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Credit usage, payment behavior, and the accuracy of consumer credit files

L. Douglas Smith, Ph.D.[a,*], Michael Staten, Ph.D.[b], Thomas Eyssell, Ph.D.[c], Maureen Karig, MBA[d], Jeffrey Feinstein, Ph.D.[e], Cathleen Johnson, Ph.D.[f]

[a]*Center for Business and Industrial Studies, University of Missouri-St. Louis, One University Blvd, St. Louis, MO 63121, USA*
[b]*College of Agriculture and Life Sciences, University of Arizona, Forbes Hall Room 211, Tucson, AZ 85721, USA*
[c]*Department of Finance, University of Missouri-St. Louis, One University Blvd, St. Louis, MO 63121, USA*
[d]*Department of Supply Chain and Analytics, University of Missouri-St. Louis, One University Blvd, St. Louis, MO 63121, USA*
[e]*Department of Global Analytic Strategy, LexisNexis Risk Solutions, 1000 Alderman Drive, Alpharetta, GA 30005, USA*
[f]*Department of Philosophy, University of Arizona, 1145 E. South Campus Drive, Tucson, AZ 85721, USA*

Abstract

Through intensive interviews, examination of credit reports, and rescoring of corrected credit files, the researchers consider household characteristics, major life events, financial resources, and payment habits as they study the integrity of credit-bureau data, vulnerability to error, and results of disputes filed with the major credit bureaus. Credit usage and management are found to vary widely within demographic groups. Vulnerability to error and outcomes of disputes depend primarily on the credit record itself. Consumers with moderate credit scores are more likely than those with very high or low scores to see significant improvement in their records when errors are corrected. © 2018 Academy of Financial Services. All rights reserved.

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* Corresponding author. Tel.: +1-314-516-6108; fax: +1-314-516-7201.
E-mail address: nldsmith@umsl.edu (L.D. Smith)

1. Introduction

The credit-driven consumer economy in the United States is supported by a reporting and regulatory system that involves multiple parties. In addition to the seller and the buyer of property, goods, or services, third parties are typically engaged in financing the transaction, servicing the loan, collecting debt, and disseminating related information. To support this system, the three major credit bureaus in the United States (Equifax, Experian, and TransUnion) maintain credit histories on approximately 200 million consumers and process nearly two billion items of information each month (Avery, Calem, Canner, and Bostic, 2003) from data furnishers (credit card companies, mortgage servicers, debt collectors, etc.). The result is a set of extremely comprehensive files that reveal the ways that U.S. consumers use credit and meet their financial obligations.

Credit scores based on this information are used to facilitate decisions in lending and other financial transactions. Accurate credit-bureau data can help in properly assessing credit risk and commensurately pricing credit, but individuals with errors in their credit files can suffer unreasonable denials of credit, inflated borrowing costs, higher cost for insurance, inability to rent a home or even denial of employment. In short, credit-bureau records provide what appears to be microscopic historic detail on individuals' use and management of credit. Credit scores determined from the credit-bureau data can greatly affect individuals' future economic and personal experience. Systems for collecting, maintaining, verifying, correcting, and disseminating data are, therefore, subject to constant scrutiny.

The Fair Credit Reporting Act (FCRA 1970) established regulatory guidelines and a legal framework for the credit-reporting industry in the United States. It was amended in 1996 to include processes designed to improve accuracy of data and to designate responsibilities of the credit bureaus and data furnishers when confronted with consumer claims that their data are inaccurate. In 2003, the Fair and Accurate Credit Transactions ("FACT"; Fair and Accurate Credit Transactions Act, 2003) Act imposed further reinvestigation duties on data furnishers.[1] Staten and Cate (2004) describe the FCRA and its subsequent amendments as taking the "remedial approach" to regulation, whereby the regulating authority ". . . designates the consumer as the 'quality-control' inspector . . . and places the responsibility for monitoring file accuracy on the party who can determine accuracy at the lowest cost." Unfortunately, it is not evident that most consumers review their credit files and take actions to get errors corrected. Lyons, Rachlis, and Scherpf (2007) report that many consumers ". . . still lack specific knowledge about what information is contained in credit reports, how to dispute errors, and the possible impact of their credit history on such factors as insurance premiums and employment."

In 2012, a national consumer poll for the National Foundation for Credit Counseling (NFCC 2012) found that just 38% of respondents had reviewed their credit reports within the previous 12 months despite the fact that the Federal Trade Commission (FTC) publicizes the annual availability of free credit reports from the Web site https://www.annualcreditreport.com. An understanding of consumer use of credit and the effects of industry and regulatory practice on individual consumers is important, as imposition of regulations to protect consumers can be very costly and have disproportionate effects on small financial institutions (Elliehausen and Lowrey, 2000).

Consumer advocates have raised concerns that some sectors of society may be disadvantaged in the gathering and reporting of consumer credit information. From a survey of 154 adults, the United States Public Interest Research Group (USPIRG) concluded that "79% of the credit reports surveyed contained either serious errors or other mistakes" and one-fourth of the reports "contained serious errors that could result in the denial of credit" (National Association of State PIRGs, 2004). In testimony before Congress, a consumer advocacy group asserted that inaccuracies in credit reports could cause at least eight million Americans to be improperly categorized as subprime risks, and pay tens of thousands of dollars in excess interest payments over the term of a 30-year mortgage loan (Brobeck, 2003). Unfortunately, these studies were based on very limited and possibly biased samples and were prone to other methodological flaws.

Avery, Brevoort, and Canner (2012) matched elements in credit reports with demographic data for over 200,000 consumers and examined the extent to which they could inadvertently serve as surrogates for demographic characteristics (e.g., race and ethnicity) that are deliberately not used in constructing credit scores, for fear of disparate impact of the credit-scoring system on segments of society. They concluded that their research provided "little or no evidence that the credit characteristics used in credit history scoring models operate as proxies for race or ethnicity." They noted, however, an inevitable relationship between average age of accounts and age of the consumer; thus, providing some unavoidable disparate impact for young consumers. Their work does not directly address related questions about the propensity of individuals with different demographic characteristics and household situations to utilize credit and manage it well.

In the most comprehensive study of credit-bureau accuracy to date, investigators from the University of Missouri-St Louis and the University of Arizona, on behalf of the Federal Trade Commission (FTC), engaged a representative sample of 1,001 U.S. consumers in a detailed review of their credit reports from the three major U.S. credit bureaus (Smith et al., 2013). Twenty-six percent of participants in this study claimed to find at least one potentially material error in a credit report and, with guidance from the university research associates who helped them review the credit reports, filed formal disputes with the relevant bureau(s). For 78% of the consumers who filed disputes (20% of participants overall), at least one bureau altered their credit report in a manner that addressed the consumers' concerns. Thirty-three percent of disputants (8.7% of all participants) experienced a resulting increase of 10+ points in one or more of their FICO scores; 21% of disputants (5.5% of study participants) had one or more scores cross a threshold that would typically result in more favorable terms of credit. The investigators interpreted these results as providing evidence that "current regulatory regimes and industry practice are geared to providing data that promote efficiency in our consumer economy while leaving a small percentage of individual consumers vulnerable to significant misrepresentations of their creditworthiness."

In this paper, we extend the research of Smith et al. (2013), which concentrated on the incidence of errors in credit-bureau files and the results of disputes filed by consumers to rectify alleged errors. We examine further how different segments of society engage in the credit-driven consumer economy, manage their obligations, are vulnerable to reporting errors, and fare when they file formal disputes of information in their credit files. To be addressed are the following questions:

1. How successfully do different consumer groups manage their credit obligations?
2. Are some consumer segments more vulnerable to inaccuracies in their credit reports than others?
3. Do some consumer groups improve their credit standing more than others when corrections are imposed on their files in response to formal disputes filed with the credit bureaus?

The unique research design used in this study provides information that enables a coherent multivariate analysis of the full credit cycle. It allows the validation of self-reported data through a cross-check of information in each participant's credit reports from the three major credit bureaus. Impacts of errors in the bureaus' files are assessed by an actual rescoring of frozen credit files by the leading provider of credit scores The analytical process is structured to reveal associations between outcomes of interest and the interrelated factors that explain them.

2. Related research

Utilization of credit and management of personal or household finance have changed dramatically since the 1950s when a consumer might typically have carried a home mortgage, perhaps a car loan and used a couple of branded credit cards for gasoline service stations or major department stores. Household debt increased from an average of 55% of personal disposable income in 1960 to 133% in 2007 (Glick and Lansing, 2009). Home equity lines of credit, guaranteed student loans, bank credit cards, and loans from unconventional sources (e.g., payday loans) have entered the credit mix (Bricker et al., 2014). In short, prudent management of credit has become a necessary skill in the modern economy.

As such, questions about differences in credit usage across demographic categories, proneness to delinquency and default, problems of coping with debt, and psychological traits associated with credit use and financial stress all become increasingly important areas of study. We next summarize findings from such prior research and then present a graphical illustration of the dynamics of the consumer credit cycle to provide context for our research and analysis.

2.1. Credit usage

A substantial amount of empirical evidence suggests that individuals with different backgrounds and household situations vary significantly in their use of consumer credit. O'Neill and Xiao (2014) surveyed over 1,000 consumers to assess their financial sophistication and inquired about their attitudes and behavior regarding the use of credit. They found that older individuals, people with higher incomes and higher education levels who are married without children, white, and male managed credit better than individuals with lower incomes, less education, and those who were single parents, minorities, females, and young adults.

Javine (2013) surveyed 521 students and determined that key demographic factors predict the level of student-loan debt. African Americans, first-generation college students, financially independent students, those in a later year in school, those with lower incomes, and students with lower GPAs tend to have more student-loan debt. She observed that students

who were assessed as having greater financial knowledge were more likely to have student loans in excess of $10,000.

Smith, Finke, and Huston (2012) studied the increasing tendency of older adults to carry mortgage debt. They concluded that rather than being a prelude to financial disaster for these individuals and a result of a change in attitudes against savings and thrift, the steady increase in mortgage debt and housing leverage among Americans close to retirement age is evidence of their greater financial literacy and sophistication in allocating resources and taking advantage of tax incentives.

In 7,592 survey responses from the Panel Study of Income Dynamics between 1968 and 2003, Grafova (2007) reported that noncollateralized debt obligations (from credit cards, student loans, medical or legal bills, loans from relatives, etc.) were more likely to be used by individuals with unhealthy lifestyles or conditions (smoking, obesity). While recognizing this relationship, the author judged that other factors (liquidity constraints, time preference, risk aversion, hyperbolic discounting, and less self-control) may be more directly related to use and management of credit.

2.2. Proneness to delinquencies and defaults

Sullivan, Warren, and Westbrook (2006) examined bankruptcy filings over three decades and concluded that general financial distress is related to loss of income, more lenient lending practices, and decline in housing values (i.e., personal financial circumstances, macroeconomic factors, and business practices of financial institutions).

Ratcliffe et al. (2014) examined the nature and geographic distribution of current financial distress in the United States. Using TransUnion credit reports from September 2013, they focused on individuals who were at least 30 days late on a nonmortgage payment or had debt in collections. They estimated that nearly 12 million American adults (5.3% with a credit file), have nonmortgage debt past due with an average past due balance of $2,258. Further, 77 million American adults (35% of adults with a credit file), had some debt collection activity reported on their credit reports with an average "debt in collections or charged-off" amount owed of $5,178. Both debt reported past due and debt collection activity were more concentrated in the South, where the aftermath of the housing boom and bust was the greatest.

2.3. Psychological and behavioral linkages to use and management of credit

Individual psychology and attitudes are important determinants of credit utilization and management of debt. Norvilitis and MacLean (2010) link college students' debt levels to the students' general reluctance to delay gratification, financial education received from parents, and the students' beliefs about whether parents would help out if they should become overextended. Individual attitudes toward money, determinants of social standing, and disposition to financial risk have been related to personal financial decisions, spending patterns and management of credit (Engelberg and Sjoberg, 2007; Tang, 1992).

In surveys of 1,000 service personnel ready for deployment in 2010, Bell et al. (2014) found less anxiety and a better sense of well-being among soldiers who had resources available for a financial emergency, higher levels of self-assessed net worth, and higher

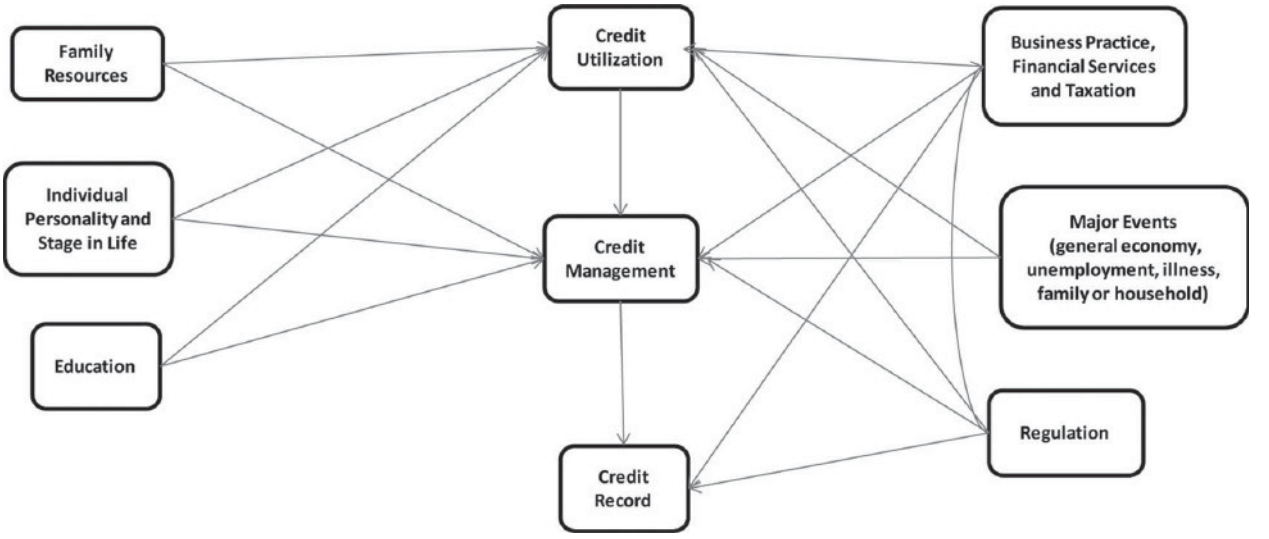

Fig. 1. Dynamics of credit usage, debt management, and maintenance of individuals' credit records.

perceived financial knowledge. Those with high credit-card debt and large amounts due on automobile loans felt more personal stress. Archuleta, Dale, and Spann (2013) surveyed students who sought financial counseling and report that subjective self-assessments of financial status are more important than actual credit-card debt and student loans in predicting individual levels of financial anxiety.

2.4. Personal bankruptcy

How individuals cope with overwhelming debt is a topic in itself. Fay, Hurst, and White (2002) concluded that a personal bankruptcy decision is primarily related to the financial benefits versus the costs of the decision and also is more likely in jurisdictions where bankruptcies are more common. Consistent with this, Staten (1993) found that increased availability of credit following bankruptcy (because of easing of lending practices of financial institutions) appeared to reduce the deterrent for bankruptcy. Himmelstein, Warren, Thorne, and Woolhandler, (2005) found that unexpected medical bills (without insurance coverage) are significant precipitators of personal bankruptcy.

3. Research framework and methodology

The previous research suggests a complex interplay of institutional practice and individual behavior which affects personal and household use of credit, the management of debt, and maintenance of credit records that affect individuals' financial opportunities. In Fig. 1 we depict the main elements. The use of credit is seen as influenced by several forces: (1) family resources and needs, (2) personal attitudes and behavior about consumption, investment and debt, (3) education about costs of credit and maintenance of a good credit record, (4) business practices in the sales and marketing of products and services and competitive promotional efforts of financial institutions, (5) regulations intended to promote fair lending and so forth,

and (6) economic factors including major family events such as unemployment, divorce, or illness. These same factors may influence the ways that individuals meet their obligations and build their credit records. Institutional practice and regulatory constraints regarding the collection, matching, storage, and dissemination of relevant information in credit-bureau files affect the depiction of individuals' creditworthiness and their vulnerability to errors.

With each credit line and financial transaction, there is a very small risk of error in processing and reporting. A file with more credit lines and transactions (and especially with late payments and collection activity) is more prone to errors almost axiomatically because each line and transaction presents an opportunity for an error to occur. Of course, accounts with indications of late payments or collection activity present highest risks of error because a financial institution may have credited the wrong account or there may have been a mismatch of records or negligence in reporting payments for collection activity. Individuals' vigilance and actions in identifying potential errors, and institutions' investigations and actions in response to disputes, help to keep the files clean and determine the consumer's continuing access to credit and the terms under which future credit is granted.

To investigate the full credit cycle from the assumption of debt through payment of obligations and maintenance of the credit record, we engaged a representative sample of 1,001 individuals on behalf of the Federal Trade Commission (FTC). Recruitment of participants was accomplished in collaboration with senior economists at the FTC and the three major credit bureaus (Equifax, Experian, and TransUnion). A meticulous stratified random sampling procedure (Smith et al., 2013) was used to achieve equal representation of individuals in credit-score quintile groups while also providing good representation geographically and by standard demographic attributes. Overall, there was excellent representation in the final sample of completed interviews according to the primary criterion (credit score), good representation from all age groups, and an excellent mix according to gender. Participants were recruited from each of the 50 U.S. states and the number from each state was generally proportional to the size of the adult population.

University research associates engaged participants in thorough reviews of their credit reports and administered a telephone survey to obtain information about participants' habits in managing credit, their family circumstances, and major life events. They inquired whether the study participants had previously obtained copies of their credit reports and attempted to have alleged errors corrected, whether they had used forms of credit not reflected in the credit reports, and whether such obligations had been discharged.

The research associates also asked about monthly payment behavior (e.g., whether the consumer generally paid off monthly balances in full). Perhaps surprisingly to some readers, this cannot be deduced from monthly balances of accounts in the credit-bureau files. One consumer may pay the minimum balance on an account on time, not incur further charges in the ensuing month, display no delinquency and yet be under considerable financial stress in doing so. Another consumer may incur regular monthly charges, pay off the balance completely each month, and have an account that looks very much like the first consumer's account despite having very large financial reserves. We expect this information (though admittedly self-reported) to be an important indicator of whether the consumer is under financial stress, vulnerable to delinquency and default, and then vulnerable to recording errors from collection activity.

The checklist provided to consumers to prepare for the telephone interview, the interviewing guide for the intensive review of hard copies of the credit reports which had been mailed to them, and the closing survey after the telephone interview are provided in Appendix B. Note that, for context, we inquired about other financial assets (such as pensions) owned by the consumer, whether their families recently had suffered stressful events, and whether they had financial reserves to cover unexpected expenses or temporary loss of income. Finally, we collected standard demographic information including income. We used income ranges to reduce resistance to disclosing income and recognizing that income estimates are always approximate regardless. Only 45 of 1001 participants declined to indicate their family income category. Implicitly, in our statistical models, these individuals are placed in the middle income category ($50,000 to $75,000 per year).

If a participant alleged that there was a "material" error in any of the credit-bureau reports, the research associate helped craft a dispute letter which was signed by the participant and mailed to the bureau from their home address. We defined a material error as one that could affect a credit score at any of the three bureaus, suggest a mismatching of records from another individual, or suggest the possibility of identity theft (as when unknown accounts or inexplicable balances appeared in a credit report).

We tracked the results of the disputes and determined exactly how any corrections to the disputed file would have affected the FICO credit score. This was accomplished by having FICO compute the credit scores for the three credit reports reviewed by a participant, freeze the files that were reviewed, draw new credit report(s) after an appropriate interval to determine the results of dispute(s) filed, impose corrections made in response to disputes on the original frozen file(s)and rescore the corrected file(s) using the same scoring algorithm.

It should be noted that our methodology is unique. Other published research has tended to use mathematical models which produced pseudo credit scores as an alternative to this labor-intensive procedure. To our knowledge, no other study of credit usage and credit management has involved an in-depth verification of data for each consumer by a thorough review of all three credit reports using a nationally representative sample. No other study has analyzed the entire credit cycle from credit usage through correction of errors in the credit file with complementary survey data giving detailed demographics and related information about family circumstances and life events.

Fig. 2 shows the flow of participants through the study process. In the sections to follow, we use multivariate analysis to study how credit utilization and payment history varied for all 1,001 participants and also to examine how the outcomes of disputes varied for 263 participants who allegedly discovered potentially material errors in one or more of their credit files. Summary statistics for variables used in the analysis are provided in Appendix A.

4. Analysis

We use a hierarchical set of multiple regression and logistic regression models to investigate portions of the dynamics represented in Fig. 1. The models were structured with the following general forms:

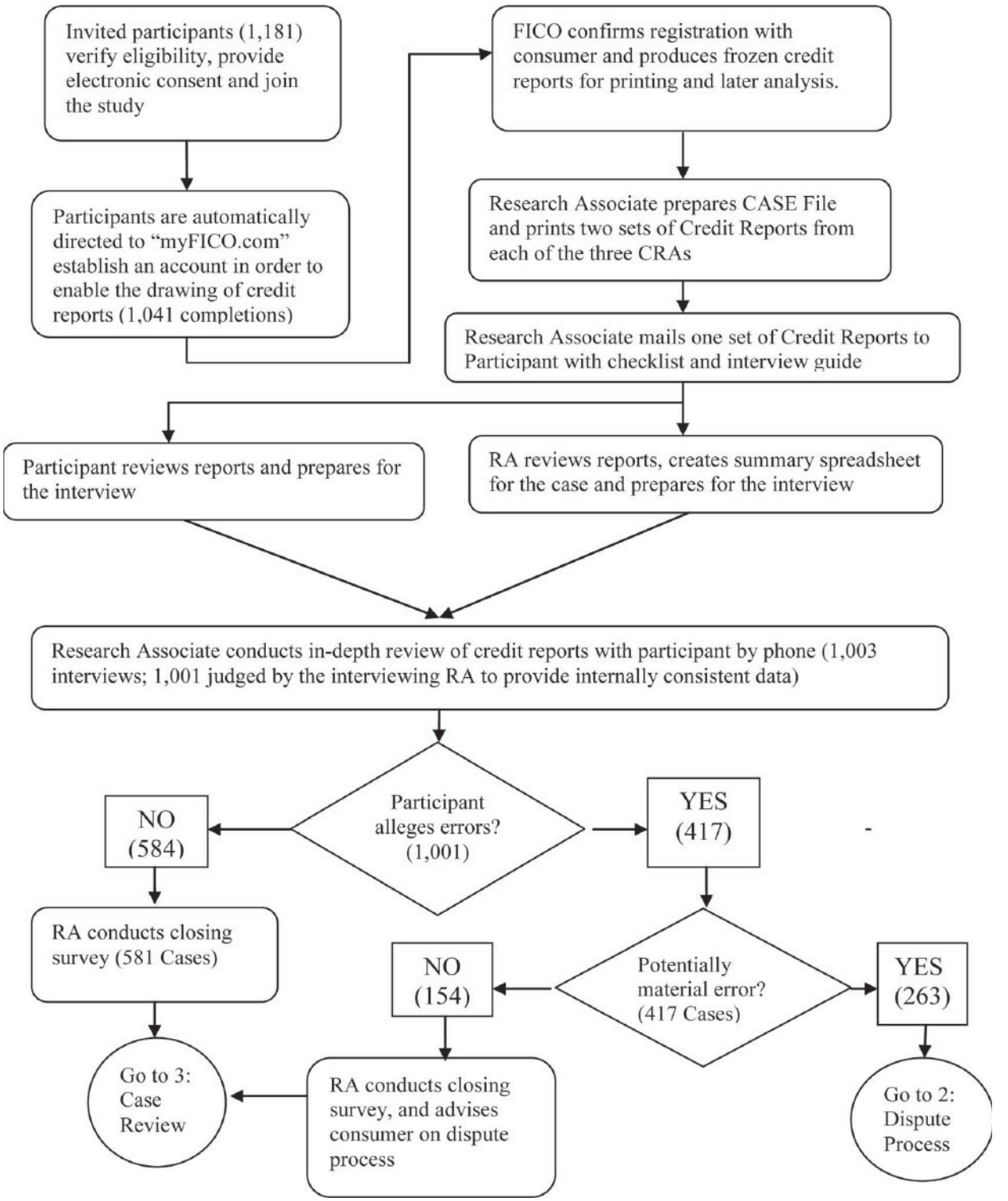

Fig. 2. Flowchart of the study process.

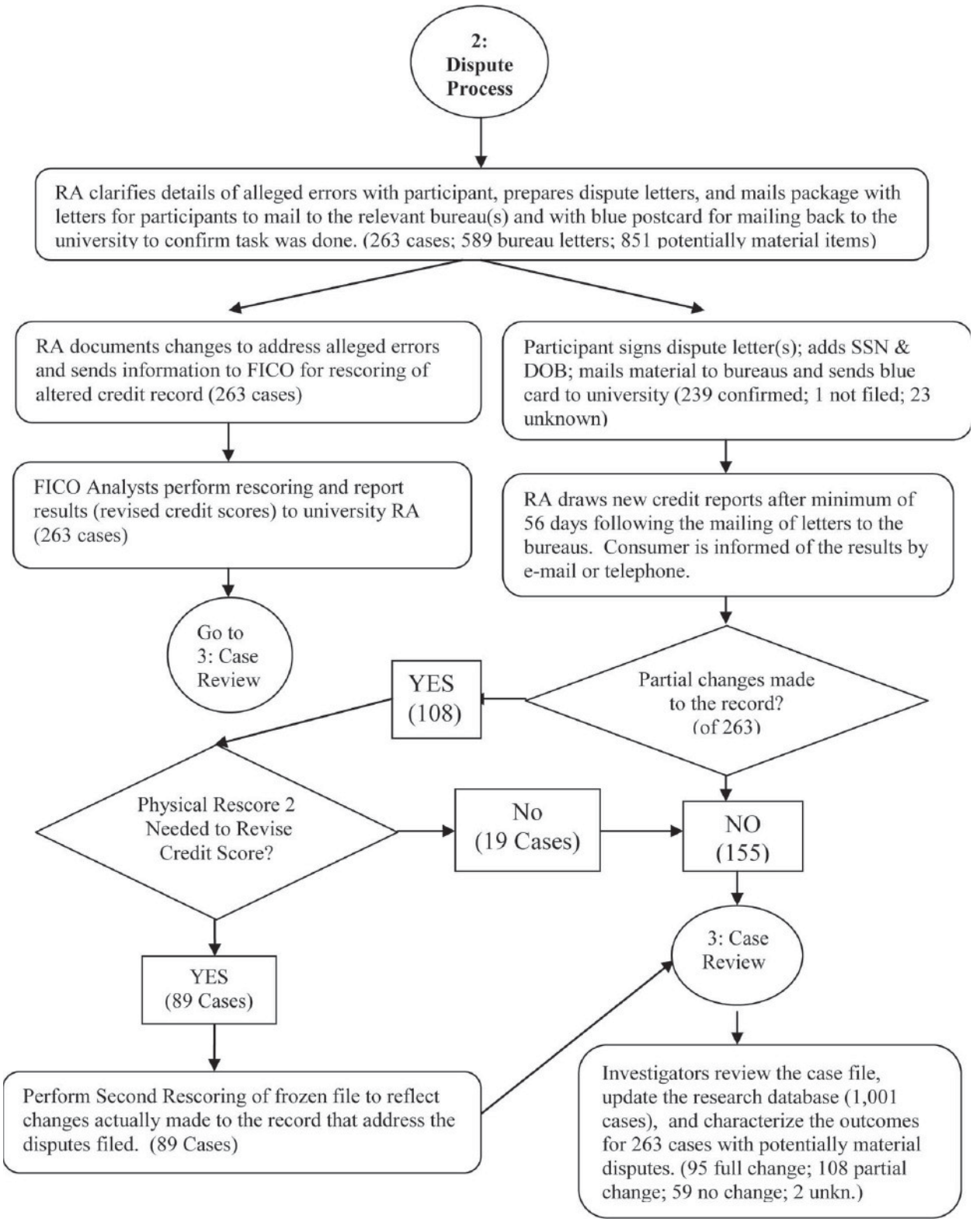

Fig. 2. *(continued).*

Table 1 Variables used in multivariate models

Characteristic	Measurement variables
Credit utilization	Revolving credit utilization relative to credit limits; revolving credit relative to family income
Credit management	Pays more than minimum balance monthly; pays off all balances monthly
Credit record	Average credit score across three bureaus
Consumer action for remediation	Alleges material error in one or more reports and files dispute(s) with credit bureau(s)
Remediation outcome	Change in a credit score $>$ 10 points; a score crosses a lending threshold generally used to set terms for credit
Demographic group	Age (whether under 30), gender, race/ethnicity (whether Asian or African American); level of education (some college, whether holds graduate degree)
Household characteristics	Marital status (married), owns home, family size, number of children under 18, employed fulltime
Family resources	Family income (whether under $25K, between $25K and $50K, or over $75K), has contingency funds to cover two months without income; participates in retirement plan, has other retirement savings
Stressful events	Unemployment; drop in income; recent birth; divorce, Separation or death of spouse; major medical expense

- Credit utilization (two measures) = f(demographic group, household characteristics, family resources, credit-management education, stressful events) using regression.
- Credit management (two measures) = f(credit utilization, demographic group, household characteristics, family resources, credit-management education, stressful events) using logistic regression.
- Credit record (one measure) = f(credit management, credit utilization, demographic group, household characteristics, family resources, credit-management education, stressful events, industry practice) using regression.
- Consumer action for remediation (one measure) = f(credit record, credit management, credit utilization, demographic group, household characteristics, family resources, credit-management education, stressful events, industry practice) using logistic regression.
- Remediation outcome (two measures) = f(consumer action for remediation, credit record, credit management, credit utilization, demographic group, household characteristics, family resources, credit-management education, stressful events, industry practice) using logistic regression.

Specific variables used to represent the various factors are enumerated in Table 1.

Using this methodology, we are able to demonstrate the extent to which the main factors explain variation in the target variables—not just the effects of individual variables which compose the factors. We investigate whether blocks of explanatory variables for the major factors are significantly related to the outcome measures on their own and whether they contribute marginal information after accounting for the effects of the other factors. The statistical significance for blocks of variables in the regression models is determined by performing nested F tests for significant changes in residual squared error for the regression models. Statistical significance of blocks of explanatory variables in the logistic models is similarly determined by performing χ^2 tests on the change in (-2 log(likelihood)) for the fits of the respective models when the block of variables is removed.

Table 2 Significance tests on regression models for revolving credit utilization relative to credit limits

Factors included	R^2	F value	df	p-Value	Sample size
Full model	0.17	7.71	23	<0.0001	872
Ex adverse events	0.16	3.58	5	0.003	872
Ex demographic	0.16	2.26	6	0.036	872
Ex resources	0.13	7.83	6	<0.0001	872
Ex household char	0.14	5.86	6	<0.0001	872
Only adverse events	0.04	8.11	5	<0.0001	872
Only demographic	0.04	5.38	6	<0.0001	872
Only resources	0.11	17.74	6	<0.0001	872
Only household char	0.08	12.45	6	<0.0001	872
Reduced model	0.16	12.81	13	<0.0001	872

After assessing the impact of the relevant factors on the predictive power of the models, we shall demonstrate the marginal effects of the individual explanatory variables upon the eight target (dependent) variables when all explanatory variables are included and then, recognizing collinearity, eliminate the most statistically insignificant terms, one at a time, until all remaining variables are statistically significant at the 0.05 level for a one-tailed test. The coefficients of the resulting "reduced" models are examined to indicate their (statistically significant) marginal effects on the target variables after the other explanatory variables in the models are considered.

The first regression model analyzes credit utilization (total outstanding balance on all revolving accounts) as a percentage of aggregate credit limits on revolving accounts. If the credit limit on an individual revolving account (such as a credit card) is not reported, we substitute the "largest past balance" to impute the credit limit for that account.[2] Table 2 contains the results of significance testing for factors explaining this measure of credit utilization. In constructing the models for Table 2, we excluded 16 extreme cases where the imputed revolving credit utilization exceeded 150%.[3]

Ten different regression models, based on 872 cases with values for all constituent variables, are implicitly compared in Table 2.[4] The groups of variables for each of the factors (occurrence of an adverse event, demographic characteristics, family financial resources, and household characteristics) are all highly statistically related to credit utilization when considered individually (i.e., with p-values < 0.0001 when regressed against credit utilization as the only predictive factor). When the incremental informational content is tested by the removal of single factors from the full model, we see that household characteristics, family financial resources, and adverse events are all very statistically significant on the margin as well (with extremely small p-values for the blocks of variables). Demographic variables are less statistically significant.

Next we consider revolving credit utilization as a percentage of annual household income. Again we eliminated cases where the measure of credit utilization exceeded 150%. The numerator of this ratio is the total of outstanding balances on all revolving accounts. The denominator is the midpoint of the annual household income category that the participant identified as applicable to the household when completing the telephone interview (capped at $250,000). Table 3 summarizes the results of the tests for this model. Remarkable in Table 3 is the much smaller values for the R^2 statistic—with the full model explaining only 5% of the variation in credit utilization relative to household income. This is partly attributable to the wide bands for

Table 3 Significance tests on regression for revolving credit utilization relative to household income

Factors included	R^2	F value	df	p-Value	Sample size
Full model	0.05	2.14	23	0.002	942
Ex adverse events	0.04	2.04	5	0.071	942
Ex demographic	0.03	2.87	6	0.009	942
Ex resources	0.04	1.94	6	0.072	942
Ex household char	0.04	1.24	6	0.282	942
Only adverse events	0.02	2.85	5	0.015	942
Only demographic	0.02	2.48	6	0.022	942
Only resources	0.01	1.62	6	0.139	942
Only household char	0.01	1.32	6	0.244	942
Reduced model	0.04	5.96	6	<0.0001	942

reporting of household income but the models suggest that there is an enormous amount of variation in the extent to which individuals take on revolving debt relative to their total household income that is not explained by the factors we measured. Adverse events and demographic variables accounted for the majority of the systematic variation in this measure.

Habits in managing credit were measured by a pair of binary variables determined by "Yes-No" responses to (a) whether the participant always paid at least the minimum balance and (b) whether the participant always paid the entire balance on all credit obligations each month. Table 4 provides the results of tests on the logistic model predicting whether a participant always pays at least the minimum amount due on all accounts each month. Table 5 provides the results of tests on the logistic model predicting whether a participant always pays all outstanding balances on all accounts each month. The two indicators of individuals' self-reported behavior in meeting credit obligations are highly related to each of the individual explanatory factors. On the margin, family resources and demographic characteristics contribute most information.

Next we consider the credit record as represented in the credit-bureau files. For this, we use the average of the three credit scores from the major bureaus as the consolidated indicator of the credit record as reflected in the participant's credit reports. Table 6 contains the results of significance tests for regressions of this measure against the explanatory factors used in previous models and with an additional factor representing the two self-reported habits on payment behavior. From the results in Table 6, we see that all factors are highly statistically related to the average credit scores of participants when considered individually and on the margin. Together the five factors explain 60% of variation in the average credit scores.

Table 4 Significance tests on logistic models for whether participant pays at least minimum payment on all obligations each month

Factors included	χ^2	df	p-Value	Sample size
Full model	256.7	23	<0.0001	997
Ex adverse events	23.4	5	0.0003	997
Ex demographic	36.9	6	<0.0001	997
Ex resources	35.2	6	<0.0001	997
Ex household char	14.8	6	0.022	997
Reduced model	248.2	10	<0.0001	997

Table 5 Significance tests on logistic models for whether participant pays total amounts due on all obligations each month

Factors included	χ^2	*df*	*p*-Value	Sample size
Full model	293.8	23	<0.0001	997
Ex adverse events	22.1	5	0.0005	997
Ex demographic	50.2	6	<0.0001	997
Ex resources	51.3	6	<0.0001	997
Ex household char	32.5	6	<0.0001	997
Reduced model	286.7	12	<0.0001	997

We now turn attention to the likelihood that an individual finds a potentially material error in one or more of his or her credit files. Continuing in our hierarchical analysis, we add the person's credit score (strength of the credit record) as an explanatory factor at this stage. Table 7 contains the results of statistical tests for this set of models. Family resources, the credit record (average credit score) and general payment habits are the prime factors determining the likelihood that the individual will have a potentially material dispute with information in the credit file. This is perhaps not surprising, as individuals are more likely to question items that negatively affect the credit record. Payment behavior also (almost axiomatically) affects the strength of the credit record and therefore the likelihood of negative information being present. We acknowledge that disputes in this study involve inaccurate information in the credit file (errors of commission rather than errors of omission) and especially information that may have an adverse impact on the credit score. Unreported credit (such as loans from family members or loans from unconventional lenders who do not report to the bureaus) is ignored.

Finally, we examine the outcomes of formal disputes to see if a credit score increases by more than 10 points or whether a credit score for the individual crosses a lending threshold that would generally dictate the terms of an automobile loan. A summary of the outcomes is presented in Table 8. For this analysis, we grouped the disputants according to the breakpoints for FICO credit-score quintiles (where the quintiles were determined from the nationwide sample used to calibrate the FICO scoring model). The greater representation in lower quintiles is because of the fact that individuals with low credit scores have more derogatory information in their credit files, and are, therefore, more likely to have something to dispute.

Table 6 Significance tests on regression models for the participant's average credit score

Factors included	R^2	*F* value	*df*	*p*-Value	Sample size
Full model	0.60	58.43	25	<0.0001	997
Ex adverse events	0.58	10.06	5	<0.0001	997
Ex demographic	0.58	9.21	6	<0.0001	997
Ex resources	0.56	15.97	6	<0.0001	997
Ex household char	0.58	8.67	6	<0.0001	997
Ex payment habits	0.51	115.16	2	<0.0001	997
Only adverse events	0.18	43.14	5	<0.0001	997
Only demographic	0.24	51.31	6	<0.0001	997
Only resources	0.22	48.73	6	<0.0001	997
Only household char	0.23	48.73	6	<0.0001	997
Only payment habits	0.42	364.58	2	<0.0001	997
Reduced model	0.60	90.98	16	<0.0001	997

Table 7 Significance tests on logistics models for the likelihood of having a dispute of potentially material information in one or more credit reports

Factors included	χ^2	*df*	*p*-Value	Sample size
Full model	136.2	26	<0.0001	995
Ex adverse events	5.2	5	0.39	995
Ex demographic	10.3	6	0.11	995
Ex resources	17.5	6	0.01	995
Ex household char	2.3	6	0.89	995
Ex payment habits	8.0	2	0.02	995
Ex credit record	3.5	1	0.06	995
Reduced model	121.7	6	<0.0001	995

Note that the relationship of outcomes with credit score is not linear. The probability of improvement is highest for individuals with moderate credit scores. Many individuals with average FICO scores in the top two quintiles already have three credit scores that qualify them for most favorable terms of borrowing; so corrections to their files did not significantly affect their credit standing. Individuals in the lowest quintile tended to have so much derogatory information in the credit report that correcting errors did not generally improve the scores sufficiently to move them to a lower-risk group. Individuals with average credit scores in the low-to-middle group who find errors in their credit reports have the most to gain immediately from seeking corrections to their files. A third of individuals in the lower-middle quintiles may expect to have one or more of their credit scores cross a threshold that is used to determine the price of an automobile loan.[5]

Significance tests for logistic models pertaining to the likelihood of having an increase of 10 or more points after dispute resolution are presented in Table 9. Significance tests for logistic models pertaining to the likelihood of crossing a lending threshold are presented in Table 10. The logistic models are constructed with (0–1) indicator variables for the credit-score quintile to accommodate the nonlinear relationship.

Together, these results in Tables 9 and 10 suggest that the outcomes of disputes filed with the credit bureaus to address potentially material errors in credit report(s) are not influenced

Table 8 Numbers and percentages of cases where corrections to file(s) resulted in FICO scores(s) crossing a lending threshold (589, 619, 659, 689, or 719 points)

Score crossed threshold	Average FICO score					Overall
	<590	590–679	680–749	750–789	>790	
No						
Number	75	53	42	28	11	209
Percent	91.5	72.6	62.7	93.3	100.0	79.5
Yes						
Number	7	20	25	2	—	54
Percent	8.5	27.4	37.3	6.7	—	20.5
Total						
Number	82	73	67	30	11	263
Percent	100.0	100.0	100.0	100.0	100.0	100.0

Table 9 Significance tests on logistics models for the likelihood that one or more credit scores will increase 10+ points because of correction(s) of potentially material error(s)

Factors included	χ^2	*df*	*p*-Value	Sample size
Full model	21.6	29	0.84	262
Ex adverse events	3.56	5	0.61	262
Ex demographic	3.34	6	0.77	262
Ex resources	4.92	6	0.55	262
Ex household char	5.76	6	0.45	262
Ex payment habits	2.87	2	0.24	262
Ex credit record	3.36	4	0.50	262
Reduced model	4.2	1	0.01	262

by characteristics or circumstances of the individual who files the dispute. The overwhelming factor is the content of the credit record itself. We must acknowledge, however, that this presumes the individual has help in clearly stating the nature of the alleged error and identifying the specific items in the credit report(s) that should be corrected (and how). This was assured in our study by the individuals' receiving letters prepared by university research associates to be completed by them and mailed to the relevant credit bureaus.

In the analysis to this point, we have determined the extent to which various factors account for consumers' experience with the U.S. system of granting credit and reporting credit information. Finally, we present the parameters for individual variables in the regression and logistics models to show their individual statistical significance and magnitudes of their marginal impact. To facilitate the interpretation of the logistic models, instead of giving the logit coefficients, we indicate the impact of unit changes in the respective explanatory variables upon the corresponding odds ratios for the respective binary outcomes.[6]

Table 11 contains parameters (coefficients) for the three "full" regression models and the "odds ratio" effects for variables in the five "full" logistic models. Table 12 contains the coefficients for the eight "reduced models" that were produced by stepwise backward elimination of variables (one at a time) that did not meet a 0.1 level of statistical significance (i.e., 0.05 level for a one-tailed test) at each stage. Considering the reduced model in the last column of Table 12, for example, the odds of a having a credit score cross a lending threshold(the probability of crossing a threshold divided by the probability of not crossing a threshold) are estimated to be

Table 10
Significance tests on logistics models for the likelihood that one or more credit scores will cross a lending threshold because of correction(s) of potentially material error(s)

Factors included	χ^2	*df*	*p*-Value	Sample size
Full model	35.7	29	0.18	262
Ex adverse events	5.54	5	0.35	262
Ex demographic	4.33	6	0.63	262
Ex resources	8.73	6	0.19	262
Ex household char	7.73	6	0.26	262
Ex payment habits	0.11	2	0.94	262
Ex credit record	19.53	4	0.0006	262
Reduced model	10.9	3	0.01	262

Table 11
Regression coefficients and odds ratio effects for the "full models"

Variable	Credit utilization/limits (Table 2)	Credit utilization/income (Table 3)	Pays > min due odds eff (Table 4)	Pays all balances odds eff (Table 5)	Average credit score (Table 6)	Material dispute odds eff (Table 7)	Material score increase odds eff (Table 9)	Score crosses threshold odds eff (Table 10)
Intercept	45.42***	6.64**	nr	nr	623.55***	nr	nr	nr
Unemployment	6.88**	−1.24	0.60**	0.77	−19.33***	1.07	0.49	.51
Income drop	4.03	3.36**	0.72	0.57***	−10.52**	1.37*	1.23	1.83*
Recent birth	−4.29	−3.68*	0.81	0.86	2.64	1.07	0.73	0.26**
Divorce/separation	4.30	2.06	0.97	1.25	−17.05**	1.20	1.09	1.34
Major medical	5.25*	0.55	0.55***	0.71	−15.42***	0.81	0.88	1.33
Age under 30	−5.04	−4.93***	1.91***	1.45*	−7.20	0.67*	0.65	0.73
Male	−3.59	0.18	0.99	1.38**	1.72	0.74*	1.06	1.69*
Asian	−11.04**	−3.16	1.67	4.46***	7.28	0.99	1.60	0.73
African American	1.31	−4.44**	0.37***	0.39***	−39.89***	1.19	1.13	0.55
Some college	−5.00	2.12	1.19	1.13	11.51*	0.69	0.64	0.67
Graduate degree	−6.11	1.81	2.26**	2.09***	21.19***	0.69	0.52	0.74
Income over $75K	1.03	0.03	0.94	1.08	4.47	2.01***	1.32	2.89**
Income $25–$50K	3.35	3.08*	0.64*	1.02	−3.13	0.91	0.89	3.21**
Income less $25K	−11.28**	3.66	0.69	1.30	4.43	0.59*	0.68	1.08
Contingency funds	−8.33***	1.86	2.33***	2.51***	30.58***	0.90	1.02	0.97
Pension plan	−2.87	−1.27	0.87	1.13	−2.94	1.00	1.37	1.33
Other retirement	−10.96***	−2.50*	1.72**	1.93***	28.83***	0.90	1.52	2.31**
Homeowner	−9.20***	2.31	1.48*	1.75***	16.42***	1.01	−0.56*	0.59
Married	−6.02**	−2.27	1.54*	1.61**	8.93*	1.01	1.24	0.65
Employed full time	6.65**	1.91	1.06	0.62**	−21.91***	1.16	0.68	0.59
Years with employer	−0.21	−0.02	1.01	1.01	0.46	0.98	0.99	0.98
Household size	3.57***	−0.29	0.99	0.77***	−4.38*	0.81*	1.18	1.50**
Kids under 18	−0.44	0.26	0.75**	1.11	−2.96	1.12	0.85	0.83
Pays > Min balance					40.30***	1.24	1.26	1.15
Pays all balances					50.53***	0.70*	1.79*	0.89
Average credit score						0.99***	na	na
Average score Quintile 1							1.00	0.13***
Average score Quintile 2							0.94	0.82
Average score Quintile 4							0.79	0.08***
Average score Quintile 5							0.19**	nr

* Significant at 0.1 level, ** significant at 0.05 level, *** significant at 0.01 level, nr = not relevant, na = not applicable.

Table 12
Regression coefficients and odds ratio effects for "reduced models"

Variable	Credit utilization/limits (Table 2)	Credit utilization/income (Table 3)	Pays > min due odds eff (Table 4)	Pays all balances odds eff (Table 5)	Average credit score (Table 6)	Material dispute odds eff (Table 7)	Material score increase odds eff (Table 9)	Score crosses threshold odds eff (Table 10)
Intercept	44.94***	12.67***	nr	nr	622.79***	nr	nr	nr
Unemployment	6.68**		0.50***		−18.37***		0.54**	
Income drop	5.30**	2.94**		0.51***	−9.69**			
Recent birth		−3.55*						0.33**
Divorce/separation					−16.81**			
Major medical	5.62*		0.55***	0.69*	−15.42***			
Age under 30		−5.68***	2.07***			0.65*		
Male				1.35**		0.76*		
Asian	−11.62**			4.37***				
African American		−4.58***	0.34***	0.36***	−39.70***			
Some colleges	−5.99*				11.33*			
Graduate degree	−7.22*		2.12***	1.86***	22.35***			
Income over $75K						1.97***		2.45**
Income $25–$50K								3.18**
Income less $25K	−12.48***							
Contingency funds	−9.52***		2.58***	2.56***	30.71***			
Other retirement	−11.50***	−2.38**	1.89***	1.92***	29.20***			1.96**
Homeowner	−8.26***		1.54**	1.65***	17.76***			
Married	−6.55**	−2.97**	1.61**	1.47**	11.42**			
Employed fulltime	4.05*			0.70**	−22.89***			
Years with employer					0.54*			
Household size	3.03***			0.81***	−5.90***	0.89**		
Kids under 18			0.73***					
Pays > min balance					40.01***			
Pays all balances					50.90***	0.71*		
Average credit score						0.99***		
Average score Quintile 1								0.20***
Average score Quintile 2								
Average score Quintile 4								0.10***
Average score Quintile 5								nr

* Significant at 0.1 level, ** significant at 0.05 level, *** significant at 0.01 level, nr = not relevant.

80% lower (changed by a factor of 0.2) for individuals with credit scores in the lowest quintile relative to those in the middle quintiles after considering family income, whether the family had a recent birth, and whether the individual had other forms of retirement savings.

Concentrating on the coefficients for the reduced models, with other things considered, we see higher credit utilization relative to credit limits among individuals who suffered recent or extended unemployment, a drop in income, major medical expenses, were employed fulltime, or lived in large households. Lower usage of available credit was seen for individuals in the lowest income group, individuals who had contingency funds to cover an unexpected two-month interruption in income, who had retirement savings or pension plans, were homeowners, Asians, college-educated individuals, and married persons. Recall, however, that 83–84% of the variation of credit utilization relative to credit limits was unexplained by the regression models.

Individuals who were unemployed, had major medical expenses, were African American, or who had more children at home, *ceteris paribus*, were less likely to pay at least the minimum amounts due on all accounts each month. Conversely, if the person was under 30, had a graduate degree, had contingency funds or retirement plan, was a homeowner or married, he or she was more likely to pay more than the minimum due on all accounts each month. Payment habits, of course, are highly influential in determining the individual's credit score. After accounting for those habits and other variables in the model, average credit scores were still higher for college-educated individuals, for people with contingency funds, homeowners, married individuals and people who are employed longer with their current employer. Average scores were lower for individuals who were unemployed, who had recent drops in income, were divorced or separated, had major medical expenses, were African American, employed full-time (vs. part-time)[7] and from larger households.

Material disputes, *ceteris paribus*, were more likely to arise among individuals with average lower credit scores and also among individuals with family income over $75K. Some further variation was explained by age, gender, drops in income and household size. Following disputes, improvement in credit standing was less likely for African Americans and more likely for individuals in the highest and lowest income categories but this is likely because of associations between average credit scores for individuals (i.e., the nature of the credit record itself) as discussed earlier. Race (Black) becomes insignificant at the 0.05 level when indicators of credit-score quintiles are included in the reduced model to accommodate the nonlinear effects of the quality of the credit record. The last pair of models suggests that individuals in the lowest quintile are as likely as those in Quintile 3 to receive a 10-point increase in their credit scores but that is insufficient to have them cross a lending threshold because of other deficiencies in their records.

5. Implications for credit-reporting practice

Based on qualitative observations from the intensive reviews of credit-bureau records in this study (and decades of personal experience in the use of such data for risk management in financial institutions), we are able to offer suggestions for possible changes to credit-

reporting practices that may improve the quality and utility of information in credit-bureau files while respecting consumer privacy.

Setting aside the fact that bureau files represent only one side of the ledger (i.e., not providing information about income or financial assets), there were several recurring themes observed by our research associates as they discussed the credit reports with study participants. They pertained to measures of: (1) credit utilization, (2) alleged applications for new credit, and (3) collection activity. The construction of credit scores is, as acknowledged earlier, hampered by the lack of information on credit limits and payments made on revolving accounts. Neither of these variables can be deduced unequivocally from account balances and delinquency status. This makes estimates of utilization and whether individuals pay accounts in full each month prone to considerable error. Because of concerns for individual and institutional privacy, we frankly doubt that satisfactory remedies exist for these shortcomings.

"Hard pulls" of bureau records (caused by applications for new credit) reduce credit scores. They may occur, however, for reasons with dramatically varying implications about risk—from trivial credit-checks for a new cell-phone account to highly leveraged financial gambits. More information about the reason for "hard" inquiries and the amount of the credit line would be helpful (if the borrower were to authorize such disclosure).

Finally, collection accounts can grossly overstate the amounts of debt involved and often involve disputed obligations. Late payments and service charges (sometimes arbitrarily imposed by unscrupulous collectors) can overwhelm the amount of an original debt. It is often impossible to tie a collection account to an original obligation or to nature of product or service involved. A collector may have purchased accounts receivable from landlords, medical clinics, or from a bankrupt enterprises that failed to meet its obligations to the consumer. Further documentation regarding the nature of the collection account, the original creditor, current amount owing, cumulative interest and service charges, and magnitude of the original debt or credit line (before default) would improve the record.

6. Conclusion and directions for future research

With this research, we have confirmed some patterns observed in previous studies on the use of consumer credit, refined analysis of consumers' habits in managing debt, and extended the inquiry to encompass the roles that individual consumers must play to ensure that their credit records are accurate. A series of regression and logistic models at different stages of the credit cycle reveals the dynamics of the conceptual model from Fig. 1. Consistently with previous research, we see that credit usage depends somewhat on socio-economic factors but still varies a great deal among individuals with similar educational backgrounds, income, family resources, ethnicity, major family events, and so forth. Misuse of credit and vulnerability to adverse events occurs in a broad socio-economic spectrum.

Addressing our first research question (whether we can account for differences in individuals' success in managing their credit obligations), we see that the credit record (as revealed in the average FICO scores from the three major credit bureaus) is highly related to each of the factors studied (family resources, household characteristics, demographic attributes, and occurrence of adverse events)—and especially related to individuals' self-reported

habits in meeting their monthly obligations. We should note that, in our sample, just 46% of respondents claimed to pay off all account balances each month while the triennial Survey of Consumer Finances (Bricker et al., 2014) reported that the percentage of households that habitually pay off credit card balances each month increased by 10.5 percentage points (from 57.9 to 64.0) over the period 2001 to 2013. Responses in our study were given after an intensive review of the individuals' credit reports. This review, even though the credit reports do not explicitly indicate whether balances on revolving credit are paid in full each month, may increase the accuracy of consumers' responses to questions about their payment habits. With credit usage and payment behavior related, however, to household resources, adverse events, and demographic characteristics, some of the difference may be related to composition of the respective samples or to interpretation of the meaning of "normally paying of all balances" in the respective surveys.

Addressing the second research question (whether individuals in some demographic groups are more vulnerable to inaccuracies in their credit reports), we see that the propensity to identify alleged errors in the credit records is primarily related to the nature of the person's credit record rather than standard demographic characteristics of the person. Some demographic groups, however, are more prone to usage of credit without paying off all balances each month. That makes them more vulnerable to reporting of derogatory information in the credit file and, indirectly, more prone to errors that can affect the credit report. Our findings in this regard reinforce those of Avery et al., (2012) but with added precision from our directly addressing the issues in our extensive interviews with the consumers and our joint reviews of their credit reports. Incidence of adverse impact is much lower than previously reported in studies by various advocacy groups but a significant number of consumers in our sample (5.5%) had a credit score cross a threshold for more favorable credit terms after errors were corrected in their credit files.

Addressing the final research question (whether some demographic groups are more successful than others in getting alleged errors rectified), we see that the outcomes of disputes are similarly related to the credit record rather than to the demographic characteristics of the disputant (provided, of course, that disputes are registered with necessary clarity). Disputes filed with credit bureaus to correct alleged errors are most likely to produce material improvements in the disputant's credit score if the current score is in the second or third quintile (at or slightly below average)—regardless of the demographic characteristics of the disputant. Individuals with very poor or exceptionally good credit records are less likely to see material differences in their credit standing from corrections to the credit files, but for different reasons.

Several issues call for further research. First, while our results suggest that the dispute resolution process is reasonably effective, it should be remembered that study participants were carefully guided through the dispute process to ensure that our measures of accuracy and adverse impact were as accurate as possible. We did not test whether individuals with alleged errors in their credit reports are able to document them effectively on their own and be as successful in having changes made as did the participants in our study. Second, given that fewer than one in six of our study participants had reviewed their credit reports in the two years before joining the study, one is compelled to ask why consumers do not exert the effort necessary to do so. In an era of well-publicized data breaches and identity theft, one

would expect consumers to be more vigilant than they seem to be. Finally, given that the regulatory model in place is reliant on the ability and willingness of consumers to monitor the accuracy of the information in their credit files, one must ask if this process could be improved with the implementation of an educational process which describes the system and the importance of monitoring. In the process of reviewing the credit reports with university associates, study participants received a thorough education on the scope and significance of information contained in their credit reports. Many expressed gratitude for having a better understanding of factors that affect their credit scores and how good personal financial decisions could help to improve them. Future research might indicate whether more efforts at financial literacy would contribute to better personal financial management and measurable improvements in consumer credit scores.

Notes

1 Additional information about the FCRA and subsequent amendments is available from the Federal Trade Commission (FTC) Web site at http://www.ftc.gov/os/statutes/031224fcra.pdf.
2 Financial institutions (especially credit-card issuers) are reputedly reluctant to report the credit limits because they tempt competitors to poach business by offering cards with higher limits. The absence of proper credit limits, however, reduces the informative content of credit scores on which they all rely for business decisions. This seems to be a tradeoff that financial firms are willing to bear.
3 This can happen, for example, when credit limits are lowered after delinquency. The patterns of statistical significance of the individual factors were similar when the extreme values were included, but the R^2 statistic for the full model dropped from 17% to 10% when the extreme cases were included.
4 If any of the elements of a factor or the dependent variable was missing, the case was not included.
5 Crossing a threshold would be expected to change the pricing of a loan only if the potential lender was using that particular score as the determining factor. If the lender had another but lower score in hand, the latter would tend to dominate.
6 The probability that a binary logistic outcome equals one is computed by exp(logit)/(1+exp(logit)) for our logistic models. The odds-ratio effects are the inverse logarithms of the corresponding logistic parameters.
7 Effects of full-time employment may be spurious in this model (because of relationships with other variables such as a spouse's having a high income); it was not significantly correlated with average credit score over all.

Acknowledgment

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Appendix A: Summary statistics for variables used in the models

Variable	Nonmissing Obs.	Minimum	Maximum	Mean	Standard deviation
Max rev. bal. to max credit line (%)	876	0	140.3	30.44	33.93
Max. rev. bal. to annual income (%)	943	0	129.6	9.22	17.18
Average FICO score	1,001	459.7	823.3	698.15	95
Always pays more than min. payments	1,001	0	1	0.79	0.41
Pays off all revolving balances monthly	1,001	0	1	0.46	0.5
Filed material dispute	1,001	0	1	0.26	0.44
Score increased $>$ 10 points with corrections	263	0	1	0.33	0.47
Score crossed threshold	263	0	1	0.21	0.40
Recent extended unemployment	1,001	0	1	0.22	0.41
Reduced household income	1,001	0	1	0.38	0.49
Recent new birth in family	1,001	0	1	0.1	0.3
Divorce separation death of spouse	1,001	0	1	0.07	0.25
Major medical bill	1,001	0	1	0.17	0.38
Age under 30	1,001	0	1	0.21	0.41
Male	1,001	0	1	0.51	0.5
Asian	1,001	0	1	0.04	0.19
Black	1,001	0	1	0.13	0.34
Some college (including undergrad degree)	1,001	0	1	0.62	0.49
Graduate degree	1,001	0	1	0.26	0.44
Income over $75K	1,001	0	1	0.39	0.49
Income $25K–$50K	1,001	0	1	0.23	0.42
Income under $25K	1,001	0	1	0.13	0.34
Adequate funds for contingencies	1,001	0	1	0.69	0.46
Has pension plan	1,001	0	1	0.56	0.5
Has nonemployee retired savings account	1,001	0	1	0.38	0.49
Owns home	1,001	0	1	0.63	0.48
Married	1,001	0	1	0.54	0.5
Employed fulltime	1,001	0	1	0.57	0.5
Years with current employer	1,001	0	44	5.15	7.67
Household size	997	1	10	2.57	1.31
Number of children under 18 years	1,001	0	6	0.54	0.94

Appendix B: Credit-review checklist, interview guide, and closing survey (reformatted to conserve space)

Credit review checklist

It would be most helpful when we call to Interview you if you focus on these items:

1. Are your NAME, ADDRESS and IDENTIFYING INFORMATION on the front of the Report correct?
2. If you currently have a MORTGAGE on a home is the name of the LENDER correct?
3. Is the OUTSTANDING BALANCE correct? (Remember that the balance could be from any day of the previous month).
4. Is the DATE the Loan was OPENED correct?
5. Are the number of DELINQUENCIES, if any, correct?
6. If you have had a CAR LOAN in the past seven (7) years, find that in the Report and check the DATE the LOAN was OPENED, LENDER NAME, LOANBALANCE and PAYMENT HISTORY. Are these items correct?
7. For each CREDIT CARD you currently have, locate it in the Report and check the DATE ISSUED, LENDER NAME, OUTSTANDING BALANCE and PAYMENT DELINQUENCIES, if any. Are these items shown correctly?
8. If you currently have other types of monthly INSTALLMENT LOANS for purchasing goods or services, please locate these in the REPORT. Again, pay special attention to the DATE of the LOAN, LENDER NAME, OUTSTANDING BALANCE and PAYMENT DELINQUENCIES, if any. Are all of these items correct?
9. For any CLOSED LOANS (Mortgages, Car Loans, Credit Cards, and so forth) carefully examine those that show there may have been DELINQUENT PAYMENTS. Does this information appear correct?
10. Does the Report show any loans that went to COLLECTION? Is the information reported correctly? (A COLLECTION ACCOUNT is one where you missed a payment and the LENDER has hired a COLLLECTION AGENCY to collect the money from you. It is listed at the end of the Credit Report).
11. After you have reviewed one Credit Report in detail, please do the same with the other two Reports. Do you see any significant differences among the three Reports? What are they?

Please make note of questions you have and to discuss with our Research Associate during your PHONE INTERVIEW. Thank you again for participating in this Study.

Interviewing guide

Good evening/afternoon . . . *This is* _____ *calling from the University of Missouri/University of Arizona regarding the Federal Trade Commission Study on the accuracy of credit report information. Thank you for participating. May we review your REPORTS now?* (If NOT, ask for a time to reschedule, and either confirm or tell him/her you will call them back to confirm a new, convenient time.)

FIRST, I'll answer any questions you may have about the content of your three CREDIT REPORTS. THEN, we'll discuss any possible inaccuracies you may have identified during your own review. NEXT, we discuss the findings from our comparison of the information in the three CREDIT REPORTS. And FINALLY, I'll ask you for some general demographic information to complete our Study.

1. *Using the Checklist that we sent you along with your three CREDIT REPORTS, did you find any questionable items?*

   If NO, confirm that they have covered every category in the list. Mention each item in the list. If YES, *What did you find?*

   Obtain clarification for each item mentioned or alleged error starting with the disputed CREDIT REPORT and then compare the corresponding item in the other CREDIT REPORTS.

   When all the Participant's questions have been answered, address any inconsistencies or irregularities identified in the preparatory review:

(continued on next page)

Appendix B: *(Continued)*

From our own review, we have a few questions we would like to ask . . .

If there are any derogatory items review these with the Participant to be sure the facts are presented correctly.

If the Participant finds alleged errors explain the DISPUTE PROCESS and explain the difference between material and immaterial errors.
If the Participant claims an immaterial error suggest he/she call the LENDER to resolve.
If the Participant claims a material error, explain how you will help them file a DISPUTE.

Helping the participant file a DISPUTE:

- Be sure you fully understand what the participant feels is in error and why;
- Explain that you will prepare a letter (to that particular CRA) and send it to the participant;
- He/she will need to review the information, sign, fill in the identifying information (social security number and date of birth) and mail the letter to the CRA;
- Also explain that you will include a self-addressed stamp Postcard for the participant to return to the Study office to confirm that the DISPUTE LETTER(S) were mailed to the CRA;
- Ask the participant to forward any correspondence they receive from the CREDIT REPORTING AGENCY in response to the dispute letters;
- Tell the participant you will follow up with them by email or phone to find out what the CRA told them about the Dispute, or what the CRA has done about it;
- Explain that, in about eight weeks, the research team will draw a new CREDIT REPORT and will contact them to let them know what changes (if any) were made in response to the dispute letters.

Closing survey (administered to all participants at the completion of the interview)

"I think we have covered everything in your credit reports. Now I need to record some additional information to help in our interpretation of the study data . . ."

Credit Report Accuracy and Disputes

Have you ever previously requested a copy of your credit reports? YES ___ NO__
IF YES:
a) Where did you get them? _____
b) When did you last request a credit report? _____

Have you ever previously disputed any inaccurate information on any of your credit reports or requested that some negative information removed? YES __ NO __
If YES:
a) When did you last dispute inaccurate information on your credit report? _____
b) Were you successful in getting the item changed or removed? YES NO
c) If YES, how did you accomplish this? For example did you write to a bureau, telephone the creditor, write to a creditor, use a bureau website, or get help from a credit counselor?
d) How long did it take? (hours of effort on the consumer's part) _____
e) How were you notified of the result?: E-mail __ Mail ___ Phone__ Other ___ None___
f) Have you previously obtained your credit scores? For example, have you ever obtained your FICO score, Vantage score, or some other credit score? YES __ NO__

If YES:
a) Where did you get your credit score? _____
b) When did you last obtain your credit score? _____
c) Have you obtained credit in the past seven years that is NOT reflected in your credit reports? YES __ NO __

If YES:
a) What was the total amount? _____
b) Was there a formal payment schedule? YES __ NO __

If YES:
c) Were all payments made on time? YES __ NO__
d) Are the loans completely paid off? YES __ NO __

(continued on next page)

Appendix B: *(Continued)*

Do you generally pay more than the minimum balance on ALL your credit cards every month? YES __ NO __
Do you generally pay off all your credit card balances from month to month? YES__ NO __
In the past 12 months have you had any late payment fees for credit cards, overdraft charges on bank accounts, or other late payment fees? YES __ NO __
Within the past year have you had any of your credit limits on your credit cards or other accounts reduced? YES __ NO __
If YES:
a) On how many? _____ b) By how much? _____
In the past 12 months have you used pay day loans, pawn shops, auto title loans or similar forms of credit to meet you immediate needs for cash? YES __ NO __
If YES:
a) How many times in the past 12 months? _____
b) Did you use these types of loans to avoid high late payment fees or interest charges on other forms of credit? _____

Household characteristics

". . . The FTC needs to ensure that it has based its study on a properly representative sample of U.S. consumers. We need, therefore, to provide (anonymously) some information about each participant and their households. We have a few general questions in that regard . . ."

1. In which age bracket would you place yourself? (a) Under 30 (b) 31–40 (c) 41–50
2. (d) 51–60 (e) over 60
3. What is your gender? M__ F__
4. Would you classify yourself as: (a) White, (b) African-American, (c) Hispanic
5. (d) Asian, (e) Other
6. Are you currently: (a) Married, (b) Living with a partner, (c) Never married, (d) Divorced, (e) Separated, (f) Widowed
7. What is your highest level of education? (a) No high school diploma (b) High School diploma (c) Some college (d) Associates degree (e) Bachelor's degree (f) Graduate degree
8. Rating yourself on a scale of 1–5, with one being not knowledgeable at all to 5 being very knowledgeable, how knowledgeable do you consider yourself about credit related matters?
9. Using the same rating scale of 1–5 with one being not confident at all to 5 being very confident, how confident do you consider yourself in your ability to manage your own finances?
10. *". . . The FTC is interested in the most effective ways to educate American consumers about credit matters and personal financial management . . ."*
11. Did you participate in any personal finance courses in high school or (if applicable) in college? YES__ NO__
12. *". . . Some states have begun to offer mandatory education about personal finance and credit management to high-school students."*
13. In which state and city did you attend high school? _____
14. Are you currently employed? YES __ NO __

And, Researchers Note the Employment Research Category: (a) Employed (b) Self Employed (c) Homemaker, (d) Retired, (e) Unemployed, (f) Disabled, (g) Other

15. Full Time or Part Time
16. (IF EMPLOYED) How many years have you been with your current employer? ___
17. (IF EMPLOYED) What is your occupation? _____

And, Researchers Note Occupational Research Categories (a) Professional (b) Admin/Mgr (c) Trade and/or Technical staff (d) Sales (e) Clerical (d) Retired (e) Disabled

(continued on next page)

Appendix B: *(Continued)*

18. How many people are in your household? _____
19. Are there any children under the age of 18 living in the household? YES __ NO __
    If YES, How many? _____
20. In which general category does your total household income fall? (a) Under $25K (b) 25–49.9K (c) 50–74.9K (d) 75–99.9K (e) 100–149K (f) 150–200K (g) >200K (h) declined
21. Do you own or rent your living quarters? Own __ Rent __
22. Have you, in the past two years, experienced any of the following events that may affect your current financial situation?
    I'll read Five Events:
    a. An extended period of unemployment (3 months or longer) when you couldn't find a job?
    b. A significant reduction in your household income?
    c. Birth of a family member for which you have financial responsibility?
    d. Divorce, separation or death of a spouse?
    e. Major medical bill that was not covered by insurance?
23. Without taking out a loan or using a credit card, do you have savings or other financial resources to come up with $2,000 within 30 days if you needed it for an emergency? (YES/NO)
24. Do you have an employer-provided retirement plan other than social security? (YES/NO)
    If YES, is it: (a) A Defined Benefit plan where the employer pays a predetermined amount for life beginning at retirement (usually based on years of service and salary (b) A Defined Contribution plan where both employee and employer may contribute to individual's accounts and the benefit amount at retirement is based on the amount invested and the investment performance of those accounts, (c) both (a) and (b) or (c) some other type of employer-provided retirement plan? (specify)
    _____
25. Do you have another type of registered retirement account (not provided by an employer) such as a self-directed IRA or Roth IRA (i.e., a retirement plan where the owner of the account, usually through a trustee, makes all contributions and investment decisions)? The benefit amount at retirement is based on the amount invested and the investment performance of those accounts. (YES/NO)

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