Household Financial Management: The Connection between Knowledge and Behavior

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Across the decade of the 1990s to the present, the issue of financial education has risen on the agendas of educators, community groups, businesses, government agencies, and policymakers.[1] This increased interest in financial education has been prompted by the increasing complexity of financial products and the increasing responsibility on the part of individuals for their own financial security. Well-informed, financially educated consumers are better able to make good decisions for their families and thus are in a position to increase their economic security and well-being. Financially secure families are better able to contribute to vital, thriving communities and thereby further foster community economic development. Thus, financial education is important not only to individual households and families but to their communities as well.

Knowledgeable consumers who make informed choices are essential to an effective and efficient marketplace. In classical economics, informed consumers provide the checks and balances that keep unscrupulous sellers out of the market. For instance, consumers who know the full range of mortgage interest rates and terms in the marketplace, who understand how their credit-risk profile and personal situation fit with those rates and terms, and, consequently, who can determine which mortgage is best for them make it difficult for unfair or deceptive lenders to gain a foothold in the marketplace.

Amid growing concerns about consumers' financial literacy, the number and types of financial education programs have grown dramatically since the mid-1990s.[2] Many of these programs focus on providing information to consumers and operate under the implicit assumption that increases in information and knowledge will lead to changes in financial-management practices and behaviors. Whether that is the case is the province of behavioral economics, which offers its blend of psychological and economic insights into household financial management. Behavioral economics acknowledges the role that psychological characteristics (such as procrastination, regret, risk aversion, compulsiveness, generosity, altruism, and peer pressure) play in household economic decisions. Thus, behavioral economics offers a framework for studying behaviors that seem inconsistent or irrational—for example, consumers who hold money in a savings account earning interest at 2 percent while carrying balances on credit cards and paying 18 percent interest.[3]

This article explores the connection between knowledge and behavior—what consumers know and what they do—focusing on four financial-management activities: cash-flow management, credit management, saving, and investment. Data are from

NOTE. Chris Anguelov, of the Board's Division of Consumer and Community Affairs, assisted with additional analysis of the Survey of Consumer Finances data. Jane Schuchardt and Sommer Clarke, of the U.S. Department of Agriculture, and Manisha Sharma, of the Board's Division of Consumer and Community Affairs, contributed to the development of the survey design and questionnaire.

1. See Sandra Braunstein and Carolyn Welch, "Financial Literacy: An Overview of Practice, Research, and Policy," *Federal Reserve Bulletin*, vol 87 (November 2002), pp 445–57.

2. Several researchers and organizations have developed catalogs of programs. For examples, see Lois A. Vitt, Carol Anderson, Jamie Kent, Deanna M. Lyter, Jurg K. Siegenthaler, and Jeremy Ward, *Personal Finance and the Rush to Competence: Financial Literacy Education in the U.S.* (Fannie Mae Foundation, 2000) (www.fanniemaefoundation.org/programs/pdf/rep_finliteracy.pdf); Katy Jacob, Sharyl Hudson, and Malcolm Bush, *Tools For Survival: An Analysis of Financial Literacy Programs for Lower-Income Families* (Chicago, Ill.: Woodstock Institute, 2000); Jump$tart Coalition, Jump$tart Personal Finance Clearinghouse (www.jumpstart.org/mdb/jssearch.cfm); National Endowment for Financial Education, "Economic Independence Clearinghouse" (2001) (www.nefe.org/amexeconfund/index.html); Neighborhood Reinvestment Corporation NeighborWorks®, "Annotated Reference Guide for the NeighborWorks® Campaign for Home Ownership 2002" (August 2001) (www.nw.org/network/pubsAndMedia/publications/catalog/pubs/annoRefGuide.pdf).

3. Sendhil Mullainathan and Richard H. Thaler, "Behavioral Economics," National Bureau of Economic Research Working Paper no. w7948 (National Bureau of Economic Research, October 2000) (www.nber.org/papers/w7948); Amos Tversky and Daniel Kahneman, "Rational Choice and the Framing of Decisions," *Journal of Business*, vol. 59 (October 1986), pp. S251–278; Amos Tversky and Daniel Kahneman, "Loss Aversion in Riskless Choice: A Reference-Dependent Model," *Quarterly Journal of Economics*, vol. 106 (November 1991), pp. 1039–61; Thomas Gilovich, Dale Griffin, and Daniel Kahneman, eds., *Heuristics and Biases: The Psychology of Intuitive Judgement* (Cambridge: Cambridge University Press, 2002).

the University of Michigan's monthly Surveys of Consumers conducted in November and December 2001 (see Appendix A: Survey Data). Also, data from the Survey of Consumer Finances (SCF) are used for purposes of comparison.[4]

HOUSEHOLD FINANCIAL-MANAGEMENT PRACTICES

Households in the Surveys of Consumers reported on eighteen financial-management behaviors, ranging from very basic money management skills (tracking expenses, paying bills on time) to more sophisticated ones (diversifying investments). They also provided information on their use of thirteen financial products. These ranged from savings and checking accounts to credit cards, mortgages, home equity loans, and investments. To look at the different types of financial practices, measures of financial-management behaviors and financial product ownership were combined.[5] Practices were categorized as cash-flow management, credit management, saving, investment, and other. Table 1 lists the behaviors or products used to analyze each type of practice.

A fairly large percentage of individuals reported what are considered "good" cash-flow management practices: 89 percent of households had a checking account, 88 percent paid all their bills on time, and 75 percent reconciled their checkbook every month. However, fewer than half reported using a spending plan or budget. For the credit management practices, although nearly four-fifths of respondents had a credit card, only one-third compared offers before applying for a card. As to saving practices, the data show that while 80 percent and 63 percent had a savings account and an emergency fund, respectively, only 39 percent were saving for long-term goals, such as for education, a car, or a home. There was also a wide range in the investment practices reported by households. For example, although three-fifths (63 percent) reported having retirement accounts—pensions, 401(k), or IRA plans—and half (52 percent) had investment accounts, less than half (46 percent) said that they had mutual funds, about one-fourth reported holding individual stocks, and about one-fifth said that they put money in other retirement accounts.[6] Of all the behaviors, reading about money management was the least frequently reported (20 percent).

1. Financial behavior and product variables used to analyze cash-flow management, credit management, saving, and investment practices

Financial behavior or product	Percentage of respondents reporting (n = 1,004)
Cash-flow management	
Have checking account	89
Pay all bills on time	88
Have financial recordkeeping system or track expenses	79
Reconcile checkbook every month	75
Use a spending plan or budget	46
Credit management	
Have credit card	79
Pay credit card balances in full each month	61
Review credit reports	58
Compare offers before applying for a credit card	35
Saving	
Have savings account	80
Have emergency fund	63
Save or invest money out of each paycheck[1]	49
Save for long-term goals such as education, car, or home	39
Have certificates of deposit	30
Investment	
Have money spread over different types of investments	74
Have any retirement plan/account[1]	63
Have any investment account	52
Have mutual funds	46
Have 401(k) plan or company pension plan[2]	45
Have IRA/Keogh	43
Calculated net worth in past two years	40
Participate in employer's 401(k) retirement plan[1]	37
Have public stock	24
Put money into other retirement plans such as an IRA[3]	22
Have bonds	6
Other financial experience	
Own home	75
Bought a house	72
Do own taxes each year	40
Often or always plan and set goals for financial future	36
Refinanced mortgage or loan for home improvements	35
Read about money management	20

1. Not able to control for employment status because these data are not available in the data set.
2. Could be either defined contribution or defined benefit plan.
3. Only for respondents younger than 65.
SOURCE. Surveys of Consumers, November and December 2001.

Financial Practices Indexes

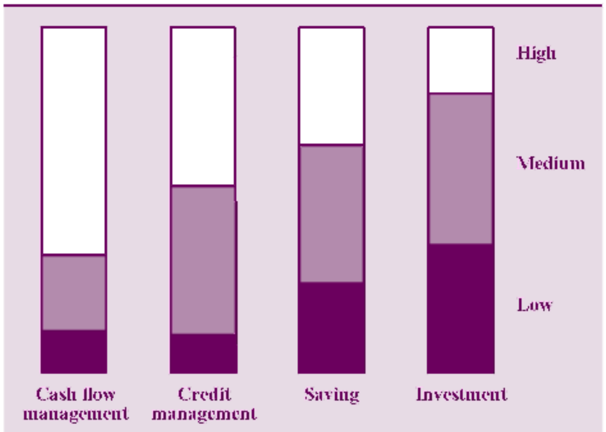
To characterize the extent of a household's participation in each type of financial-management activity, an

4. The SCFs are triennial surveys sponsored by the Federal Reserve and provide detailed information on the financial characteristics of U.S. households, particularly families' assets and liabilities. For details on the SCF, see Ana M. Aizcorbe, Arthur B. Kennickell, and Kevin B. Moore, "Recent Changes in U.S. Family Finances: Evidence from the 2001 Survey of Consumer Finances," *Federal Reserve Bulletin*, vol. 89 (January 2003), pp. 1–32. The definitions of *household* in the SCF and in the Surveys of Consumers are consistent enough to allow for comparisons. In this article, we use the terms *family* and *household* interchangeably.

5. The decision to own a financial product can itself be considered a financial behavior.

6. To determine the proportion of respondents contributing to retirement accounts, we included only individuals less than 65 years old because we assume that individuals 65 or older no longer contribute to a retirement account. Although we would also like to have made this calculation conditional on employment status, this variable was not available in the data set.

1. Distribution of levels of index scores, by type of financial practice



NOTE. If households reported fewer than 25 percent of the practices, they were classified as "low"; households reporting between 25 percent and 70 percent of the practices were classified as "medium"; and those reporting more than 70 percent of the practices were classified as "high."

SOURCE. Surveys of Consumers, November and December 2001.

index was constructed in which levels of cash-flow management, credit management, saving, and investment practices were classified as "high," "medium," or "low." If households reported fewer than 25 percent of the practices, they were classified as "low"; households reporting between 25 percent and 70 percent of the practices were classified as "medium"; and those reporting more than 70 percent of the practices, were classified as "high."[7] (For detailed information on how the indexes were constructed, see Appendix B: Indexes of Financial Practices.)

Chart 1 shows the proportion of respondents scoring in the high, medium or low groups for each index. The cash-flow management index had the largest percentage of respondants in the high group (66 percent), followed by the credit management index (45 percent), the saving index (33 percent), and the investment index (19 percent). These initial findings suggest that financial behaviors may be hierarchical, that is, that one may precede another. For example, individuals who are cash-constrained may engage in cash-flow management practices and obtain credit but may not save and invest.

Household Financial Knowledge

Lack of knowledge about principles of financial management and financial matters could explain why some families do not follow recommended financial practices. In fact, surveys of youth and adults in the United States reveal low scores for economic, financial, and consumer literacy.[8] Results from the Jump$tart Coalition's biennial financial literacy tests of high school seniors show that students correctly answered 58 percent, 52 percent, and 50 percent of the questions in 1997, 2000, and 2002 respectively.[9] Adults taking the same test scored somewhat better but missed some basic insurance and credit questions. Other studies find that low-income consumers, those with less education, and African Americans and Hispanics tend to have below-average financial literacy scores.[10] Some have argued that some of the survey questions may be ambiguous or irrelevant, and it has been suggested that respondents' knowledge may be greater than the scores indicate.

Research also finds a correlation between financial knowledge and behavior, although the direction of the causality is unclear. Those who score higher on financial literacy tests are more likely to follow recommended financial practices.[11] Compared with those who have less financial knowledge, those with more financial knowledge are also more likely to engage in recommended financial behaviors—such as paying all bills on time, reconciling the checkbook every month, and having an emergency fund. This correlation does not necessarily mean, however, that an increase in knowledge improves behavior. Instead, the causality may be reversed in that people may gain knowledge as they save and accumulate wealth, or there may be a third variable, for example, family experiences and economic socialization, that affects both knowledge and behavior. Although most studies

7. Households that did not pay their bills on time were classified as low for cash-flow management regardless of any other practices they reported for that category.

8. For a sampling of surveys, see Consumer Federation of America, "U.S. Consumer Knowledge: The Results of a Nationwide Test" (Washington, D.C.: Consumer Federation of America, 1990); CFA, "High School Student Consumer Knowledge: A Nationwide Test," (Washington, D.C.: Consumer Federation of America, 1991); CFA, "College Student Consumer Knowledge: The Results of a Nationwide Test" (Washington, D.C.: Consumer Federation of America, 1993); and CFA, "American Consumers Get Mixed Grades on Consumer Literacy Quiz" (Washington, D.C.: Consumer Federation of America, 1998).

9. Jump$tart Coalition for Personal Financial Literacy, "From Bad to Worse: Financial Literacy Drops Further among 12th Graders," press release, April 23, 2002.

10. Lawrence J. Kotlikoff and B. Douglas Bernheim, "Household Financial Planning and Financial Literacy," in *Essays on Saving, Bequests, Altruism, and Life-cycle Planning* (Cambridge, Mass.: MIT Press, 2001).

11. Jeanne M. Hogarth and Marianne A. Hilgert, "Financial Knowledge, Experience and Learning Preferences: Preliminary Results from a New Survey on Financial Literacy," *Consumer Interests Annual*, vol. 48 (2002) (www.consumerinterests.org/public/articles/FinancialLiteracy-02.pdf).

2. Average financial knowledge score, by financial practice index and index level

Percent

Financial practice index and index level	Overall score[1]	Financial knowledge score, by subsection[1]				
		Credit management	Saving	Investment	Mortgages	Other
Cash-flow management index						
Low	55	51	63	53	63	50
Medium	66	62	76	62	81	57
High	69	63	80	66	84	59
Credit management index						
Low	52	47	58	48	66	48
Medium	66	61	77	61	80	57
High	71	66	83	69	86	60
Saving index						
Low	56	56	67	54	74	54
Medium	63	62	77	61	81	57
High	72	66	86	73	86	61
Investment index						
Low	59	57	66	50	74	53
Medium	70	63	81	67	83	60
High	77	68	90	80	90	62
Memo: Average financial knowledge score, all households	67	62	77	63	81	57

NOTE. For definitions of index levels, see note to chart 1.

1. Score on quiz administered as part of the November and December Surveys of Consumers (see box, "What's Your Financial IQ?").

do not analyze causality, one study suggests that increases in knowledge do indeed increase retirement saving.[12] In addition to knowledge and experience, public policies that increase incomes, tax incentives for "good" financial management (for example, saving for retirement), positive childhood experiences, social norms, and attitudes toward spending all may play a role in households' financial-management behaviors.

While most studies have looked at financial knowledge at the aggregate level, this article explores the linkage between specific financial behaviors and knowledge about specific financial topics. The measure of knowledge reported here is based on a quiz containing twenty-eight true–false questions that was part of the Surveys of Consumers (see box, "What's Your Financial IQ," and table 2). The quiz covered cash-flow management, general credit management, saving, investment, mortgages, and a broad category of other financial-management topics. Overall, households correctly answered two-thirds (67 percent) of the questions. Consumers were most knowledgeable about mortgages (scoring about 80 percent) and least knowledgeable about the "other" topics (scoring 57 percent). Most of these scores are in line with similar financial knowledge quizzes.

CASH-FLOW MANAGEMENT

Survey Results

Perhaps the most basic financial practice is to pay bills on time, and 88 percent of households reported following this practice. Consistent with the notion of a behavioral hierarchy, however, those with low scores on the credit management, saving, and investment indexes were less likely to report paying bills on time (table 3) than those with medium or high scores on those indexes.

Data from the 2001 SCF provide some additional insight with respect to the timely payment of bills. In the SCF, an estimated 93 percent of all households in the United States reported having no payments in the past year that were late sixty days or more. The proportion of households in the SCF that did not have payments sixty days late was related to income: 87 percent of those in the bottom fifth of the income distribution reported no late payments compared with 99 percent of those in the top fifth.

Besides encouraging consumers to pay bills on time, financial educators typically encourage them to make written budgets and to regularly compare actual expenditures with planned expenditures.[13] There is

12. See Kotlikoff and Bernheim, "Household Financial Planning and Financial Literacy."

13. Barbara O'Neill, "Twelve Key Components of Financial Wellness," *Journal of Family and Consumer Sciences*, vol. 94, no. 4 (2002), pp. 53–58.

What's Your Financial IQ?
Quiz administered as part of the Surveys of Consumers

Question	Correct answer	Percentage of respondents answering correctly
Credit		
Creditors are required to tell you the APR that you will pay when you get a loan.	True	92
If you expect to carry a balance on your credit card, the APR is the most important thing to look at when comparing credit card offers.	True	84
Your credit report includes employment data, your payment history, any inquiries made by creditors, and any public record information.	True	81
The finance charge on your credit card statement is what you pay to use credit.	True	69
Using extra money in a bank savings account to pay off high interest rate credit card debt is a good idea.	True	68
Your credit rating is not affected by how much you charge on your credit cards.	False	60
If your credit card is stolen and someone uses it before you report it missing, you are only responsible for $50, no matter how much they charge on it.	True	50
If you have any negative information on your credit report, a credit repair agency can help you remove that information.	False	30
If you are behind on debt payments and go to a credit counseling service, they can get the federal government to apply your income tax refund to pay off your debts.	False	22
Saving		
You should have an emergency fund that covers two to six months of your expenses.	True	94
If you have a savings account at a bank, you may have to pay taxes on the interest you earn.	True	86
If you buy certificates of deposit, savings bonds, or Treasury bills, you can earn higher returns than on a savings account, with little or no added risk.	True	74
With compound interest, you earn interest on your interest, as well as on your principal.	True	72
Whole life insurance has a savings feature while term life insurance does not.	True	60
Investment		
The earlier you start saving for retirement, the more money you will have because the effects of compounding interest increase over time.	True	92
A stock mutual fund combines the money of many investors to buy a variety of stocks.	True	75
Employers are responsible for providing the majority of funds that you will need for retirement.	False	72
Over the long term, stocks have the highest rate of return on money invested.	True	56
Mutual funds pay a guaranteed rate of return.	False	52
All investment products bought at your bank are covered by FDIC insurance.	False	33
Mortgages		
When you use your home as collateral for a loan, there is no chance of losing your home.	False	91
You could save thousands of dollars in interest costs by choosing a 15-year rather than a 30-year mortgage.	True	84
If the interest rate on an adjustable-rate mortgage loan goes up, your monthly mortgage payments will also go up.	True	77
Repeatedly refinancing your home mortgage over a short period of time results in added fees and points that further increase your debt.	True	72
Other		
Making payments late on your bills can make it more difficult to take out a loan.	True	94
Your bank will usually call to warn you if you write a check that would overdraw your account.	False	62
The cash value of a life insurance policy is the amount available if you surrender your life insurance policy while you're still alive.	True	56
After signing a contract to buy a new car, you have three days to change your mind.	False	18

3. Percentage of households reporting various financial practices, by financial practice index and index level

Financial practice	Cash-flow management index			Credit management index			Saving index			Investment index		
	Low	Medium	High	Low	Medium	High	Low	Medium	High	Low	Medium	High
Cash-flow management												
Have checking account	59	82	97	50	92	96	72	93	97	74	96	100
Pay all bills on time	0	100	100	61	88	95	72	91	98	78	92	98
Have financial recordkeeping system or track expenses	46	43	97	45	80	86	59	80	93	68	81	94
Reconcile checkbook every month	31	25	88	30	71	73	50	72	75	57	71	78
Use a spending plan or budget	29	9	62	30	41	55	37	45	55	46	46	47
Credit management												
Have credit card	48	74	86	0	83	95	58	82	92	58	88	98
Pay credit card balances in full each month	13	43	57	0	34	74	20	49	71	22	56	82
Review credit reports	44	54	61	0	39	91	44	58	68	48	62	67
Compare offers before applying for a credit card	20	33	39	0	14	64	28	36	39	29	39	38
Saving												
Have savings account	63	76	84	51	79	88	42	91	97	63	90	88
Have emergency fund	25	52	74	23	59	78	8	71	97	35	74	93
Save or invest money out of each paycheck [1]	16	42	57	24	44	60	17	46	77	27	58	69
Save for long-term goals [2]	13	27	47	16	31	51	4	23	84	25	40	63
Have certificates of deposit	16	29	33	18	27	36	2	22	62	10	35	58
Investment												
Have money spread over different types of investments	21	47	61	14	49	67	17	53	83	5	74	99
Have any investment account	22	48	59	12	46	69	22	52	77	5	71	99
Have mutual funds	24	42	51	18	38	61	18	45	69	5	59	96
Have 401(k) plan or company pension plan [3]	30	42	48	27	38	56	28	44	59	24	57	57
Have IRA/Keogh	24	42	47	22	37	54	19	41	63	5	52	93
Calculated net worth in past two years	14	34	46	9	34	53	17	36	61	14	42	85
Participate in employer's 401(k) retirement plan [1]	18	34	42	15	32	48	19	36	53	17	47	54
Have public stock	15	25	25	10	21	30	13	21	36	0	26	64
Put money into other retirement plans such as an IRA [4]	8	17	26	4	16	32	4	18	41	1	21	66
Have bonds	3	6	6	2	5	7	2	7	7	0	4	21
Other financial experience												
Own home	53	73	79	53	77	78	60	75	86	59	82	89
Bought a house	45	68	79	33	75	80	55	75	82	54	78	94
Do own taxes each year	32	38	43	25	40	44	33	45	41	37	41	44
Often or always plan and set goals for financial future	26	24	42	18	32	45	23	30	54	30	34	52
Refinanced mortgage or loan for home improvements	16	33	39	7	35	41	22	37	42	18	39	56
Read about money management	12	16	23	4	17	26	9	17	32	8	19	44
MEMO:												
Number of households	119	224	661	114	436	454	264	404	336	370	445	189
Percentage of households [5]	12	22	66	11	43	45	26	40	33	37	44	19

NOTE. The table reads: "Of all households with a low score on the cash-flow management index, 59 percent have a checking account." For definitions of index levels, see note to chart 1.

1. Not able to control for employment status because these data are not available in the data set.

2. Such as for education, for a car, or for a home.

3. Could be either defined contribution or defined benefit plan.

4. Only for respondents younger than 65.

5. Components may not sum to 100 because of rounding.

SOURCE. Surveys of Consumers, November and December 2001.

evidence that many families instead use informal mental budgets rather than written budgets; use short-term budgets (that is, budgets covering one month or less); and prefer simpler techniques (for example, automatic bill-paying or envelope accounting).[14] There is also evidence that families—at all income levels—have trouble resisting spending temptations.[15] But existing research has used small samples,

14. Elizabeth P. Davis and Ruth Ann Carr, "Budgeting Practices over the Life Cycle," *Journal of Consumer Education*, vol. 10 (1992), pp. 27–31; Glenn Muske and Mary Winter, "An In-Depth Look at Family Cash-Flow Management Practices," *Journal of Family and Economic Issues*, vol. 22 (Winter 2001), pp. 353–72; Glenn Muske and Mary Winter, "Cash Flow Management: A Framework of Daily Family Activities," *Financial Counseling and Planning*, vol. 10, no. 1 (1999), pp. 1–12.

15. Sondra G. Beverly, Jennifer L. Romich, and Jennifer Tescher, "Linking Tax Refunds and Low-Cost Bank Accounts: A Social Development Strategy for Low-Income Families?" *Social Development Issues* (forthcoming); Arthur B. Kennickell, Martha Starr-McCluer, and Annika E. Sundén, "Saving and Financial Planning: Some

and more research on budgeting and cash-flow management is needed.

Data from the Surveys of Consumers reveal that, overall, fewer than one-half (46 percent) of all households used a spending plan or budget. Results for the cash-flow management index show that fewer than one-third of the households that scored low on the index reported using a spending plan or budget, although as shown in table 3, proportions were larger for households with low scores on other indexes, especially saving and investment.

A low-cost checking or savings account is recommended as a budgeting and financial-management tool for several reasons. It reduces the cost of routine financial transactions, helps individuals develop positive credit histories, and may facilitate asset accumulation by providing a secure and somewhat "out-of-reach" place for storing money.[16] Despite the advantages of owning a bank account, however, data from the SCF indicate that about 9 percent of all U.S. families were "unbanked" in 2001. The percentages were much higher for low-income, younger, nonwhite, and Hispanic families. The overall percentage of unbanked families has remained fairly stable in recent years after a marked increase in account ownership between 1992 and 1995.[17]

According to the Surveys of Consumers, 89 percent of all U.S. households have a checking account. About three-fifths of households scoring low on the cash-flow management index had a checking account, compared with higher proportions for those with medium or high scores. Again, households with low credit management, saving, and investment index scores were also less likely to have checking accounts than households with medium and high scores for those indexes.

Knowledge and Cash-Flow Management Behaviors

Households classified as low on the cash-flow management index had lower average financial knowledge scores than households classified as medium or high. Those in the low group had an average overall knowledge score of 55 percent, compared with 66 percent and 69 percent for those in the medium and high groups respectively (see table 2). The low-index group also had lower scores on the credit management, saving, investment, mortgage, and "other" subsections of the quiz. In general, those classified as high on the cash-flow management index had higher financial knowledge scores than those classified as low and medium, both overall and for each of the subsections.

CREDIT MANAGEMENT

Survey Results

Three common indicators of credit management are a household's debt-payment-to-income ratio, the timeliness of credit card payments, and payment in full of credit card balances. In 2001, according to the SCF, 11 percent of all families in the United States had debt-payment-to-income ratios greater than 40 percent. The percentage was even higher for lower-income families.[18] In the SCF, 7 percent of all families had a payment 60 days past due.[19] Among the 76 percent of households in the SCF with credit cards, 45 percent reported not carrying over a balance on their credit card accounts.

Of the households in the Surveys of Consumers that reported having a credit card, three out of five reported paying their credit card balances in full each month. More than half (58 percent) reviewed their credit reports, and one-third compared offers before applying for a credit card. The relatively low numbers for evaluating credit card offers may be associated with individual characteristics. For example, consumers who use their credit cards as a convenient payment mechanism may not need to compare the

Findings From a Focus Group," *Financial Counseling and Planning*, vol. 8, no. 1 (1997), pp 1–8; Amanda Moore, Sondra G. Beverly, Mark Schreiner, Michael Sherraden, Margaret Lombe, Esther Y.N. Cho, Lissa Johnson, and Rebecca M. Vonderlack, *Saving, IDA Programs, and Effects of IDAs: A Survey of Participants* (Washington University in St. Louis, Center for Social Development, 2001).

16. Joseph J. Doyle, Jose A. Lopez, and Marc R. Saidenberg, "How Effective Is Lifeline Banking in Assisting the 'Unbanked'?" *Current Issues in Economics and Finance*, vol. 4 (June 1998), pp. 1–6; John P. Caskey, *Beyond Cash-and-Carry: Financial Savings, Financial Services, and Low-Income Households in Two Communities* (report written for the Consumer Federation of America and the Ford Foundation, Swarthmore, Pa.: Swarthmore College, 1997); Sondra G. Beverly, Amanda Moore, and Mark Schreiner, "A Framework of Asset-Accumulation Stages and Strategies," *Journal of Family and Economic Issues*, vol. 24 (Summer 2003), pp. 143–56.

17. Jeanne M. Hogarth, Chris E. Anguelov, and Jinkook Lee, "Who Has a Bank Account? Changes Over Time in Account Ownership," *Consumer Interests Annual*, vol. 47 (2001) (www.consumerinterests.org/public/articles/Hogarth,_Anguelov,_Lee.pdf).

18. Aizcorbe et al., "Recent Changes in U.S. Family Finances."

19. Another study found that 3 percent of credit card accounts held by college students showed at least one payment that was late 90 days or more, compared with 2 percent of other nonstudent young adults and 1 percent of nonstudent older adults. See Michael E. Staten and John M. Barron, "College Student Credit Card Usage," Working Paper no. 65 (Georgetown University: Credit Research Center, June 2002) (www.msb.georgetown.edu/prog/crc/pdf/WP65.pdf).

annual percentage rate because they pay off their balances in full each month, but they may want to compare other fees, terms, and features.

Credit Knowledge and Credit Management Behaviors

Households with low credit management indexes had lower overall financial knowledge scores as well as lower scores related to credit management knowledge than households in the medium or high groups (table 2). Households with low, medium, and high credit management indexes had credit knowledge scores of 47 percent, 61 percent, and 66 percent respectively. To examine the relationship between knowledge and behavior while holding other variables constant, logistic regression analysis was performed. The results were used to predict a household's propensity to score in the low, medium, or high groups on the credit management index, given a specific credit management knowledge score.[20] In this analysis, the correlation between credit management knowledge and credit management behavior was statistically significant. For example, a household with a credit management knowledge score of 70 had a 48 percent chance of being classified in the high credit management index group. But if the same household had received a credit management knowledge score of 90 instead of 70, its chances of being in the high credit management index group increased to 54 percent.

SAVING

Survey Results

One of the most widely recognized financial-management principles is to save regularly, generally by setting aside some amount for savings before paying for expenses. Although four-fifths of the households in the Surveys of Consumers reported having a savings account, overall, fewer than half of households said that they saved regularly out of each paycheck. The proportion of households that were regular savers varied by how they scored on the saving index and ranged from about one out of six in the low group to three out of four in the high group. To compare the consistency of these estimates with those of the SCF, the Surveys of Consumers also included a question regarding "saving habits" that was identical to the one asked in the SCF. Compared with the SCF results, a slightly higher proportion of respondents in the Surveys of Consumers said that they saved regularly, and a lower proportion said that they did not save (table 4). The differences in the results are not surprising given that the Surveys of Consumers are phone surveys, whereas the SCF has a personal-interview format.[21]

4. Percentage of respondents reporting saving practices in the 2001 Survey of Consumer Finances and November and December 2001 Surveys of Consumers

Saving practice	Survey of Consumer Finances	Surveys of Consumers
Save regularly by putting money aside each month	41	50
Have no regular savings plan; save what is left over	32	25
Spend work income, but save other income	8	8
Do not save because all income is spent	21	11
No answer	...	5
Total	**102[1]**	**100**

1 Components sum to more than 100 because of multiple responses.

Another saving practice that financial planners recommend is having an emergency fund to cushion against economic shocks, ranging from paying for car or appliance repairs to covering expenses during a period of unemployment. Numerous studies show that more than half of U.S. households do not have adequate emergency funds, which are typically defined as liquid assets to cover two to six months of living expenses.[22] In the Surveys of Consumers, however, about three-fifths of households responded that they had an emergency fund, although the actual number of months of living expenses that would be covered by the fund was not specified.

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20. Regression analysis was performed for all four financial practices. Details can be found in Jeanne M. Hogarth, Sondra G. Beverly, and Marianne A. Hilgert, "Patterns of Financial Behaviors: Implications for Community Educators and Policy Makers" (paper presented at the Third Community Affairs Research Conference of the Federal Reserve System, March 2003) (www.federalreserve.gov/communityaffairs/national/CA_Conf_SusCommDev/pdf/hogarthjeanne.pdf).

21. Personal interviews, which are conducted face-to-face, may elicit a slightly different response than a phone survey.

22. See Yi Regina Chang, Sherman Hanna, and Jessie X. Fan, "Emergency Fund Levels: Is Household Behavior Rational?" *Financial Counseling and Planning*, vol. 8, no. 1 (1997), pp. 47–55. See also Edward N. Wolff, "Recent Trends in Wealth Ownership 1983–1998," Working paper no. 300 (New York: Jerome Levy Economics Institute, April 2000) (www.levy.org/docs/wrkpap/papers/300.html); Robert Haverman and Edward Wolff, "Who Are the Asset-Poor? Levels, Trends, and Composition, 1983–1998" (paper prepared for "Inclusion in Asset Building: Research and Policy Symposium," Washington University in St. Louis, Center for Social Development, 2000).

Knowledge of Saving and Saving Behaviors

Households with low scores on the saving index had lower overall financial knowledge scores and lower scores on the saving subsection of the quiz (table 2). Those with low index scores had an average saving knowledge score of 67 percent, compared with 77 percent for those in the medium group and 86 percent for those in the high group. This correlation between knowledge of saving and saving behaviors was statistically significant: A household with a saving score of 70 out of 100 had a 27 percent chance of being in the high saving index group. In contrast, the same household with a saving score of 90 had a 31 percent chance of being in the high saving index group.

INVESTMENT

Survey Results

After households have established an emergency fund, many personal finance texts and financial planners recommend that the next step be investing for short- to mid-term goals (such as a vacation) as well as for longer-term goals (homes, children's college education, and retirement). More than half (52 percent) of the households in the Surveys of Consumers reported having an investment account; 46 percent had mutual funds, 24 percent had stock, and 6 percent had bonds. Furthermore, 75 percent owned their own home. Nearly three-fourths of the respondents said that they diversified their portfolios by having money spread over different types of investments.

Financial assets held in investments are one way for people to accumulate their down payments for cars and homes, as well as to build college and retirement funds. Some studies have shown that for lower-income households, financial assets account for a larger proportion of net worth than for middle- and upper-income households; that is, lower-income families hold most of their assets in financial instruments rather than in homes, cars, businesses, or other real property.[23] According to the 2001 SCF, 75 percent of U.S. households in the lowest 20 percent of the income distribution held at least some financial assets, and 68 percent held some nonfinancial asset (car, home, business, or other property). In comparison, 99 percent of U.S. households in the upper 20 percent of the income distribution had financial assets, and 99 percent had nonfinancial assets.

There are numerous policy initiatives targeted at ways of assisting low-income families in accumulating assets through homeownership programs and individual development accounts (IDAs). IDAs are meant to improve saving and asset accumulation by the poor by providing matching funds for savings toward home ownership, higher education, and microenterprise.[24]

Other studies suggest that Americans are saving too little for retirement.[25] In one survey, 35 percent of respondents did not even guess at how much they needed for retirement. The estimate for those who did respond was, on average, 44 percent below their expected needs.[26] More than half (52 percent) of the households in the Surveys of Consumers reported having an investment account and three-fifths (63 percent) reported having any type of retirement fund—pension, 401(k), IRA, Keogh, or other type of retirement account. Fewer than half of all respondents reported having a 401(k) or company pension plan, IRA, or Keogh; nearly two-fifths (37 percent) indicated that they participated in an employer's 401(k) plan, and about one-fifth (22 percent) reported putting money into another type of retirement account (table 3). Of those scoring low on the investment index, one out of four had a pension or 401(k), and one out of six participated in an employer's 401(k) plan.

Knowledge of Investment and Investment Behaviors

Households in the low investment index group had lower overall financial knowledge scores and lower

23. Stacie Carney and William G. Gale, "Asset Accumulation among Low-income Households" (paper prepared for Ford Foundation conference, "Benefits and Mechanisms for Spreading Asset Ownership in the United States," December 10–12, 1998, New York, New York), February 2000 (www.brook.edu/views/papers/gale/19991130.pdf).

24. Mark Schreiner, Margaret Clancy, and Michael Sherraden, *Saving Performance in the American Dream Demonstration* (Washington University in St. Louis: Center for Social Development, 2002); Melvin L. Oliver and Thomas M. Shapiro, *Black Wealth/White Wealth: A New Perspective on Racial Inequality* (New York: Routledge, 1995).

25. See B. Douglas Bernheim, "Financial Illiteracy, Education, and Retirement Saving," in O.S. Mitchell and S.J. Schieber, eds., *Living with Defined Contribution Plans* (University of Pennsylvania, Wharton School, Pension Research Council, 1998) pp. 38–68, for a review of other studies on retirement saving.

26. Mark Dolliver, "Just Blame It on Ignorance, If Not on Improvidence," *Adweek*, vol. 42 (March 2001), p. 45; Employee Benefit Research Institute, "The 2001 Retirement Confidence Survey: Summary of Findings" (www.ebri.org/rcs/2001/01rcses.pdf).

investment knowledge scores (50 percent) than those who were classified as medium or high on the investment index (67 percent and 80 percent respectively, table 2). These differences were statistically significant. A household scoring 70 on the investment knowledge subsection of the quiz had a 9 percent chance of being in the high index group. The same household with a score of 90 on the investment subsection of the quiz had a 13 percent chance of being in the high group.

SOURCES OF FINANCIAL KNOWLEDGE

Ways Households Gain Knowledge about Personal Finances

If knowledge is linked to behavior, then it is important to know where households obtain their financial knowledge. Households in the Surveys of Consumers reported learning from a variety of sources, but experience, friends and family, and the media were among the top sources for all households (table 5). For each practice—cash-flow management, credit management, saving, and investment—households with low index scores were less likely to report learning from any of these sources. For example, 46 percent of those with low index scores for cash-flow management reported learning from personal experience, compared with 63 percent of those with medium index scores and 73 percent of those with high index scores.

The largest variation among the index scores within each behavior related to personal experience—respondents with high scores were more likely to report learning from personal experience. This large variation may reflect, in part, the motivation of those with high index scores to seek out information and apply it to personal circumstances. For example, one could argue that there is a difference between reading about money management and actually engaging in financial behaviors that provide more concrete learning experiences.

In this study, the correlation between sources of financial knowledge and financial practices was found to be significant. Generally, households that reported learning a lot from personal experience and from friends and family were more likely to have higher index scores. For example, within the cash-flow management index, households that reported learning from these sources had a 71 percent chance of scoring high, while those that did *not* report learn-

5. Learning experiences and preferences, by financial practice index and index level

Percent

Learning experience or preference	Cash-flow management index			Credit management index			Saving index			Investment index		
	Low	Medium	High	Low	Medium	High	Low	Medium	High	Low	Medium	High
Learned "a lot" or a "fair amount" about financial topics from:[1]												
Personal financial experience	46	63	73	38	67	76	50	69	81	52	73	86
Friends and family	33	40	44	31	42	45	32	45	46	36	46	44
Media[2]	26	36	38	24	33	42	27	37	41	29	39	42
High school or college course	22	13	20	14	14	24	14	19	23	15	19	25
Course outside school	13	14	18	11	13	22	11	15	23	11	18	25
Employer	14	21	22	17	19	23	16	22	23	17	24	19
Internet	8	10	13	4	9	16	5	11	18	6	13	19
Most important way learned about personal finances:												
Personal financial experience	38	42	53	34	51	49	47	51	47	49	47	51
Friends and family	18	25	20	25	21	20	21	22	20	22	22	17
Media[2]	8	13	11	8	11	12	10	10	13	8	11	16
High school or college course	8	6	5	6	6	5	7	5	5	6	4	6
Course outside school	3	5	5	2	3	6	2	4	6	2	6	5
Employer	3	6	5	3	5	5	3	5	6	4	6	3
Internet	1	1	2	4	2	2	1	2	2	1	2	2
Nothing	2	2	0	. . .	1	0	2	0	0	2	0	. . .
No response	18	. . .	0	18	0	. . .	7	1	1	4	2	. . .
Effective ways to learn to manage money:[1]												
Media[2]	65	69	73	54	73	74	65	73	75	65	74	78
Video presentation	64	66	63	58	62	67	62	66	63	62	65	66
Informational brochures	62	63	68	56	67	68	61	68	69	65	67	69
Internet	48	53	58	41	48	66	44	57	62	47	58	64
Informational seminars	46	47	55	44	52	55	48	53	55	47	54	59
Formal courses at a school	56	51	54	45	53	55	52	55	52	54	53	52

NOTE. For definitions of index levels, see note to chart 1.

. . . Not applicable.

1. Components sum to more than 100 because of multiple responses.

2. Television, radio, magazines, and newspapers.

SOURCE. Surveys of Consumers, November and December 2001.

ing a lot from personal experience, friends, and family had a 63 percent chance of scoring high.

Using the media and the Internet to learn about financial-management topics was important for credit practices. Households that reported learning a lot from the media and the Internet had a 50 percent chance of being in the high index group for credit management practices while households that did not report learning a lot from these sources had a 42 percent chance of being in the high group. High school or college courses were also found to be a statistically significant way to learn about financial topics for those scoring high on the credit management index.

The Surveys of Consumers also asked consumers what was the *most* important way that they had learned about personal finances. Not surprisingly, personal experience was reported as the most important way for each of the financial practices indexes. However, it is worth noting the variation from low to high index scores within each category. While the difference in the percentage of households that said that personal experience was the most important way to learn was narrow for saving and investment practices (ranging only from 47 percent to 51 percent), there was a larger difference for cash-flow management and credit management practices (ranging from 34 percent to 53 percent). Perhaps consumers are able to learn more through personal experience for some types of behaviors than for others. For example, households can learn to avoid bad cash-flow and credit-management practices because the cost of these can often be felt immediately. Changes in saving and investment practices, on the other hand, have payoffs that are noticed only in the long run, and so relying primarily on personal experience may be less useful.

Preferred Sources of Financial Knowledge

The Surveys of Consumers included six questions regarding how individuals prefer to learn about financial management. Specifically, respondents were asked, "Given your time and the way you like to learn, which of the following ways would be effective for you to learn about managing your money?"

Overall, households preferred to learn about money management through media sources (television, radio, magazines, and newspapers), informational videos, and brochures (table 5). Households that scored high on the financial practices indexes were more likely than those scoring in the low or medium group to prefer the Internet as an information source. In general, these sources have "just in time" availability for people who want to learn on their own—those households that want to access education and information resources when they are preparing to make a decision and at times and places that are convenient for their lifestyle. Media sources, brochures, and Internet materials on new products and services may be all that are necessary for these households. The high ratings for videos may reflect the preference of visual learners to "see" applications of financial-management tools (how to balance a checkbook, how to set up different recordkeeping systems, or where to look for information on credit card offers). Videos may also be a practical mechanism for time-constrained individuals who can view the videos in their home. Formal methods, such as learning through courses at a school or informational seminars, were not as popular, particularly among those who scored lower, although some may benefit from group-learning situations. Many households also appreciate the convenience of learning through employer-based programs.[27]

Others also have found that low-income consumers prefer to learn through media sources, primarily radio and television, although there are some variations from this pattern of learning preferences.[28] Some studies show that low-income families have a strong preference for learning from peers—from "someone who has been through this."[29] Also, anecdotal evidence indicates that some ethnic audiences prefer to learn from trusted key community leaders.[30]

Effectiveness of Learning Strategies

It is important to ask how effective various learning strategies are likely to be. For example, media sources were cited by respondents in the Surveys of

27. E. Thomas Garman, "Consumer Educators, Now Is the Time for a Paradigm Shift Toward Employee Financial Education," *Consumer Interests Annual*, vol. 44 (1998), pp. 48–53.

28. Sherrie L.W. Rhine and Maude Toussaint-Commeau, "Consumer Preferences in the Delivery of Financial Information: A Summary," *Consumer Interests Annual*, vol. 48 (2002) (www.consumerinterests.org/public/articles/FinancialInformation-02.pdf).

29. Jeanne M. Hogarth, Josephine A. Swanson, and Jane Segelken, "Using Contemporary Adult Education Principles in Financial Education with Low Income Audiences," *Family Economics & Resource Management Biennial*, vol. 1 (1995), pp. 139–46; Jeanne M. Hogarth and Josephine A. Swanson, "Voices of Experience: Limited Resource Families and Financial Management" (paper presented at the Family Economics & Management Conference, American Home Economics Association Meetings, June 1993).

30. Andrew I. Schoenholtz and Kristin Stanton, "Reaching the Immigrant Market: Creating Homeownership Opportunities for New Americans" (Washington, D.C.: Fannie Mae Foundation, 2001).

Consumers as effective ways to learn about managing money. From the educator's viewpoint, media outlets could be important ways of creating awareness about financial education opportunities. Public service announcements could serve to stimulate thinking and provide motivation, in addition to helping people connect with financial education resources. Community educators could work with local newspapers to prepare financial education columns to supplement those available at the national level. (See box, "The Federal Reserve System's Financial Education Initiative.")

In recent studies on mortgage lending and credit management, households that had been through a one-on-one counseling session were less likely to be delinquent with mortgage payments and had higher credit scores and better credit-management practices than those that had been exposed to other education strategies.[31] An evaluation of the Money 2000 program also revealed the benefits of repeat contacts with participants and access to a money management "coach."[32] Unlike a professional counselor working in a one-on-one setting, a coach could be a peer volunteer or key community leader who serves as a mentor to a small group of individuals and families.

Timing the delivery of financial education may also be important. Not only is it necessary to educate consumers about financial-management topics through methods that fit their learning preferences, but it is also necessary to present the material at a "teachable moment."[33] Consumers who are provided information when it is immediately relevant and applicable, such as first-time homebuyers receiving prepurchase counseling, may have a greater chance of recognizing the value of the information and of making a behavioral change. However, consumers may not always recognize these teachable moments, and some may not be aware that information on topics relevant to their needs is available. Thus, one of the greatest challenges for policymakers, consumer educators, and practitioners in providing financial education is motivating individuals to pursue it.

The Federal Reserve System's Financial Education Initiative

In spring 2003, the Federal Reserve System launched a financial education initiative designed to stimulate U.S. households to learn more about financial management. In a public service announcement, Chairman Greenspan stated, "No matter who you are, making informed decisions about what to do with your money will help build a more stable financial future for you and your family."

The public service announcement refers consumers to the Federal Reserve's personal financial education web site (www.FederalReserveEducation.org), which has links to additional resources, including "There's a Lot to Learn About Money." This guide features tips on setting financial goals, budgeting, and using credit wisely. It is available in English and Spanish. Consumers can obtain copies online or through a toll-free number (800-411-4535). Another consumer resource, "Building Wealth: A Beginner's Guide to Securing Your Financial Future," is available in both English and Spanish at www.dallasfed.org/htm/ca/pubs.html.

The Federal Reserve System also has created an online repository for financial education research on the web site of the Chicago Federal Reserve's Consumer and Economic Development Research and Information Center (CEDRIC) (www.chicagofed.org/cedric/financial_education_research_center.cfm). CEDRIC provides researchers, community organizations, financial institutions, government agencies, and the public with a comprehensive source for abstracts and full texts of articles, reports, working papers, and other studies related to effective financial education initiatives and community development issues.

Knowledge and Behavior: What Is the Link?

Financial knowledge can be statistically linked to financial practices related to cash-flow management, credit management, saving, and investment—those who knew more had higher index scores, and those who learned from family, friends, and personal experiences had higher index scores. It is worth noting that certain types of financial knowledge were found to be statistically significant for particular financial practices. With the exception of the cash-flow management practices, which did not have a correspond-

31. Abdighani Hirad and Peter M. Zorn, "A Little Knowledge Is a Good Thing: Empirical Evidence of the Effectiveness of Pre-Purchase Homeownership Counseling" (paper presented at the Third Community Affairs Research Conference of the Federal Reserve System, March 2003) (www.federalreserve.gov/communityaffairs/national/CA_Conf_SusCommDev/pdf/zornpeter.pdf); Michael E. Staten, Gregory Elliehausen, and E. Christopher Lundquist, "The Impact of Credit Counseling on Subsequent Borrower Credit Usage and Payment Behavior," Monograph no. 36 (Georgetown University: Credit Research Center, March 2002) (www.msb.georgetown.edu/prog/crc/pdf/M36.pdf).

32. The Money 2000 program encourages participants to reduce debt by $2,000 or increase savings by $2,000, or some combination of both. See O'Neill, "Twelve Key Components of Financial Wellness."

33. National Endowment for Financial Education, "Financial Literacy in America: Individual Choices, National Consequences" (2002) (www.nefe.org/pages/whitepaper2002symposium.html).

ing subsection on the quiz, the relationships between specific financial knowledge scores and the corresponding financial practices indexes were statistically significant. Thus, knowing about credit, saving, and investment was correlated with having higher index scores for credit management, saving, and investment practices respectively. This pattern may indicate that increases in knowledge and experience can lead to improvements in financial practices, although the causality could flow in the other direction—or even both ways. One way to increase knowledge is to gain experience. And one way to gain additional education is to learn from the experiences of others, as can happen in classes and seminars and through conversations with family and friends.

There is a difference between providing information and providing education. Education may require a combination of information, skill-building, and motivation to make the desired changes in behavior. The distinction between information and education is an especially important point for policymakers and program leaders making decisions about the allocation of resources. Financial education awareness campaigns and learning tools (for example, web sites or brochures), all important in their own right, may need to be coupled with audience-targeted motivational and educational strategies to elicit the desired behavioral changes in financial-management practices.

Appendix A: Survey Data

The monthly Surveys of Consumers, which were initiated in the late 1940s by the Survey Research Center at the University of Michigan, measure changes in consumer attitudes and expectations with regard to consumer finance decisions. Each monthly survey of about 500 households includes a set of core questions covering consumer attitudes and expectations and the respondents' socioeconomic and demographic characteristics.[34] In the November and December 2001 surveys, the Federal Reserve Board commissioned additional questions regarding household financial knowledge, behaviors, learning experiences, and learning preferences. The sample included 1,004 respondents.

Interviews were conducted by telephone, with telephone numbers drawn from a cluster sample of residential numbers. The sample was chosen to be broadly representative of the four main regions of the country—Northeast, North Central, South, and West—in proportion to their populations. Alaska and Hawaii were not included. For each telephone number drawn, an adult in the family was randomly selected as the respondent. The survey defines a family as any group of persons living together who are related by marriage, blood, or adoption or any individual living alone or with a person or persons to whom the individual is not related. The survey data have been weighted to be representative of the population as a whole, thereby correcting for differences among families in the probability of their being selected as survey respondents. All survey data in the tables are based on weighted observations.

Federal Reserve staff members worked with colleagues in the U.S. Department of Agriculture's Cooperative State Research, Education, and Extension Service to craft the additional questions. Questions were based, in part, on experiences from other surveys (for example, the Jump$tart Coalition's biannual survey of high school seniors, Money 2000 surveys, previous Consumer Federation of America–American Express surveys, and the American Savings Education Council youth survey). The questions were divided into five parts: a twenty-eight question quiz on household financial knowledge; an assessment of experiences with thirteen financial products and services; an assessment of eighteen financial behaviors; questions on ways respondents learned about managing household finances; and questions on ways respondents would prefer to learn about managing their finances. Because the Survey of Consumers is a phone survey, a true–false–uncertain format was adopted for the knowledge quiz rather than the multiple-choice format used in many of the other surveys. Once questions were drafted, they were shared with a set of researchers who work in the area of financial education. The researchers helped review the questions and provided additional guidance. Further revisions were made in consultation with the staff at the Survey Research Center.

Appendix B: Indexes of Financial Practices

To explore patterns of household financial practices, four of the five types of practices listed in table 1 were examined: cash-flow management, credit management, saving, and investment. As discussed in the text, ownership of various financial products as well as reported behaviors were examined simultaneously and used to create an index for each of the four types of practices. Table 1 shows the individual financial

34. See University of Michigan Survey Research Center, *Surveys of Consumers* (Ann Arbor, Mich.: University of Michigan Survey Research Center, 2001).

product and financial behavior variables used to construct the four indexes. The cash-flow management, credit management, and saving indexes include all of the individual financial product and financial behavior variables listed. The investment index does not include the two items related to employer-provided retirement plans because information on whether individuals had access to these plans (or even whether they were employed) was not available.

Levels of cash-flow management, credit management, saving, and investment practices were classified as "high," "medium," or "low." For each type of financial behavior, a determination was made about whether there was an essential element associated with that behavior. For example, in cash-flow management, paying bills on time was considered an essential element.[35] Respondents who did not pay their bills on time were automatically categorized in the low group.

Next, controls were established for "conditional" variables. Specifically, (1) for the cash-flow management index, households without checking accounts were not expected to report balancing their checkbooks; (2) for credit management, respondents without credit cards were not expected to report paying their credit card balances in full each month; (3) for investment, respondents without an individual retirement account (IRA) were not expected to report contributing to an IRA; and (4) for investment, retirees (proxied by being age 65 or older) were not expected to report contributing to IRAs or other retirement plans.

The items reported for each financial practice category were summed and percentages were calculated. If households reported fewer than 25 percent of the items, they were classified as low; households reporting between 25 percent and 70 percent of the items were classified as medium; and households reporting more than 70 percent of the items were classified as high. Integers were rounded to account for the discrete nature of the items; for example, 25 percent of five items (1.25) was rounded to 1. □

35. See E. Thomas Garman and Raymond Forgue, *Personal Finance* (Boston: Houghton Mifflin, 2003).