Are Families Who Use E-Banking Better Financial Managers?

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Using the 2001 Survey of Consumer Finances, the contribution of various electronic banking technologies to financial management practices of U.S. households are explored. Results for a three-level ordered probit model reveal that, controlling for a range of socioeconomic, demographic, experiential and attitudinal characteristics, consumers' use of direct deposit, phone banking and computer banking are associated with "better" financial management. Implications for firms, educators, and policy makers are provided.
Keywords: Electronic banking, financial management

Introduction

The use of electronic banking technologies has been heavily promoted in recent years. From the financial institution's perspective, products and services such as automated teller machines (ATMs), debit cards, and direct deposit make it possible to speed processing and cut costs. Other services and products, such as computer banking and stored-value payroll cards, are viewed as ways to retain existing customers and attract unbanked and underbanked consumers.

Retail stores and other vendors and service providers are using electronic check conversion, in which routing and account numbers from the check are used to implement a one-time electronic funds transfer from the consumer's checking account, to decrease costs related to both fraud and payment processing. Employers use payroll cards to cut payroll distribution costs and reduce costs related to lost or stolen paychecks. Other examples abound -- insurance firms pay claims with stored-value cards instead of checks; federal welfare recipients receive their Food Stamp and TANF benefits via electronic benefits transfers (EBT); states use stored-value cards to deliver child support payments.

From the consumers' perspective, choosing to use these electronic banking (e-banking) and e-money technologies can mean bill-paying that is easier and lower-cost, financial services that are available "24/7," less time spent on financial management tasks, and lower risks associated with carrying cash.[a] Some consumers, however, find themselves using e-banking whether they choose to or not, as more payments and financial transactions are conducted in an "electronic-only" format.

Consumer adoption of e-banking technologies has expanded substantially; over the past eight years (from 1995 to 2003), the use of ATM cards has nearly doubled and the use of debit cards has nearly tripled (Anguelov, Hilgert & Hogarth, 2004). Other e-banking technologies have seen even higher growth rates: the use of smart cards has increased six-fold and the use of computer banking has increased eight-fold.

As reliance on e-banking and e-money products grows in the marketplace, our question is: are families who use various e-banking services better financial managers? That is, in the move to more e-banking and e-money services, are we helping or hurting families? We use data from the 2001 Survey of Consumer Finances to model financial management as a function of using various e-banking products, holding a variety of socioeconomic, demographic, and experiential and attitudinal characteristics constant.

Background

In order to address our question of the relationship between e-banking and financial management, we draw upon two diverse and disparate fields of literature – financial management behaviors and the adoption of innovations, with an emphasis on the adoption of electronic banking.

Financial Management

Financial management is often studied as it relates to a specific financial behavior: budgeting and cash flow management, credit management, saving and investing,

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retirement planning and asset accumulation, and information search related to financial decisions.

Budgeting and Cash-Flow Management. Perhaps the most basic financial practice is to pay bills on time. Data from the Survey of Consumer Finances (SCF) show that in 2001, an estimated 7% of all families in the U.S. reported having at least one payment in the past year that was at least 60 days late. The proportion of families with payments 60 days late was related to income; 13% of those in the bottom fifth of the income distribution reported at least one late payment, while only 1% of those in the top fifth did so (Aizcorbe, Kennickell & Moore, 2003).

In addition to paying bills on time, financial educators typically encourage individuals to make written budgets and to regularly compare actual expenditures to planned expenditures (O'Neill, 2002). There is evidence that many families use informal mental budgets rather than written budgets, use short-term budgets (that is, budgets covering one month or less), and prefer techniques that require little mental energy, such as automatic bill-paying or envelope accounting (Davis & Carr, 1992; Muske & Winter, 1999; 2001).

Credit. The relationship between credit and financial management is a much-studied topic (see, for example, Lyons, 2003; Lyons & Hunt, 2003, Kim & DeVaney, 2001). Non-business (consumer) bankruptcies have risen from 1.2 million in 2000 to 1.6 million in 2003 (ABI World, 2004). In addition, millions of consumers are "on the edge" of bankruptcy, with high debt-payment-to-income ratios. In 2001, according to the SCF, 11% of all families in the U.S. had debt-to-income ratios greater than 40%. A larger proportion of lower-income families had this higher debt-to-income ratio (Aizcorbe et al., 2003). Late payments, mentioned above, and high debt levels can result in derogatory information in consumer credit reports. In the past, such derogatory information led to the denial of credit; in today's financial marketplace, however, such information is more likely to affect the price of credit – consumers with poor credit records receive higher priced loans and credit interest rates.

Saving and Investing. One of the most common financial management principles is to save regularly, generally by setting aside some amount of savings before paying for expenses (O'Neill, 2002). The SCF asks two questions about saving habits: whether households spend less than their income and whether they save regularly, and if so, how. While 39% of respondents in the 1998 SCF said they saved regularly, 23% said they did not save, and 33% said they saved whatever was left at the end of the month (Montalto, 2002).

Other studies have also explored the importance of setting savings goals. Chen and DeVaney (2001) found that in comparison with households that said that they did not or could not save, households that had specific savings motives were more likely to have three to six months of emergency savings funds.

Savings for and level of emergency funds was found to be related to a precautionary motive for savings (see work by Huston & Chang, 1997; Chang, Hanna, & Fan, 1997). Hatcher (2000) posits that emergencies would have to occur very frequently for an emergency fund to be an optimal choice relative to holding funds in less-liquid but higher-return investments.

Other researchers have explored a savings hierarchy relative to motives for saving (see, for example, Xiao & Noring, 1994). Savings practices can be viewed as a series of stages in which an individual begins in the first stage with a "basic" behavior (such as acquiring an emergency fund) and moves through the different stages (saving for specific assets, saving for retirement) until he or she has engaged in many different types of saving behaviors.

Some researchers have differentiated building net worth from accumulating financial assets, especially with respect to low-income households. For example, Carney and Gale (2000) showed that accumulations in net worth differed from accumulations of financial assets, specifically with respect to income, age, education, and marital status. They also posited differences in time orientations (valuing the future relative to the present) and community influences.

Retirement Planning and Asset Accumulation. Many households have very low levels of wealth. Data from the 1998 SCF show that 25% of households in the U.S. had less than $10,000 in net worth. This includes 8% of households with negative net worth (Montalto, 2002). Still other studies suggest that Americans are saving too little for retirement (see Bernheim, 1998 for a review). In one survey, 35% of respondents could not even guess at how much they needed for retirement. Of those that did try to provide a savings estimate, on average the number they posed was 44% below their expected needs as calculated (EBRI, 2001). This last finding is particularly disturbing because it suggests that people may not be motivated to change their financial practices. There is also a substantial body of research and policy initiatives targeted to helping low income families accumulate assets through Individual Development Accounts (IDAs) (Schreiner, Clancy & Sherraden, 2002; Oliver & Shapiro, 1995) and home ownership programs (NRC, 2000).

Information Search Related to Financial Management. A few researchers have looked at how consumers have learned about financial management and the sources of information they use, although there has been little attempt to link these information sources to financial management behaviors. Sources of financial information are typically classified as formal (for example, classes or seminars, or information from employers) or informal (for example, family, media stories, or word of mouth). A study of low-income consumers revealed a preference for learning from friends and peers who are successful money managers (Hogarth & Swanson, 1995). Perry and Ards (2001) add another category, difficult personal experiences, which they refer to as the "school of hard knocks."

Bernheim and Garrett (1996) showed an "information source displacement." Households who obtained financial information from employers were less likely to obtain information from "unreliable" sources (family and friends) but were also less likely to obtain information from "reliable" sources (financial planners), although the offset for unreliable sources was larger.

Toussaint-Comeau and Rhine (2000) discuss the pros and cons of a variety of information delivery strategies, including information seminars, pamphlets and brochures, mass media (newspaper, radio, television), individualized learning (video or DVD), and web-based delivery. They note that delivery strategy, audience, and topic need to be considered holistically when designing financial education initiatives. However, they also show that different sub-groups within the population prefer different delivery methods (Rhine & Toussaint-Comeau, 2002).

Adoption of Innovations and Electronic Banking
Research has suggested that consumers' acceptance and use of e-banking technologies may be related to a number of factors, some associated with the individual consumer and others associated with the product or service. Factors thought to be associated with the consumer include perceptions of specific technologies (such as perceived ease of use; Rogers, 1962; Lockett & Littler, 1997), demographic characteristics (age and income, for example; Kennickell & Kwast, 1997), and personal preferences (for instance, desire for control over when a bill is paid). Factors thought to be associated with a given technology include availability, cost, and time required to learn to use it (Davis, 1989).
More recently, several studies have focused on the adoption of e-banking in particular (Anguelov et al., 2004; Kolodinsky & Hogarth, 2004; Lee & Lee, 2000; Lee, Lee & Eastwood, 2003). These studies reveal that many of the traditional correlates of adoption apply to the adoption of e-banking: users are generally younger, better educated and have higher incomes. However, some of these studies reveal that different types of e-banking technologies at different stages in their development attract different types of users.

Summary
In order to address our question of "are families who use various e-banking services better financial managers?" we first need to define what we mean by "better" financial managers. From the literature, signs of good financial management include paying bills on time, having savings goals and actually saving, managing credit wisely, saving for retirement and other asset accumulation goals, and developing and using a set of information search and comparison shopping skills.

Because other variables besides e-banking products and services have been found to correlate with "better" financial management as well as adoption of e-banking technologies, our study of the impacts of e-banking will need to control for a variety of other socioeconomic, demographic, experiential, expectational, and attitudinal characteristics as well.

Data and Methodology

Our data are drawn from the 2001 Survey of Consumer Finances. The Survey of Consumer Finances (SCF) is a triennial survey of U.S. households sponsored by the Federal Reserve, in cooperation with the Internal Revenue Service, Statistics of Income Division, and conducted by NORC, a national organization for research at the University of Chicago. The survey provides detailed information on U.S. families' balance sheets, their use of financial services, demographics, and labor force participation. Generally, interviews were conducted in person, although interviewers were allowed to conduct telephone interviews if that was more convenient for the respondent. Respondents were encouraged to consult their records as necessary during the interviews.

To gather information that is both representative of the U.S. population and reliable for those assets concentrated in affluent households, the SCF employs a dual-frame sample design consisting of a standard, geographically based random sample and an oversample of affluent households. Weights are used to combine data from the two samples so that the data from the sample families represent the population of all households. A total of 4,449 households (representing 106.5 million households) were interviewed for the 2001 survey. Missing data--missing because of lack of response to individual interview questions, for example--are imputed by making multiple estimates of the missing data, creating five "implicate" data sets. We use all five data sets for the descriptive statistics and apply appropriate weights. For the multivariate

analysis, we randomly chose to use the third implicate data set.

Because this study focuses on use of e-banking technologies, which by implication requires having a bank account, we start by exploring the effect that having a bank account has on financial management behaviors. We then restrict our analysis to those households that reported having an account with a bank, thrift institution, or credit union to explore the effects of e-banking services. For the 2001 survey, this group constituted 90.9% of households.

Measuring Financial Management: The Dependent Variable

Drawing upon the literature cited above, we included measures of spending and saving behaviors, retirement savings, credit management, planning behaviors, and consumer skills related to financial management. We identified 13 variables in the SCF to include in our measure of financial management practices, shown in Table 1. Some practices were very common; 96% of the sample identified having a reason to save. Others were less typical; only 49% reported that they spent less than their income.

Table 1.
Percentage of all U.S. households and Households with Bank Account Engaging in Specified Financial Management Practices

Financial Management Practice	Measurement	All U.S. households	Households with bank account
Account ownership		*%*	*%*
Saving account	Have a savings account	55.2	60.7
Checking account	Have a checking account	80.8	88.9
Spending and saving behaviors			
Spending < income	Report that spending is less than income	45.9	48.8
"Usual" saver	Save what is left at the end of the month, save income of one family member, save "other" income, or save regularly by putting money aside	79.0	82.9
Retirement saving			
Expect retirement income	Have an IRA, thrift savings, 401k/403b, or expect a pension	57.8	62.3
Have retirement savings	Have IRA, thrift savings, 401k/403b	51.1	55.3
Credit behaviors			
No late payments	All loan and mortgage payments made on time	61.6	65.6
Good credit report	Not been turned down for credit in the past 5 years nor afraid to apply for credit because might be turned down	86.9	89.0
No bankruptcy	Never filed for bankruptcy	90.0	90.2
Planning behaviors			
Planning horizon	Planning horizon is a "few years" or more	70.2	72.4
Reason to save	Report at least one reason for saving (e.g. education, home, car, travel, etc.)	95.0	96.1
Consumer skills			
Level of shopping for credit	When making major decisions about credit or borrowing, do a moderate to a great deal of shopping	72.2	73.7
Information when shopping for credit	Use 2 or more information sources when shopping for credit	57.7	59.9
Level of shopping for savings & investments	When making major decisions about saving or investing, do a moderate to a great deal of shopping	65.2	66.8
Information when shopping for saving & investments	Use 2 or more information sources when shopping for savings & investments	47.2	49.4

We created a summative measure of these financial practices presented in Table 2. When summed, the average and median number of practices reported was about nine; every household in the study reported doing at least one of the financial management practices and among households with bank accounts, every household reported doing at least two of the practices. The range of the financial management variable, from 1 to 13, appears to make the variable more precise than perhaps it really is – after all, is a family that uses four financial practices really that much different from a family that uses five? Recognizing the imprecision inherent in scalar variables of this type, we created a three-tiered categorical variable based on the number of financial practices. Households were put in tier 1 ("fair") if they reported 1 to 6 practices; households with 7 to 10 practices were put in tier 2 ("good"); and households with 11 to 13 practices were put in tier 3 ("better").

E-Banking Variables

The e-banking variables in the study, presented in Table 3-A, are based on whether the household reported using an ATM card, a debit card, direct deposit, preauthorized debits, phone banking and computer banking. Direct deposit was the most

widely-used technology in the study, with nearly three-fourths of the sample reporting that they used it. Not surprisingly, computer banking was the least-used technology, with only one household in five reporting that they used it. Our hypothesis is that use of the technologies increases the likelihood of being a better financial manager.

Table 2.
Descriptive Statistics of Households by Number of Financial Management Practices

Number of financial management practices	All U.S. households	Households with bank account
	%	%
One	0.1	0.0
Two	1.1	0.6
Three	2.4	1.4
Four	4.1	2.8
Five	6.1	5.4
Six	7.9	7.0
Seven	9.5	8.8
Eight	11.9	12.0
Nine	12.6	13.3
Ten	13.3	14.4
Eleven	12.2	13.4
Twelve	11.7	12.9
Thirteen	7.2	7.9
	Mean	
	8.8	9.1
	Median	
	9.0	9.0
	Percentage distribution	
	%	%
One through Six	21.6	17.3
Seven through Ten	47.3	48.5
Eleven through Thirteen	31.1	34.2

Socioeconomic, Demographic, Experiential and Attitudinal Variables

In order to control for other characteristics that are likely to be related to being a "better" money manager, we included a range of other measures as shown in Table 3-A and 3-B. Based on the findings of previous studies, we incorporated measures of socioeconomic and demographic characteristics of the household along with measures of their experiences, expectations, and attitudes.

Socioeconomic Characteristics. Income and net worth were included as sets of binary categorical variables, based on quintiles of income or net worth respectively. Labor force status, home ownership, and access to health insurance were also included as socioeconomic characteristics. Our expectation is that households with higher income and net worth, those employed or retired, those who are home owners, and those with access to health insurance are more likely to be better financial managers.

Demographic Characteristics. Age was included as a categorical variable, as was education. Marital status and gender were included in a set of binary variables based on whether the household was headed by a single male or single female or whether it was a married couple household. Race and ethnicity were included as a set of binary variables capturing whether the head of the household was Black, Hispanic, or white and other (with other including Asian, Pacific Islander, and Native American). Household size was incorporated as a set of binary variables for single person households, two-person households, or households with three or more persons. We also included a variable capturing whether there was a child under 18 in the household. We expect that older households and those with more education are more likely to be better financial managers. We expect married households and those with more people to be better financial managers, simply because of a larger pool of human capital. Following the findings of previous studies, we expect whites and others will be more likely to be better financial managers. Since the presence of children under 18 represents both a resource demand and a time constraint for the household, we expect households without children under 18 to be better financial managers.

Experiences, Expectations, and Attitudes. Because previous research has shown that a household's experience and expectations influence their financial management practices, we include measures of the household's past experiences with income increases relative to inflation along with measures of their expectations about future income increases, their economic expectations, and their expectations regarding interest rates. We also include a measure of the household's risk preference, that is, whether they are willing to take no risk, moderate risk, or substantial risk. We expect households that experienced and expect positive income increases to be better financial managers. Households that are willing to take on some risk should be more likely to be better financial managers than those not willing to take risk.

Analysis

First, in order to determine the effect of having a bank account on financial management while controlling for additional characteristics, we used ordered probit, regressing the variables outlined above and having a bank account on the three-tier financial management practice scale. Next, to determine the effects of using various e-banking products and services on financial management while still controlling for additional characteristics, we again used ordered probit on the sub-sample of households with accounts, regressing the variables outlined above and the e-banking technologies used on the three-tier financial management practice scale.

Table 3 – A.
Descriptive Statistics of E-Banking Measures and Socioeconomic Variables

Characteristic	Measurement	Full sample %	Banked %
Have transaction account	1 if have checking, savings, call or money market account, 0 otherwise	91.0	100
E-banking products & services			
ATM card	1 if use ATM card as one of the main ways you do business with bank or if have a card that allows you to deposit or withdraw money from your bank using an ATM, 0 otherwise	54.0	58.1
Debit card	1 if you use a card that you can present when you buy things that automatically deducts the amount of the purchase from the money in your bank account, 0 otherwise	47.0	49.7
Direct deposit	1 if have paychecks or Social Security benefits or other money automatically paid directly into accounts, 0 otherwise	68.2	73.4
Preauthorized debit	1 if have utility bills, mortgage or rent payments, or other payments automatically paid directly from bank accounts without having to write a check; 0 otherwise	40.3	43.8
Phone banking	1 if use automated phone system as one of the main ways to do business with bank; 0 otherwise	20.9	22.8
Computer banking	1 if use computer as one of the main ways to do business with bank; 0 otherwise	18.7	20.5
Socioeconomic characteristics			
Income			
0 - 20 percentile	1 if household income is between $1 and $16,446, 0 otherwise *(reference)*	19.8	15.6
21 - 40 percentile	1 if household income is between $16,447 and $30,837, 0 otherwise	20.3	20.0
41 - 60 percentile	1 if household income is between $30 838 and $51,395, 0 otherwise	20.7	21.9
61 - 80 percentile	1 if household income is between $51,396 and $82,232, 0 otherwise	19.7	22.4
81 - 100 percentile	1 if household is $82,233 or more, 0 otherwise	19.2	21.0
Net worth			
0 - 20 percentile	1 if household net worth is less than $0 to $6,740, 0 otherwise *(reference)*	20.0	15.2
21 - 40 percentile	1 if household net worth is between $6,741 and $49,550, 0 otherwise	20.0	20.1
41 - 60 percentile	1 if household net worth is between $49,551 and $138,000, 0 otherwise	20.0	21.0
61 - 80 percentile	1 if household net worth is between $138,001 and $375,099, 0 otherwise	20.0	21.9
81 - 100 percentile	1 if household net worth is $375,100 or more, 0 otherwise	20.0	21.9
Labor force status			
Working	1 if at least one member of household is a worker, 0 otherwise	71.9	73.5
Retired	1 if household consists of 1 retired, or 1 retired + 1 retired, homemaker, disabled, student, or unemployed, 0 otherwise	18.0	18.5
Unemployed, looking for a job	1 if household consists of unemployed and looking for a job, 0 otherwise	2.6	2.1
Unemployed, not looking for a job	1 if household consists of unemployed and not looking for a job, 0 otherwise (*reference*)	6.8	5.3
Homeowner	1 if household owns home, 0 otherwise	67.7	71.8
Health insurance	1 if household has health insurance coverage, 0 otherwise	86.9	89.2
Have transaction account	1 if household has access to checking, savings, call, or money market account, 0 otherwise	91.0	100.0

The dependent variable was measured using a three-point ordinal scale representing the household's level of financial management practices (fair, good, better). The scale characterized financial management practices as:

Fair if 1 to 6 practices, coded 0
Good if 7 to 10 practices, coded 1
Better if 11 to 13 practices, coded 2

In this type of multivariate analysis, the ordinal nature of the dependent variable is an important consideration. For discrete, ordinal data, such as the scale of financial practices, the linear model does not satisfy the requirements that the error term have a mean of zero and a constant variance. To operationalize the model, an ordinal (or ordered) probit model is used (Zavoina and McKelvey 1975; Winship and Mare 1984). The model specification is

$$y^*_i = \beta' x_i + \varepsilon_i,$$
$$\varepsilon_i \sim N[0,1],$$
$$y_i = 0 \text{ if } y^*_i \le \mu_0,$$
$$1 \text{ if } \mu_0 < y^*_i \le \mu_1,$$
$$2 \text{ if } \mu_1 < y^*_i \le \mu_2,$$
$$j \text{ if } y^*_i > \mu_{j-1}.$$

Table 3 – B.
Descriptive Statistics of Demographic, Experiential and Attitudinal Measures

Characteristic	Measurement	Full sample %	Banked %
Demographic characteristics			
Age			
18-34	1 if household head is age 18-34, 0 otherwise	22.7	21.5
35-49	1 if household head is age 35-49, 0 otherwise *(reference)*	33.7	33.8
50-64	1 if household head is age 50-64, 0 otherwise	22.4	23.0
65 and over	1 if household head is age 65 and over, 0 otherwise	21.1	21.8
Marital status and gender			
Married	1 if head of household is currently married or living with a partner, 0 otherwise (*reference*)	60.3	62.4
Single male	1 if head of household is separated, or divorced, or widowed, or never married and is male, 0 otherwise	13.6	13.3
Single female	1 if head of household is separated, or divorced, or widowed, or never married and is female, 0 otherwise	26.1	24.4
Education level			
Less than high school	1 if household highest level of school completed is < 12, 0 otherwise	18.1	14.8
High school/ GED	1 if household highest level of school completed is = 12 or GED, 0 otherwise (*reference*)	29.6	29.3
Some college	1 if household highest level of school completed is between 12 and 16, 0 otherwise	22.6	23.7
Bachelors or higher	1 if household highest level of school completed is >=16, 0 otherwise	29.6	32.2
Race & ethnicity			
White & "other"	1 if household describes itself as white, Asian, Pacific Islander, or Native American, 0 otherwise (*reference*)	79.0	82.3
Black	1 if household describes itself as black, 0 otherwise	13.0	11.6
Hispanic	1 if household describes itself as Hispanic, 0 otherwise	8.0	6.2
Household size and composition			
one person	1 if number of people in the household=1, 0 otherwise	24.1	24.1
two persons	1 if number of people in the household=2, 0 otherwise (*reference*)	35.8	36.6
three or more	1 if number of people in the household>=3, 0 otherwise	40.1	39.4
Presence of children under age 18	1 if children under the age of 18 are present in the household, 0 otherwise	37.0	35.7
Experiences, expectations, & attitudes			
Past income increases	1 if total income went up more than prices in past 5 years, 0 otherwise	22.8	23.8
Next year's income	1 if expect total income to go up more than prices for next year, 0 otherwise	22.4	22.6
Economic expectations	1 if expect the U.S. economy to perform better over the next 5 years, 0 otherwise	27.9	27.8
Interest rate expectations	1 if expect interest rates will be higher 5 years from now, 0 otherwise	64.1	63.4
Risk tolerance			
No risk	1 if not willing to take any financial risks, 0 otherwise (*reference*)	39.8	36.2
Moderate risk	1 if willing to take average or above average financial risks expecting to earn average or above average returns, 0 otherwise	55.7	59.2
Substantial risk	1 if willing to take substantial financial risks expecting to earn substantial returns, 0 otherwise	4.5	4.7

The observed counterpart to y^*_i is y_i. The variance of ε_i is assumed to be 1.0 since as long as y_i, β and ε_i are unobserved, no scaling of the underlying model can be deduced from the observed data. Since the μs are free parameters, there is no significance to the unit distance between the set of observed values of y. They provide the ranking. Estimates may be obtained by maximum likelihood (Greene, 2000). We use Stata to estimate the model.

The technique of ordinal probit not only provides estimates of the impact of the independent variables on the dependent variable of interest, it also provides additional parameters (Mu_i). The number of the additional parameters is two less than the number of responses coded for the ordinal dependent variable. In our case with a 3-level dependent variable, the model provides one Mu_i. This Mu_i provides information as to the location on the implied interval scale measuring the dependent variable, which is not made explicit when the dependent variable is measured using an ordinal scale. The size of the coefficient on the Mu_i is of less importance than its significance level, as it indicates whether the assumption of a continuous underlying scale is correct.

Table 4
Ordinal Probit Regression on Levels of Financial Management Practices

	All U.S. households		Households with bank account	
Variable	Coefficient	P-value	Coefficient	P-value
Constant	-0.62	N.A.	-0.30	N.A.
Mu	1.92	0.00	1.93	0.00
Have bank account	0.51**	0.00	--	--
E-Banking products & services				
ATM card	--	--	0.07	0.11
Debit card	--	--	-0.04	0.43
Direct deposit	--	--	0.19**	0.00
Preauthorized debit	--	--	0.04	0.32
Phone banking	--	--	0.16**	0.00
Computer banking	--	--	0.22**	0.00
Socioeconomic characteristics				
Income (relative to 0 to 20 percentile)				
21 - 40 percentile	0.09	0.23	0.08	0.27
41 - 60 percentile	0.37**	0.00	0.33**	0.00
61 - 80 percentile	0.54**	0.00	0.49**	0.00
81 - 100 percentile	0.53**	0.00	0.46**	0.00
Net worth (relative to 0 to 20 percentile)				
21 - 40 percentile	0.37**	0.00	0.42**	0.00
41 - 60 percentile	0.80**	0.00	0.85**	0.00
61 - 80 percentile	1.03**	0.00	1.07**	0.00
81 - 100 percentile	1.06**	0.00	1.12**	0.00
Labor force status (relative to working)				
Retired	-0.30**	0.00	-0.33**	0.00
Unemployed, looking for a job	-0.30*	0.02	-0.28	0.06
Unemployed, not looking for a job	-0.57**	0.00	-0.62**	0.00
Home owner	0.04	0.49	0.03	0.63
Health insurance	0.26**	0.00	0.27**	0.00
Have transaction account	0.51**	0.00	N.A.	N.A.
Demographic characteristics				
Age (relative to 35-59 years old)				
18-34	-0.04	0.44	-0.02	0.71
50-64	-0.14**	0.00	-0.12*	0.02
65 and over	-0.64**	0.00	-0.60**	0.00
Marital status & gender (relative to married)				
Single male	-0.19**	0.01	-0.20**	0.01
Single female	-0.01	0.96	-0.01	0.97
Education level (relative to high school/GED)				
Less than high school	-0.16**	0.01	-0.14*	0.05
Some college	0.06	0.29	0.04	0.53
Bachelors or higher	0.23**	0.00	0.17**	0.00
Race & ethnicity (relative to white & "other")				
Black	0.04	0.54	0.03	0.71
Hispanic	-0.10	0.22	-0.05	0.59
Household size (relative to two persons) and composition				
One person	0.01	0.94	0.01	0.94
3 or more	-0.07	0.30	-0.08	0.25
Presence of children < 18	-0.06	0.36	-0.05	0.49
Experiences, expectations & attitudes				
Past income increases > inflation	0.14**	0.00	0.13**	0.00
Expect next year's income > inflation	-0.09*	0.05	-0.12**	0.01
Economic expectations: better over 5 years	0.10*	0.02	0.10**	0.01
Interest rate expectations: higher over 5 years	0.04	0.26	0.02	0.60
Risk tolerance (relative to no risk)				
Moderate risk	0.50**	0.00	0.45**	0.00
Substantial risk	0.37**	0.00	0.29**	0.00
Log likelihood	-3386.64		-3161.29	
Probability	0.00		0.00	
Pseudo R^2	0.26		0.23	

*p< 0.05, ** p< 0.01

Results

Results of the regression analyses are shown in Table 4. The coefficients on the Mu_i's are significant for both the full and restricted samples, confirming that our dependent variable has a continuous underlying scale. Having a bank account contributes to higher levels of financial management practices. Similarly, using direct deposit, phone banking, and computer banking all seem to contribute to higher levels of financial management practices within the household. Households that used ATM cards, debit cards, and preauthorized debits were no more likely to be better financial managers than those who did not use these products. These results lend some support our hypothesis that e-banking contributes to better financial management.

Consistent with other studies, we find that socioeconomic, demographic, experiential and attitudinal characteristics influence the level of financial management in households. As expected, households with higher income, higher net worth, and access to health insurance were more likely to be better financial managers, as were workers. Older households (those 50 and over) were less likely to be better financial managers. The results with respect to marital status and education partially supported our expectations – married households were more likely than single males to be better financial managers; in general, households with higher levels of education were more likely to be better financial managers. Households with good past experiences related to inflation and income, those that expected a better economy over the next few years, and those willing to take some risk were more likely to be better financial managers, as expected.

Marginal Effects in the Models

The ordered probit coefficients cannot be interpreted in the usual manner of regression coefficients; as noted in Greene (2000), "without a fair amount of extra calculation, it is quite unclear how the coefficients in the ordered probit model should be interpreted" (p. 878). The coefficients do not represent the impact of a one-unit change in the independent variable on the ordered dependent variable (that is, moving from 0 to 1 or 1 to 2). Rather, the coefficients relate to an index number, which in turn can be transformed into a probability of being in each of the three levels. By definition, these three probabilities sum to 1.0.

Fortunately, the ordered probit procedure also produces a set of marginal effects for each value of the dependent variable, providing an estimate of the magnitude of the effects that each independent variable has on each level of the independent variable, compared with the other groups. These marginal effects are analogous to the coefficients in ordinary least squares regression; that is, they provide an estimate of the impact of a change in the independent variable on the dependent variable; for example a marginal effect of 0.2 indicates that a change in the variable is associated with a 20 basis point increase in the probability (if the initial probability was 40% -- the new probability would be 60%). For binary variables, the marginal effects are calculated by allowing the variable to take on values of 0 and 1, holding all other variables at the mean. The marginal effects sum to zero, which follows from the requirement that the probabilities across all three categories sum to 1. These marginal values are presented in Table 5 for the full sample and Table 6 for the restricted sample, and give insight into the characteristics that are most important in discerning the level of financial management practices.

Having a Bank Account and Financial Management. Among all households, net worth was the single most important variable associated with being a "good" or "better" financial manager, followed by income and risk tolerance (see Table 5). Households who had a bank account had a probability of being in the "better" manager group that was 15 basis points higher than those that did not. This is not surprising – households with accounts have a place to save and a way to pay bills on time. These results point out the importance of bank accounts not only as financial management tools but also as tools associated with positive financial outcomes.

E-banking and Financial Management. For households with bank accounts, among the e-banking practices, use of computer banking had the largest impact; households that used PC banking had a probability of being in the "better" manager group that was 8 basis points higher compared with those that did not (Table 6). Households that used direct deposit had a probability of being in the "better" manager group that was 7 points higher than others, while households that used phone banking had a probability of being in the "better" group that was 6 points higher. It is important to note, however, that although significant, these marginal effects for e-banking technologies are relatively small.

Impact of Other Variables on Financial Management. By far, the socioeconomic variables have the largest impacts on being a "good" or "better" financial manager. Households that were in the upper net worth quintiles had probabilities of being in the "better" group that were between 33 and 41 basis points higher than for those in the lowest net worth quintile. Similarly, households that were in the upper income quintiles had probabilities of being in the "better"

group that were 13 to 19 points higher than for those in the bottom 20% of the income distribution.

Households with heads 65 and over had a probability of being in the "better" group that was 20 basis points *lower* than middle-aged households (ages 35 to 59) while those aged 50 to 64 had a probability that was 4 points lower than middle-aged households. Households headed by single males had a probability of being in the "better" group that was 7 points lower than that for married couples. Households headed by someone with less than an high school education had a probability of being in the "better" group that was 5 points lower than those with high school educations.

Experiences, expectations, and attitudes were significant when it came to determining financial management practices. Households that experienced income growth faster than inflation had a probability of being in the "better" group that was 5 basis points higher than those who had not experienced such growth. Similarly, those who did not expect next

Table 5.
Estimated Marginal Effects of the Ordered Probit Analysis on Levels of Financial Management Practices

	Level of financial management		
	Fair	Good	Better
Actual distribution	0.22	0.47	0.31
Predicted distribution	0.09	0.62	0.29
Have bank account	-0.11	-0.05	0.15**
Variables			
Socioeconomic characteristics			
Income (relative to 0 to 20 percentile)			
21 - 40 percentile	-0.01	-0.02	0.03
41 - 60 percentile	-0.05	-0.08	0.13**
61 - 80 percentile	-0.07	-0.13	0.20**
81 - 100 percentile	-0.08	-0.11	0.19**
Net worth (relative to 0 to 20 percentile)			
21 - 40 percentile	-0.05	-0.08	0.13**
41 - 60 percentile	-0.08	-0.22	0.30**
61 - 80 percentile	-0.10	-0.29	0.39**
81 - 100 percentile	-0.15	-0.22	0.37**
Labor force status (relative to working)			
Retired	0.05	0.05	-0.10**
Unemployed, looking for a job	0.06	0.04	-0.09*
Unemployed, not looking for a job	0.12	0.04	-0.16**
Home owner	-0.01	-0.01	0.01
Health insurance	-0.05	-0.04	0.08**
Demographic characteristics			
Age (relative to 35-59 years old)			
18-34	0.01	0.01	-0.01
50-64	-0.02	0.02	-0.05**
65 and over	0.13	0.06	-0.19**
Marital status & gender (relative to married)			
Single male	0.03	0.03	-0.06**
Single female	0.00	0.00	-0.01
Education level (relative to high school/GED)			
Less than high school	0.03	0.03	-0.05**
Some college	-0.01	-0.01	0.02
Bachelors or higher	-0.04	-0.04	0.08**
Race & ethnicity (relative to white & "other")			
Black	-0.01	-0.01	0.01
Hispanic	0.02	0.02	-0.03
Household size (relative to two persons) and composition			
One person	-0.01	-0.01	0.00
Three or more persons	0.01	0.01	-0.02
Presence of children < 18	0.01	0.01	-0.02
Experiences, expectations & attitudes			
Past income increases > inflation	-0.02	-0.03	0.05**
Expect next year's income > inflation	0.01	0.02	-0.03*
Economic expectations: better over 5 years	-0.01	-0.02	0.03*
Interest rate expectations: higher over 5 years	-0.01	-0.01	0.01
Risk tolerance (relative to no risk)			
Moderate risk	-0.09	-0.08	0.16**
Substantial risk	-0.05	-0.09	0.13**

* $p < 0.05$ for marginal effects across all categories ** $p < 0.01$ for marginal effects across all categories

Table 6.
Estimated Marginal Effects of the Ordered Probit Analysis on Levels of Financial Management Practices for households with bank account

	Level of financial management		
	Fair	Good	Better
Actual distribution	0.17	0.49	0.34
Predicted distribution	0.07	0.59	0.34
Variables			
E-Banking products & services			
ATM card	-0.01	-0.02	0.03
Debit card	0.00	0.01	-0.01
Direct deposit	-0.02	-0.04	0.07**
Preauthorized debit	-0.01	-0.01	0.01
Phone banking	-0.02	-0.04	0.06**
Computer banking	-0.03	-0.06	0.08**
Socioeconomic characteristics			
Income (relative to 0 to 20 percentile)			
21 - 40 percentile	-0.01	-0.02	0.03
41 - 60 percentile	-0.03	-0.09	0.13**
61 - 80 percentile	-0.05	-0.14	0.19**
81 - 100 percentile	-0.05	-0.12	0.17**
Net worth (relative to 0 to 20 percentile)			
21 - 40 percentile	-0.04	-0.12	0.16**
41 - 60 percentile	-0.07	-0.26	0.33**
61 - 80 percentile	-0.08	-0.33	0.41**
81 - 100 percentile	-0.13	-0.27	0.41**
Labor force status (relative to working)			
Retired	0.05	0.07	-0.12*
Unemployed, looking for a job	0.04	0.05	-0.09
Unemployed, not looking for a job	0.11	0.08	-0.19*
Home owner	-0.01	-0.01	0.01
Health insurance	-0.04	-0.05	0.09**
Demographic characteristics			
Age (relative to 35-59 years old)			
18-34	0.00	0.01	-0.01
50-64	0.02	0.03	-0.04*
65 and over	0.10	0.10	-0.20**
Marital status & gender (relative to married)			
Single male	0.03	0.04	-0.07**
Single female	0.00	0.00	-0.01
Education level (relative to high school/GED)			
Less than high school	0.02	0.03	-0.05*
Some college	-0.01	-0.01	0.01
Bachelors or higher	-0.02	-0.04	0.06**
Race & ethnicity (relative to white & "other")			
Black	-0.01	-0.01	0.01
Hispanic	0.01	0.01	-0.02
Household size (relative to two persons) and composition			
One person	-0.01	-0.01	0.00
Three or more persons	0.01	0.02	-0.03
Presence of children < 18	0.01	0.01	-0.02
Experiences, expectations & attitudes			
Past income increases > inflation	-0.02	-0.03	0.05**
Expect next year's income > inflation	0.02	0.03	-0.05**
Economic expectations: better over 5 years	-0.01	-0.03	0.04**
Interest rate expectations: higher over 5 years	-0.01	-0.01	0.01
Risk tolerance (relative to no risk)			
Moderate risk	-0.06	-0.10	0.16**
Substantial risk	-0.03	-0.08	0.11**

* $p < 0.05$ for marginal effects across all categories
** $p < 0.01$ for marginal effects across all categories

year's income to keep pace with inflation were 5 points *less* likely to be in the "better" group. Households that expected the general economy to be better had a probability of being in the "better" group that was 4 points higher than those without such expectations. Households that were willing to take moderate or substantial risk had a probability of being in the "better" group that was 16 or 11points higher, respectively, than households that were not willing to take risk.

Helping the "Fair" Become "Good" and the "Good" Become "Better"

Our analysis is predicated on the number of different financial management practices that a household uses, but not all financial management practices may be equal in importance to the financial welfare of the household. To look at the potential for e-banking to contribute not only to financial management but also financial welfare, we re-visited the individual financial practices based on the level of financial management of the household. Results are presented in Tables 7 and 8.

Substantially lower proportions of households in the "fair" category reported spending less than their income, expecting retirement income, having retirement savings, paying bills on time, shopping for credit or investments, and using several information sources. Several of these practices (spending less than income, having retirement savings, expecting retirement income) are related to having a well-paying job with a good benefits package, and e-banking technologies alone may not be able to do very much to help improve financial welfare for households with a marginal attachment to the labor force. However, access to PCs and the Internet in conjunction with computer banking may help those households who lack or tend not to use fundamental consumer skills, that is, those who tend not to shop for credit and savings products and who might benefit from access to additional information.

To further inform our discussion, we also calculated two key financial ratios for households: the ratio of loan payments to monthly income (a measure of debt burden) and the ratio of liquid assets to monthly income (a measure of access to emergency funds; in essence this is the number of months the household could live off its savings). Interestingly, we note that "good" and "better" households have higher debt burden ratios, possibly due to mortgages not held by "fair" managing families. Not surprisingly, "good" and "better" households had higher levels of emergency funds, although at the median this was only 6 months for the "better" managers.

The largest differences between the "good" and "better" managers were in the areas of spending less than income, retirement savings, and information search when shopping for credit. E-banking programs that include an automatic savings plan may help some of these households move from good to better. And, as with the "fair" group, use of the Internet to shop for credit may be able to help some of these families improve the rates and terms they face in their loans and credit cards, thus improving cash flow and enabling a better match between income and outgo.

Discussion and Conclusions

Given the growth in e-banking technologies in the marketplace, and the growth among private and public sector entities relying on e-banking and e-money to deliver payments and benefits, it is logical to ask whether these technologies are helping or hindering families with their financial management tasks. Using a series of 13 financial management practices within the 2001 Survey of Consumer Finances as a benchmark for gauging "fair," "good," or "better" financial management, this study explored the extent to which use of various e-banking technologies contributes to better financial management. We find that having a bank account is associated with higher probabilities of households being classified among the "better" financial managers. Among those with bank accounts, use of direct deposit, phone banking, and computer banking is associated with higher probabilities of households being classified among the "better" financial managers, although the effects are small relative to other socioeconomic, demographic, and attitudinal measures.

We recognize that there are limitations with our study. Due in part to data constraints, our measure of financial management covers only a few recommended practices, not all. Also, we limited ourselves to whether or not households engaged in the practice, and did not include the "to what extent" measures. Thus, households could be saving for retirement, but not saving at recommended levels. In a similar vein, we only know whether households use various e-banking technologies, but we do not know how they use them. For example, using phone banking to check account balances could lead to different results than using phone banking to pay bills, transfer funds, and monitor cash flow. Also, this study focused on use of individual e-banking technologies; future research could explore the combinations of e-banking technologies that may lead to better financial management. Furthermore, we opted to analyze only one implicate of the five available in the SCF; in the future an analysis that included all five may provide additional insights as to how robust these results are.

Table 7.
Financial Management Practices by Level of Financial Management for all households

Practices	All U.S. Households	Level of financial management		
		Fair	Good	Better
Spending and saving behaviors				
Spending < income	45.9	15.5	40.0	75.9
"Usual" saver	79.0	44.0	81.5	99.6
Retirement saving				
Expect retirement income	57.8	8.9	54.8	96.5
Have retirement savings	51.1	5.4	44.9	92.6
Credit behaviors				
No late payments	61.6	28.7	59.6	87.7
Good credit report	86.9	72.1	86.1	98.4
No bankruptcy	90.0	83.1	88.6	96.8
Planning behaviors				
Planning horizon	70.2	42.1	68.8	91.8
Reason to save	95.0	80.8	98.4	99.9
Consumer skills				
Level of shopping for credit	72.2	35.3	74.5	94.3
Information when shopping for credit	57.7	23.6	55.2	85.2
Level of shopping for savings and investments	65.2	28.9	66.6	88.4
Information when shopping for saving and investments	47.2	11.4	43.9	77.1
Ratio of loan payments to monthly income				
Mean	0.17	0.13	0.18	0.18
Median	0.10	0.00	0.10	0.14
Ratio of liquid assets to monthly income				
Mean	20.72	15.17	20.20	25.35
Median	2.70	0.36	2.59	6.65

Table 8 Financial Management Practices by Level of Financial Management (banked households)

Practices	Households with bank account	Level of Financial Management		
		Fair	Good	Better
Spending and saving behaviors				
Spending < income	48.8	17.9	40.7	75.9
"Usual" saver	82.9	51.1	82.5	99.6
Retirement saving				
Expect retirement income	62.3	10.2	56.9	96.5
Have retirement savings	55.3	5.8	46.8	92.6
Credit behaviors				
No late payments	65.6	35.5	60.8	87.7
Good credit report	89.0	76.5	86.9	98.4
No bankruptcy	90.2	81.4	88.6	96.8
Planning behaviors				
Planning horizon	72.4	40.9	69.9	91.8
Reason to save	96.1	82.6	98.3	99.9
Consumer skills				
Level of shopping for credit	73.7	33.1	73.5	94.3
Information when shopping for credit	59.9	23.8	54.9	85.2
Level of shopping for savings and investments	66.8	27.2	65.7	88.4
Information when shopping for saving and investments	49.4	11.3	43.4	53.4
Ratio of loan payments to monthly income				
Mean	0.17	0.16	0.17	0.18
Median	0.11	0.01	0.11	0.14
Ratio of liquid assets to monthly income				
Mean	22.63	20.45	21.48	25.35
Median	3.41	0.84	2.96	6.62

Another limitation is the implied causality in our research question – is it the case the e-banking results in improved financial management or, rather, do "better" financial managers make more use of e-banking? Our results indicate an association between e-banking and financial management practices, but the direction of causality is unclear. Nonetheless, the present study does provide some insights into the relationships between e-banking technologies and financial management.

E-Banking Technologies and Financial Management

Neither the use of ATM nor debit cards were significantly associated with being better financial managers. This is somewhat telling, given that many financial institutions as well as federal and state welfare programs are moving to all-electronic account formats for some households. The theory is that ATMs and debit cards may facilitate "just in time" money management; that is, households that use ATMs and debit cards may be better able to manage their cash flow and spending and may be less likely to over-draw their accounts – reducing fees and other charges, as well as derogatory notes on their credit reports. Initially we posed the question of whether the move to e-banking was helping families – for ATMs and debit cards, the implication is that these products may not be hurting families, but neither do they appear to be helping.

Both direct deposit and preauthorized debits can be thought of as "passive" e-banking technologies – once a consumer signs up for direct deposit or sets up a preauthorized debit to pay for car or mortgage payments, he or she does not need to do anything more until a change is desired (for example, a change in the payment date). Both of these e-banking technologies can help consumers manage cash flow and pay bills on time. Although these technologies are often targeted to older consumers, who may have problems remembering due dates or getting to their banks, they are also useful for time-constrained households who want "one less thing to worry about." Interestingly, however, preauthorized debits were not significantly associated with being a better financial manager.

Phone banking represents an "active" technology that has undergone an evolution, from calling the bank and talking in-person to a customer service representative to calling an automated account management system. Unlike PC banking, however, phone banking requires no equipment or services other than a phone line, and is something that is widely available to U.S. households. Some phone banking systems use voice recognition in addition to touch-tone technologies, so that access is further enhanced. It would be interesting to know just how consumers are using this technology – are they using it to check balances, so as to not overdraw their accounts, or are they using it to actively manage funds, pay bills, and make transfers among accounts?

Computer banking, the fastest growing e-banking technology, calls for perhaps the most consumer involvement, as it requires the consumer to maintain and regularly interact with additional technology (a computer and an Internet connection). Computer banking could mean different things to different consumers. For example, consumers can access their bank account through an Internet link to their bank or they can use the Internet to conduct other personal financial business, such as monitoring investment accounts, reviewing credit card statements and paying credit card bills through an electronic funds transfer, and shopping for credit, investment, and insurance products. Computer banking is clearly the most sophisticated technology among those in the study and holds the potential for doing the most to help families manage their finances. For example, computer programs can link together to help monitor cash flow, check and adjust investments, and even fill out income tax forms.

If Not Better Financial Management, Then What?

If e-banking only contributes marginally to "better" financial management, then what else does it have to recommend it? For some consumers, e-banking may be an additional tool that may complement other financial management skills they already have. For example, consumers who always balance their checkbook may be able to do so more efficiently with e-banking technologies.

Similarly, consumers who usually pay their bills on time may be able to do so more conveniently, in less time, and at a lower cost with e-banking technologies than previously. In one survey of computer banking users, 79% indicated that convenience was "very important" and 71% said that saving time was "very important;" in another survey, consumers indicated that twenty-four-hour availability was the most important factor in their use of computer banking (Fox, 2002; Lockett & Littler, 1997). For some consumers, e-banking technologies may actually save them money; for example, many banks offer free bill-paying with their computer banking services, saving consumers the costs of checks and stamps.

Future E-Banking Trends

Interestingly, debit cards were not significant determinants of being better financial managers. Some financial planners and counselors recommend that consumers use debit cards rather then credit cards to avoid becoming overextended – in essence, debit cards require consumers to operate on a cash rather than credit basis. It is important to note that debit cards

were just starting to become widely popular in 2001; indeed, data from the 1995 through the 2001 SCF show that penetration rates grew from 20% in 1995 to 37% in 1998 to just under 50% in 2001 (Anguelov et al., 2004). It may be that future surveys, such as the upcoming 2004 SCF, will shed additional light on the role of debit cards in financial management.

In the 2004 financial marketplace, stored-value cards (cards loaded with funds from the consumer [such as prepaid cards], employers, insurance claims, child support, and welfare benefits, among others) are one of the fastest-growing financial products; and within the stored-value market, payroll cards are among the fastest growing applications of e-banking technology. Often these are marketed as "debit cards" and carry a MasterCard or Visa interbank logo. Many of these stored-value cards can be used much the same as cards tied to a consumer's bank account – at ATMs, merchants displaying the MasterCard or Visa logo, on the Internet -- although it is important to note that stored-value "debit" cards do not carry the consumer protections that true debit cards linked to a consumer's bank account have. Vendors that issue these stored-value cards claim that they offer financial management benefits – for example, consumers do not have to cash-out their entire paycheck and carry cash. Again, future surveys including data on these stored-value products may be able to tell whether these e-money technologies contribute to better financial management.

E-banking has also been mentioned as a way to encourage some of the 9 million households without bank accounts to join the financial mainstream (Stegman, 1999). All-electronic accounts that can be accessed with a debit card can be cost effective for both financial institutions and households new to the banking system who may be concerned about overdraft fees. And in fact, data from the 2001 SCF show that 19% of unbanked households reported using a debit card**.** Since these households are unbanked, these debit cards were not linked to a consumer bank account and most likely were some type of stored-value card marketed as a debit card. Payroll cards were not widely available in 2001, and the proportion of welfare recipients in the SCF who might be using an EBT card is small, so in all likelihood most of these respondents chose to use these stored-value products. Thus, there is at least some indication of the willingness of the unbanked market segment to use e-banking and e-money technologies.

Implications

These results have some implications for the banking industry, consumer educators, and policy makers, and provide focus and direction for policy and outreach efforts. Financial institutions may want to do more to promote their phone banking, direct deposit, and PC banking. Although direct deposit is already widely used, phone banking services seem to be under-utilized and hold the potential for helping consumers become better financial managers. These services also have some of the same convenience and ease-of-use features that are appealing to computer banking users, and may serve as a substitute for households without computer access.

Community-based educators need to continue to help people become familiar and comfortable with using e-banking technologies as financial management tools. Households ranked as "fair" in our study scored low on the measures of consumer skills; consumer educators need to continue to raise awareness of the Internet as both a source of information and a way to comparison shop for products and services.

Policy makers who have promoted the electronic delivery of federal and state benefits should be somewhat encouraged by the finding that e-banking technologies are somewhat helpful when it comes to financial management, but also somewhat cautious in that ATM and debit card use were not significantly associated with better financial management. Although electronic technologies are widely available -- in a nationwide survey conducted by the U.S. Department of Commerce, 66% of individuals in 2001 reported having access to a computer at some location (home, school, office, community center, library, or elsewhere) and 54% reported having Internet access -- policy makers need to continue their work to make these technologies available to broad segments of the American public. And as more e-banking and e-money services become more wide-spread, policy makers will want to revisit the consumer protections in place for these services.

Conclusion

We began this paper by raising the questions of whether families who use various e-banking services are better financial managers and whether, in the move to more e-banking and e-money services, we are helping or hurting families. The answers seem to be that families who use e-banking services are more likely to be "better" financial managers, but that while the impacts of e-banking on money management are statistically significant and positive, they are small. It may be in some families that e-banking leads to better management while in others good management leads to the adoption of e-banking. It would be interesting to see if one could discern the differences. Perhaps the real benefits of e-banking technologies may be in the convenience they bring to households, rather than in improvements in financial management *per se*. And as e-banking technologies continue to evolve and expand, there is the potential for them to contribute to improved financial management among families.

Endnote

[a.] We use the term e-banking to refer to electronic technologies connected with a consumer's bank account at a bank, thrift, or credit union; we use the term e-money to refer to electronic fund transfers not connected with a consumer's bank account, such as prepaid cards and gift cards.

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