

PROFILING THE USERS OF AUTOMATED TELLER MACHINES

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Abstract

Automated teller machines that are capable of handling most routine banking transactions are now widely available. This innovation in the exchange process has not been adopted as quickly as many had expected, however, and a minority of bank customers currently utilize this service. This paper examines the characteristics of consumers who have used ATM's and presents a profile of this segment.

Introduction

During the 1960's, a significant technological innovation took place in the banking industry. Automated Teller Machines (ATMs) were introduced to the market place enabling consumers to conduct routine banking transactions on a "self-service" basis. For the first time, the customer was able to make deposits and loan payments, withdraw cash, or verify account balances without the assistance of or interaction with a bank employee. Customers were reluctant, however, to adopt this innovation. Even though ATMs greatly expanded the geographic and time availability of banking services, it was many years before the initial resistance to the automated transaction began to fade.

During the late 1970's, ATMs began to have a major impact on the banking industry. While only 4,056 ATMs were being used in the United States during 1975, almost 20,000 were in operation by 1980 (Zimmer 1983). The rate of growth continued to increase and during 1982 approximately 40,000 ATMs handled a total of more than 3 billion financial transactions in the United States (Zimmer 1983). By 1984, approximately 55,000 ATMs were in operation (Akron Beacon Journal 1985).

Some industry analysts originally viewed the introduction of ATMs as a "marketing gimmick" (van der Velde 1983). As the availability and capability of ATMs increased, however, these systems became important factors in the increasingly competitive banking industry (Helming 1982). Furthermore, ATMs have also become a very cost effective method of doing business (Briggs and Cox 1983). A typical transaction that involves a human teller usually costs the bank between \$.50 and \$2.00. The same transaction conducted by an ATM usually costs between \$.15 and \$.50 (Sanger 1983). Consequently, the cost advantages offered by ATM transactions have created much enthusiasm for this system among members of the financial community.

An important reason for the growth and development of this automated form of exchange is the improvement in bank marketing practices. Much has been learned from the multitude of mistakes that characterized the marketing efforts for ATM systems in the 1960's and early 1970's. One of the more interesting mistakes was committed by New York's Citibank. Its "promotion" of the ATM system involved forcing customers with account balances of

less than \$5,000 to use the ATMs rather than human tellers. Customer reaction was so negative that the policy had to be abandoned (Sanger 1983).

Even though some bankers still view ATMs as "a cost effective delivery system (saving money by shortening banking hours) rather than a marketing tool" (Helming 1983), most of the successful firms have adopted the marketing concept as the guiding philosophy in securing acceptance of the ATM system. In fact, many banks have attempted to personalize ATMs by giving them names such as Tillie, George, or Dolly. The software that guides ATM operations has also been improved by upgrading the "user-friendly" style of communications (Barkow 1982).

In general, banks have found that production oriented approaches for marketing ATM systems are much less effective than customer based strategies that encompass the tenets of the marketing concept. In fact, many banks now employ segmentation strategies for their ATM systems (Savings Bank Journal 1983). The purpose of this paper is to examine the market for ATMs and to identify the demographic characteristics of the segment utilizing this innovative form of exchange. This information should enable banks to better understand customer characteristics relating to ATM usage which is a prerequisite for the effective implementation of the marketing concept.

Review of Previous Research

Four previous studies relating to consumer usage of automated banking services were identified through a relatively thorough review of the literature. This section presents a brief summary of these studies.

An innovative check approval/cashing system was introduced by a major banking organization in a South-eastern metropolitan area in 1976. This automated system was implemented in most of the local supermarkets and consumers were required to use it in order to cash checks at the check-out counter. Adcock, Yavas, and Alessandra (1976) interviewed 279 adult food store shoppers to gauge their reactions to the system. The demographics of users and nonusers were also examined. The consumers who utilized the system were younger, better educated, and more affluent. Sex and race did not distinguish between users and nonusers.

A study specifically pertaining to ATMs was conducted by Hood (1979). He supervised the administration of 229 personal interviews in a Southern city where ATMs were available. Hood (1979, p. 71) concluded that "the typical user of the ATM was likely to be young, from middle-income to high-income groups, male, and Caucasian."

A comprehensive study of consumer behavior relating to bank marketing practices was conducted by Ingram and Pugh (1981). Panel data representing the views of 1,112 residents of North and South Carolina were

examined. Approximately 29 percent of the respondents had used an ATM. Users of ATMs were more likely to be 29 years old or younger, have at least a college education, and earn over \$20,000 per year.

Stanley and Moschis (1983) have also studied the characteristics of ATM users. They surveyed 662 households in the top income quartile of a major city located in the Eastern section of the U.S. Rather than analyze actual usage of ATMs, this study focused on predisposition to use the system. Approximately 45 percent of the respondents indicated that they would use an ATM if one was located near their home or place of work. The same proportion indicated that they would not use an ATM, while the remaining 10.9 percent of the respondents had no preference or opinion. The results of the demographic analysis indicated that the ATM-prone respondent tended to be younger and more educated. Surprisingly, income was not related to ATM-proneness.

Thus, the results of these four important studies are not completely in agreement. This is not surprising when one considers the dynamic nature of the market and the potential for regional differences. Furthermore, research methodologies differed across the studies. Additional research is needed before any ultimate conclusions can be developed. The following sections of this paper describe a study which adds to our knowledge of this market.

Methodology

The present study involved an examination of the feasibility of installing an ATM in a hospital in a small Midwestern SMSA. Consequently, the sample was confined to the employees of this hospital. A questionnaire designed to examine current ATM usage patterns and demographic characteristics associated with this form of exchange was developed. The survey instrument was pretested with the hospital's Radiology Department.

The questionnaire was subsequently revised and mailed to each of the hospital's remaining 1,288 employees. An incentive for responding was provided and a response rate of 42 percent was achieved as 542 completed questionnaires were returned.

Results of the Research

In order to use an automated teller machine, some type of access card is required. The possession or nonpossession of this card can therefore be used as an indication of consumer acceptance and intended usage of an ATM. Additional insight can be gained by examining the frequency of card use. In this research, 29 percent of the respondents had an ATM access card and had used it at one of the bank's existing locations for transactions. **Table 1** reports the frequency of use for the ATM card holders. While a wide range of usage was reported, over 38 percent of the card holders used the ATM at least once a week.

TABLE 1
FREQUENCY OF USE OF AN ATM*

| Use | Number | Percent |
|-------------------|--------|-------------|
| Twice a week | 23 | 14.6 |
| Once a week | 37 | 23.6 |
| Once in two weeks | 18 | 11.5 |
| Once a month | 35 | 22.3 |
| Other | 44 | 28.0 |
| Total | 157 | Total 100.0 |

*385 of the 542 respondents (71 percent) indicated that they did not currently have an ATM card and consequently did not use an ATM.

TABLE 2
REASONS FOR INFREQUENT OR NONUSE OF AN ATM*

| Reason | Number* | Percent |
|----------------------------------|---------|-------------|
| No need to use | 174 | 37.3 |
| Not available | 133 | 28.4 |
| Don't know what it does | 36 | 7.7 |
| Like contact with bank personnel | 36 | 7.7 |
| Lack of trust in the machine | 32 | 6.9 |
| Afraid of the machine | 7 | 1.5 |
| Other reasons | 49 | 10.5 |
| Total | 467 | Total 100.0 |

* 75 respondents (13.8 percent) did not answer this question.

TABLE 3
CROSSTABULATION OF CONSUMER PERCEPTION OF
CONVENIENCE OF BANKING HOURS AND
POSSESSION OF AN ATM CARD*

| | | Possession of an ATM Card | |
|---|-----|---------------------------|-------------------------|
| | | No | Yes |
| "Do you consider the financial institution where you do most of your business to have convenient hours for your needs?" | No | f = 118 E(f) = 121.26 | f = 51 E(f) = 47.74 |
| | Yes | f = 263 E(f) = 259.74 | f = 99 E(f) = 102.26 |

*Where: f = frequency of occurrence, E(f) = expected frequency of occurrence under the hypothesis of statistical independence.

TABLE 4
CROSSTABULATION OF SEX AND POSSESSION
OF AN ATM CARD*

| | | Possession of an ATM card | |
|-----|--------|---------------------------|--------------------------|
| | | No | Yes |
| Sex | Female | f = 302 E(f) = 289.33 | f = 102 E(f) = 114.67 |
| | Male | f = 79 E(f) = 91.67 | f = 49 E(f) = 36.33 |

*Where: f = frequency of occurrence, E(f) = expected frequency of occurrence under the hypothesis of statistical independence.

Many respondents, however, had never used an ATM or did so on an infrequent basis. **Table 2** reports the results of a question which measured the frequency distribution for various hypothesized reasons for this lack of ATM usage. As was the case in previous research (e.g., Adcock, Yavas, and Alessandra 1976; Barkow 1982; Ingram and Pugh 1981), the most prevalent reason for lack of use was the perception of "no need." The second most frequently mentioned reason for lack of use was the perception that ATMs were "not available." This was not the case as ATMs were conveniently located throughout this Midwestern community. Many respondents simply did not realize that ATMs were available. These two obstacles to ATM use could be addressed through well designed promotional programs that stress the advantages and availability of ATMs.

The time availability of banking services that is so frequently mentioned in the promotion of ATMs may be a less salient attribute than originally thought, however. While Mochis and Stanley (1983) found that the ATM-prone consumer was very "time sensitive," the present research failed to identify a significant statistical relationship between possession of an ATM card and the perceived convenience of the hours of operation for local banks (see **Table 3**). Thus, in the present study there was no reason to believe that dissatisfaction with traditional "bankers hours" led to the procurement of an ATM card in order to increase the time availability of banking services.

Several demographic variables were also examined over the ATM card holder groups. Chi Square analysis indicated that sex was not independent of card possession. As reported in **Table 4**, men were more likely to have ATM cards. This finding is consistent with Hood's (1979) results. Adcock, Yavas, and Alessandra (1976), on the other hand, reported that females were just as likely as males to use an automated check approval system.

Income was also related to possession of ATM cards. As shown in **Table 5**, higher income respondents were more likely to have ATM cards. This finding is consistent with the studies reported by Adcock, Yavas, and Alessandra (1976), Hood (1979), and Ingram and Pugh (1981). No relationship between income and ATM usage was found, however, in the Stanley and Mochis (1983) study.

If both spouses work outside the home, time constraints might suggest a greater need for the convenience offered by ATM banking facilities. This hypothesis was not supported by the results of this study. As shown in **Table 6**, the level of significance associated with the Chi Square test was .2466.

A T-Test was employed to test whether there was a statistically significant difference in the years of education completed by the ATM card groups. The results of this analysis are shown in **Table 7** and indicate that ATM card holders held significantly higher levels of education. This result is consistent with previous research (Adcock, Yavas, and Alessandra 1976; Ingram and Pugh 1981; Stanley and Moschis 1983).

The number of children living at home was also

compared across the two groups. The presence of children may restrain the household's mobility and limit the time available for bank transactions. The results did not, however, support this hypothesis (see **Table 7**).

A T-Test was also used to compare age across the two ATM card holder groups. No statistically significant differences were found (see **Table 7**). This finding is inconsistent with previous research which reported that younger consumers were more likely users of such facilities (Adcock, Yavas, and Alessandra 1976; Hood 1979; Ingram and Pugh 1981; Stanley and Moschis 1983).

Conclusions

Automated teller machines have recently become important factors in bank marketing. This innovative form of exchange represents a significant potential for competitive advantage to banks that can effectively implement this service into their operations. The major constraint on this implementation is not technological. Customer resistance has long been the more important restraint on the widespread penetration of this service option.

Bank marketers must design programs that offer salient benefits to customers. While each market is unique and dynamic, the description of ATM users presented in this paper may assist bank marketers as they design particular research programs for their respective markets. For example, evidence was presented which suggests that sex, income, and education are often related to use of ATMs. Some of the research studies examined in this paper also suggest that age may be a relevant basis for segmenting this market.

Major productivity improvements are possible for banks that successfully integrate ATMs into their service mixes. These gains are only possible, however, if consumers elect this "self-service" transaction form. Future research should expand our knowledge of consumer behavior relating to the automated transaction by examining the psychographic characteristics of the users of ATMs. In addition, importance-performance analyses and motives-for-use studies are needed in order to better understand this segment so that more effective marketing strategies can be developed and implemented.

TABLE 5
CROSSTABULATION OF INCOME AND POSSESSION
OF AN ATM CARD*

| Income | Chi Square Level of Significance: .0020 | Possession of an ATM Card | |
|-----------------|--|---------------------------|------------------------|
| | | No | Yes |
| \$0 - 9,999 | | f = 80 E(f) = 70.16 | f = 18 E(f) = 27.84 |
| \$10,000-11,499 | | f = 64 E(f) = 58.70 | f = 18 E(f) = 23.30 |
| \$12,500-14,999 | | f = 38 E(f) = 35.08 | f = 11 E(f) = 13.92 |
| \$15,000-17,499 | | f = 27 E(f) = 30.07 | f = 15 E(f) = 11.93 |
| \$17,500-19,999 | | f = 118 E(f) = 117.41 | f = 46 E(f) = 46.59 |
| \$20,000-22,499 | | f = 10 E(f) = 10.74 | f = 5 E(f) = 4.26 |
| \$22,500-25,000 | | f = 7 E(f) = 10.02 | f = 7 E(f) = 3.98 |
| Not Reported | | f = 34 E(f) = 45.82 | f = 30 E(f) = 18.18 |

*Where: f = frequency of occurrence, E(f) = expected frequency of occurrence under the hypothesis of statistical independence.

TABLE 6
CROSSTABULATION OF FAMILY EMPLOYMENT PATTERN
AND POSSESSION OF AN ATM CARD*

| Family Employment Pattern | Chi Square Level of Significance: .2466 | Possession of an ATM Card | |
|---------------------------------|--|---------------------------|------------------------|
| | | No | Yes |
| Both Spouses Work | | f = 202 E(f) = 195.55 | f = 70 E(f) = 76.45 |
| Only One Spouse Works | | f = 174 E(f) = 180.45 | f = 77 E(f) = 70.55 |

*Where: f = frequency of occurrence, E(f) = expected frequency of occurrence under the hypothesis of statistical independence.

TABLE 7
T-TESTS OVER POSSESSION OF ATM CARD GROUPS

| Variable | T-Value | Level of Significance | Mean Values | |
|--------------------------------------|---------|--------------------------|---------------------------|-------|
| | | | Possession of an ATM Card | |
| | | | No | Yes |
| Years of education | 3.13 | .002 | 15.31 | 18.47 |
| Number of children living at home | .42 | .676 | 1.09 | 1.04 |
| Age | .35 | .725 | 37.61 | 38.10 |

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