\$35.18	\$21.17	\$21.16	\$5.15	\$9.27
Credit	\$9.06	\$70.93	\$37.59	\$30.15	\$8.45	\$18.19
Debit	N/A	N/A	\$17.50	\$22.20	\$8.54	N/A

Note: "Gas Station - Gas Only Purchase" captures gasoline-only credit sales at the outdoor pump and gasoline-only cash sales in store. "Gas Station - Cashier Purchase" captures all indoor purchases.

**Table I.3**  
**Minimum, Maximum, Mean, Median Cash, Credit Card and Debit Card Transaction Sizes**

Establishment	Minimum			Maximum			Mean				Median			
	Cash	Credit	Debit	Cash	Credit	Debit	Cash	Credit	Debit	All Payment Types	Cash	Credit	Debit	All Payment Types
Fast-Food Restaurant	\$0.41	\$1.04	N/A	\$40.60	\$43.25	N/A	\$7.81	\$9.06	N/A	\$8.29	\$7.09	\$7.79	N/A	\$7.36
Full-Service Restaurant	\$2.12	\$4.36	N/A	\$195.85	\$390.85	N/A	\$29.53	\$58.60	N/A	\$51.23	\$19.35	\$48.94	N/A	\$39.67
Full-Service Restaurant - with Tip	\$2.56	\$6.36	N/A	\$167.49	\$470.85	N/A	\$35.18	\$70.93	N/A	\$61.40	\$23.29	\$58.51	N/A	\$47.64
Gas Station - Pump Gas vs. In-Store Cash Gas*	\$2.00	\$1.04	\$10.00	\$100.81	\$177.99	\$25.00	\$21.17	\$37.59	\$17.50	\$30.70	\$20.00	\$36.00	\$17.50	\$25.44
Gas Station - In-Store Gas & Joint Sales	\$2.00	\$3.00	\$10.00	\$100.81	\$168.48	\$41.00	\$21.16	\$30.15	\$22.20	\$22.73	\$20.00	\$25.00	\$20.00	\$20.00
Gas Station - In-Store Non-Gas Sales	\$0.27	\$1.05	\$5.00	\$400.00	\$1,143.80	\$69.95	\$8.60	\$52.98	\$37.48	\$24.14	\$5.37	\$8.99	\$37.48	\$7.50
Convenience Store	\$0.10	\$0.99	\$0.99	\$107.04	\$102.11	\$70.28	\$5.15	\$8.45	\$8.54	\$6.05	\$3.53	\$6.89	\$6.99	\$4.22
Grocery Store	\$0.35	\$1.40	N/A	\$88.22	\$150.00	N/A	\$9.27	\$18.19	N/A	\$13.71	\$6.76	\$14.48	N/A	\$10.25

Notes: "Credit" includes all credit and debit cards that were run as "Credit." "Debit" includes all debit cards that were run as "Debit."  
\*Gas Station - Pump Gas vs. In-Store Cash Gas\* captures gasoline-only credit sales at the outdoor pump and gasoline-only non-credit sales in store.

**Table I.4**  
**Difference Between Average Credit and Cash Transaction Costs**  
**As Share of Difference Between Average Credit and Cash Transaction Size**

Costs	Fast-Food Restaurant	Full-Service Restaurant - with Tip	Gas Station - Gas Only Purchase	Gas Station - Cashier Purchase	Convenience Store	Grocery Store
Time Period	7/1-7/7	6/26-7/12	6/17-6/24	6/17-6/24	6/30-7/6	6/1-6/23
<b>Average Transaction Size</b>						
Credit	\$9.06	\$70.93	\$37.59	\$30.15	\$8.45	\$18.19
Cash	<u>\$7.81</u>	<u>\$35.18</u>	<u>\$21.17</u>	<u>\$21.16</u>	<u>\$5.15</u>	<u>\$9.27</u>
Difference	<b>\$1.25</b>	<b>\$35.75</b>	<b>\$16.42</b>	<b>\$8.99</b>	<b>\$3.30</b>	<b>\$8.92</b>
<b>Costs per Average Transaction Size</b>						
Credit	\$0.31	\$2.17	\$0.85	\$0.78	\$0.30	\$0.56
Cash	<u>\$0.10</u>	<u>\$0.97</u>	<u>\$0.32</u>	<u>\$0.16</u>	<u>\$0.12</u>	<u>\$0.36</u>
Difference	<b>\$0.21</b>	<b>\$1.20</b>	<b>\$0.53</b>	<b>\$0.62</b>	<b>\$0.18</b>	<b>\$0.20</b>
<b>Difference of Costs Per Average Transaction Size</b>						
<b>As a Share of Difference of Average Transaction Size, Credit vs. Cash Differences</b>	<b>16.59%</b>	<b>3.36%</b>	<b>3.26%</b>	<b>6.89%</b>	<b>5.34%</b>	<b>2.21%</b>

Note: "Gas Station - Gas Only Purchase" captures gasoline-only credit sales at the outdoor pump and gasoline-only cash sales in store. "Gas Station - Cashier Purchase" captures all indoor purchases.

"Difference of Costs per Average Transaction Size As a Share of Difference of Average Transaction Size, Credit vs. Cash Differences" is calculated by dividing "Costs per Average Transaction Size - Difference" by "Average Transaction Size - Difference." Percentages are calculated using unrounded values, so percentages differ slightly from those obtained if rounded values shown in table are used.

There are two reasons why a merchant's sales increase when the merchant accepts payment cards. First, some customers are more likely to shop at stores that accept payment cards. Second, patrons of a store are likely to buy more if they can pay by payment card, particularly a credit card, than if they can only pay with the cash they have on hand.

The fact that consumers prefer to shop at stores that accept payment cards is attributable to a number of factors, including the convenience of payment cards, a desire to pay on credit, reduced concern about whether one will have enough cash on hand or will be taking risks by carrying large amounts of cash to cover potential transactions, a desire to track expenses, protection from some fraudulent transactions, a desire to develop a credit history, the fact that the store's acceptance of payment cards is sometimes used by consumers as a signal of store quality, and a desire to earn rewards associated with credit card use.<sup>4</sup>

The observation that customers who patronize a store are likely to buy more if they pay by payment card (“ticket lift”) is attributable to two factors (both documented in the economics literature): (1) customers are not constrained by the cash in their wallets; and (2) customers feel less financially constrained when buying with a payment card than when paying with cash (both because there are psychological differences to how the transaction is perceived by consumers and because the customers have access to credit).

In sum, available evidence indicates that retailers will typically increase their profits by accepting payment cards. The reason for this is straightforward: the revenue benefits of payment card acceptance are significant, while the cost differential between payment card transactions and cash transactions is typically quite small—and in some cases, the cost of payment cards may be lower than cash.

---

<sup>4</sup> For similar lists, see e.g., <http://money.msn.com/saving-money-tips/post.aspx?post=46f142e4-d9f0-450e-b03e-45353ed60275> and <http://www.cardhub.com/edu/top-reasons-to-use-a-credit-card/>. See also discussion in Section III.C.1 below.