What's in a Number?
An Exploratory Analysis of the Impact of Reporting Errors on Consumer Credit Scores

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Abstract

We construct and test a methodology to ascertain the validity of information in consumer credit files via direct interactions with consumers and investigate the outcomes of disputes where material errors are alleged. Materiality of disputes is measured by their impact on the FICO® scores for these clients. Results of pilot studies to test our methodology reveal the types of errors that may often occur in files. While a large representative sample will be required to develop accurate estimates of the frequency and severity of errors in credit-bureau files, the results from our two pilot studies suggest that figures published by consumer advocacy groups tend to exaggerate the impact of alleged errors, as many have no material effects on credit scores. Our observations from detailed reading of credit reports with consumers themselves underscore the hazards of relying solely on consumer credit scores when assessing an individual's credit risk.

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Introduction

The importance of credit scores on consumer finances is broadly recognized. Credit

scores are used not only in decisions to make loans and set loan rates; they are also used in

decisions to underwrite automobile insurance, hire employees, and accept tenants in rental

property. MSNBC recently reported that over one-quarter of consumers now have credit scores

below 600, which means it is "unlikely they will be able to get credit cards, auto loans, or

mortgages under the tighter lending standards banks now use." [1]

Credit scores are developed from data maintained by major credit reporting agencies

(CRAs) or credit bureaus. The evolving role of the credit reporting agencies in the credit-

granting process is summarized by Furletti (2002):

> "[C]redit data essentially represent a consumer's credit 'reputation,' based as it is
> on his or her borrowing and repayment behavior over time. In the past, this
> 'reputation' was usually maintained by lots of local agencies working with local
> lenders with incomplete and often unverifiable information. Today, regulation and
> consolidation have led to highly automated national firms that compile far more
> detailed and complete information and comply with a range of policies designed
> to protect the interest of consumers . . . Credit reporting companies give
> businesses insights into a consumer's past behavior [which] can be used to make
> decisions about his or her ability and willingness to repay debt . . . Once an
> obscure and widely misunderstood document, the consumer credit file has
> become one of the most important decision-making tools used by traditional retail
> lenders." (p. 2 and p. 15)

Credit bureaus undoubtedly provide an extremely efficient mechanism by which creditors

can obtain information about an individual's past usage of credit, current obligations, and

payment history. [4] To the extent that this information can be converted into a valid measure of

default risk, it can contribute to better lending decisions and potentially lower the costs of

borrowing by creditworthy individuals. [5] Required to achieve this are data that are relevant, complete and accurate.

Unfortunately, past studies have alleged that the data are frequently inaccurate and often inconsistent across CRAs. Erroneous data can undermine the accuracy of estimates that an individual consumer may default.[2] Errors can result in unreasonable denials of credit, higher borrowing costs, difficulties in obtaining auto insurance, renting an apartment, or obtaining employment.[3]

Following Staten and Cate (2004), a premise of this study is that the person most likely to recognize errors in her credit files is the consumer herself. To date, however, there have been no published studies which utilize the consumer's own knowledge of her financial situation to assess the validity of the data in her own credit files. In this paper, we describe our research methodology for engaging consumers in a detailed review of their own credit reports, assessing the accuracy of the records, measuring the effects of inaccuracies, and following the results of formal disputes. To assess the impact of an alleged error in a credit-bureau file we determine the effect that it would have had on the consumer's FICO® score from that bureau. We also follow the results of disputes registered by the consumer to see how their credit standing changes after filing them.

The FICO® credit score is computed via proprietary models constructed by the Fair Isaac Corporation. In brief, the FICO score is based on the following major factors: [6]

- Length and breadth of credit history
- Payment history
- Recency and nature of negative items
- Available credit and utilization
- Inquiries for new credit and their timing.

The influence of one factor upon the credit score may depend upon the values of other factors. In two pilot studies with our research methodology, we see that see that many alleged errors do not materially affect the consumers' credit scores, but there are cases where correcting just an item or two can have a substantial impact on an individual's credit score and eligibility for credit. Some types of error may not affect a consumer's credit score at present, but they could have a substantial impact if the person's family circumstances should change.

In this paper, we describe the types of error we have observed and how they affect consumers' credit scores. Finally, we offer caveats about using credit-bureau data alone for assessing the credit risk of individual consumers.

Previous Studies on the Accuracy of Credit-Bureau Data

Prior investigations of the accuracy of data in consumer credit files have produced highly disparate and contradictory results. The United States Public Interest Research Group (USPIRG) surveyed 154 adults via e-mail and asked that they complete a survey about the accuracy of their credit reports. USPIRG reports that "79% of the credit reports surveyed contained either serious errors or other mistakes of some kind" and one-fourth of the reports surveyed "contained serious errors that could result in the denial of credit." (National Association of State PIRGs, p. 4) Apparently, no attempt was made to validate the respondents' assertions about inaccuracies in the credit files. Avery, et al. (2003) examined a large sample of randomly selected credit and concluded that "close examination of credit reporting company data reveals that the information is not complete, may contain duplications, and at times contains ambiguities about the credit histories of at least some consumers." (pp. 70-71). In this study, the authors did not attempt to quantify the impacts of data issues on credit scores, but suggest that the accuracy of estimated scores is likely to be adversely affected by such deficiencies.

In a subsequent study, Avery, et al. (2004) asserted that, while "the [credit reporting]

agencies endeavor to maintain high-quality data and accurate files, the degree to which consumer

credit reports are accurate, complete, timely, or consistent across agencies is in dispute." They

stated that "analysts disagree on the extent to which data errors and omissions affect credit

history scores." To shed light on this, they simulated errors of the type they observed and used a

proprietary statistical model to assess the impact of the simulated errors on estimates of default

risk. They concluded that "correcting the problems identified here is unlikely to substantially

change the risk evaluation and access to credit for the typical individual."

Lyons, et al. (2007) employed quantile regression to assess consumers' credit

knowledge and conclude that, while many of their respondents possessed some general

knowledge of consumer credit scores and the reporting process, "many 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.

Using a large sample, Avery & Canner (2004) reverse-engineered credit scores and concluded

that "when data are incomplete or in error, they often have little to no bearing on an individual's

credit history score or access to credit."

Staten and Cate (2004) point out that existing legislation has taken the "remedial

approach" to regulation. The Fair Credit Reporting Act of 1996 (FCRA) provides consumers

reasonably easy and economical access to credit-bureau data and an accessible mechanism for

challenging information that they believe to be erroneous. As such, the FCRA "designates the

consumer as the 'quality-control' inspector with the authority to mandate reinvestigation (and

alert potential purchasers) of credit information when errors are detected. By doing so, it places

the responsibility for monitoring file accuracy on the party who can determine accuracy at the

lowest cost. " (p. 22) However, it is not evident that most consumers review their credit files and take actions to get errors corrected.

On these matters, the United States General Accounting Office has concluded that "… the lack of comprehensive information regarding the accuracy of consumer credit reports inhibits any meaningful discussion of what more could or should be done to improve credit report accuracy." (U.S. General Accounting Office, 2003, p. 17).   In the next section we present a research methodology to produce the desired comprehensive information. In the following sections, we share insight gained from pilot studies that demonstrated the feasibility of employing the methodology in a nationwide study.

Research Methodology for Testing the Accuracy of Credit-Bureau Data

The relevant population for this study consists of adults to whom credit has been extended in the form of credit cards, automobile loans, home mortgages and equity lines, or other forms of installment credit. We tested our research methodology in two pilot studies. In our first pilot study, we engaged a judgmental sample of 35 individuals chosen randomly from telephone directories across the United States to test our research instruments and the basic study processes. In the second pilot study, we used several outreach channels to engage a broad cross-section of consumers nationwide. Specifically, the second pilot study employed:

1. Direct-mail solicitation with telephone follow-up to household addresses obtained from published telephone directories and public municipal records (as in the first pilot study).

2. Solicitations to the members of two cooperating financial institutions (one credit union and one large regional commercial bank) whose executives wrote personal letters to randomly selected clients about the study, and referred them to the study website for detailed information and registration.

3. Personal contact with clients of a community-based volunteer income tax preparation (VITA) program with multiple sites (primarily public libraries) in the St. Louis metropolitan area.

Recruiting through the first channel began with a direct-mail solicitation to 203 randomly selected addressees throughout the United States. A letter of invitation was sent from the senior economist at the Federal Trade Commission who served as our liaison with the agency. In his letter, the FTC representative outlined the purpose of the study, explained that it had been mandated by the U.S. Congress, and encouraged participation of an adult in the household with some credit history. A follow-up letter to each invitee was mailed from the director of the university research center responsible for executing the study. Written consent to terms of participation was obtained from consumers. They were referred to a website at the university where they could receive more information about the study, registered with reproducible electronic consent, and received a voucher and instructions for opening personal accounts with Fair Isaac (FICO) from which the university researchers could obtain credit reports with FICO® credit scores from each of the three major credit bureaus (Equifax, Experian and TransUnion) without charge to the consumer. Recruiting through the second channel occurred with three waves of mailings of 500 (nonduplicative) letters to members of the cooperating credit union and with mailings of 500 and 2,000 letters to customers of the cooperating commercial bank. In total, 4,203 letters were mailed to households and financial institution clients. The resulting sample of 141 participants in the second pilot study is summarized in Table 1.

[INSERT TABLE 1 ABOUT HERE]

When the participants registered for the study at the myFICO.com® website, FICO created a "frozen" file for printing at the university and for regenerating credit scores, if necessary, to assess the impact of alleged errors in the bureau records. Digits in account

numbers and the participants' social security numbers were suppressed in the credit reports to protect consumer privacy. No personally identifying information was retained in the research database.

University research associates printed the credit reports (often exceeding 60 pages) and mailed then to participants with a brochure describing the content and meaning of information in the credit report and with a checklist to guide them in preparing for the review of their credit reports with members of the research team.   To prepare for the interviews with the consumers, university research associates reviewed and categorized the information in each credit report, and created spreadsheets that enabled them to see differences in critical items as reported by the three bureaus.   Specifically summarized were:

- current name, address and date of birth
- previous names and addresses
- employment history
- length of credit history
- number of accounts shown as active
- number of accounts showing nonzero balances
- number of accounts with negative items (e.g., number and severity of reported delinquencies)
- number of derogatory public records (e.g., bankruptcy)
- total outstanding account balances including mortgages, installment loans, and various forms of revolving credit (home equity loans, revolving accounts and credit cards)
- inquiries in connection with credit applications
- specific mortgage amounts and current balances
- automobile loans with origination amounts and current balances
- other installment credit with origination amounts and current balances
- specific open revolving accounts with credit limits and current balances
- number of accounts that have been submitted for collection
- total amounts that have been submitted for collection
- current balances on accounts under collection.

When preparing the spreadsheets that summarized this information, the research associates began their analysis with the report from the consumer credit file that appeared to have the greatest amount of information. (Typically, this is the file associated with the lowest FICO®

score.) Then they extracted corresponding and complementary information from the remaining bureaus' reports. The resulting spreadsheet facilitated side-by-side comparisons of the critical information in the reports and complemented the checklist mailed to the consumer with their copies of the credit reports.

Each study participant was then contacted by telephone and reviewed his/her credit reports with a member of the research team. The average time for the review was 30 minutes but cases where errors were alleged took considerably longer. The research associates had to take care not just to identify items that were allegedly wrong, but also to specify how the record should appear if the information were corrected. In cases with alleged errors that could potentially affect the consumer's credit score, FICO made appropriate changes to the record in the frozen file and generated a new credit score.   The resulting change in credit score provides a quantitative measure of the impact of the alleged error on the consumer's creditworthiness as represented by the bureau information. Rescoring was done for cases where the review of the credit report resulted in an allegation of one or more of the following:

- error in the number of negative items
- inaccurate number of public derogatories
- error in the number of accounts sent to collection
- error in the number inquiries for new credit (i.e., "hard" pulls)
- error in outstanding balances not attributable to normal reporting variation
- reporting of accounts not belonging to (or cosigned on by) participant
- duplicate entries of the same information

We classified these cases as having alleged errors that were "potentially material". For each of these cases and for any other case where the alleged error was considered potentially material for other reasons (such as potentially caused by identity theft or due to mismatch with another consumer's data), the research associates prepared dispute letters and sent them to study participants to facilitate their filing formal disputes with the relevant bureaus. The study

participants completed these letters by adding their Social Security numbers, signing them, and

mailing them to the CRAs. They were asked to return a postage-paid card to the research team

confirming that a dispute had been filed. Approximately six weeks after the dispute letters were

mailed to the bureaus by the consumers, we drew a new set of credit reports and recorded the

outcomes. The result may have been: (1) record changed completely in agreement with the

dispute filed, (2) record changed partially in agreement with the dispute filed, or (3) record not

changed. In cases where changes were imposed in accordance with the dispute letter, we were

not able to determine whether the change occurred because the creditor had reported the

information erroneously and corrected an actual error, or whether they removed the item for

another reason (such as a professional courtesy or an inability to verify the information in the

required 30-day interval that have to respond to a dispute).   The entire process above is

represented as a flowchart in Figure 1.

[Insert Figure 1 about here]

Empirical Results

Sample Characteristics

      The initial credit scores and the demographic information provided by the study

participants enable us to characterize the composition of the sample. We first consider the

"representativeness" of our sample by comparing it to the general population of the United

States. The demographic data help us assess the extent to which the sample is reasonably

representative of the universe of consumers affected by credit bureau data. We then use the

distribution of initial sample FICO® scores as a primary indicator of the extent to which the

sample composition is representative of the universe of credit scores maintained by the CRAs.

      Compared to the general population, females are somewhat underrepresented in the final

sample (43.8 percent versus 50.7 percent nationally). On the other hand, the sample contains a

larger proportion of those near or in middle age, compared to the national population. As shown

in Panel A of Table 2, just under two-thirds of the sample consisted of individuals between age

35 and 64, with 18.0 percent under age 35 and 15.6 percent over 64. By comparison, the United

States Census Bureau reports that just less than 40 percent of the U.S. population is between the

ages of 35 and 64.

[INSERT TABLE 2 HERE]

      In terms of ethnicity, the majority of the study participants (81.3 percent) described

themselves as "white," while just fewer than 12 percent are "black." By comparison, U.S.

Census Bureau indicate the population of the U.S. to be 74.3 percent white and 12.3 percent

black. The remainder of study participants described their ethnicity as "Hispanic," "Asian," or "Other."

Approximately two-thirds of the respondents are married, 14.1 percent are divorced, separated, or widowed, and 16.4 percent have never been married. A smaller number (5.2 percent) of respondents describe their relationship as that including a partner.

By design, respondents were required to stipulate that they were at least 21 years of age. The ages of the participants ranged from 21 to 87. The mean (median) respondent age was 49 (51) years of age at the time of participation. Using age 65 as a proxy for retirement eligibility, just less than 15 percent of the sample was of retirement age.

Three-quarters of the respondents are homeowners. The sample is also somewhat overweighted towards households in higher income brackets. As indicated in Panel B of Table 2, 23.1 percent of the households in our sample reported income of $50,000 or below, and over one-third of the sample reported annual household income in excess of $100,000. By comparison, 2008 median household income in the United States was $50,503. In sum, our sample appears to be somewhat tilted in favor of older, more affluent consumers.

The distribution of sample credit scores appears in Panel C of Table 2. Compared to national norms, holders of low credit scores are underrepresented in our sample, while high score participants are overrepresented. At the low end, approximately eight percent of the participants in our sample had an initial FICO score under 600, while the percentage of the national population with a score below 600 is nearly double that, at 15 percent. And, at the other end of the score range, 40 percent of the national population has a FICO score of 750 or above, while nearly two-thirds of our sample (63 percent) have initial scores in that range.

We also consider differences in scores across CRAs. Across our sample, the average scores from CRAs A, B, and C are 734.8, 744.8, and 750.6, respectively. Somewhat surprisingly, while the average differences in scores are relatively small, the absolute values of score differences varied widely. For example, the average difference between scores from CRA A and CRA B is 9.5 points, the range of differences is from zero to 121 points. Table 3 provides the distribution of differences between the highest and lowest initial scores obtained.

[INSERT TABLE 3 HERE]

We conclude that the empirical distributions that emerged in our sample suggest a strong tendency to engage individuals whose credit histories produce higher-than-average credit scores. This may reflect the fact that the majority of our sample participants were obtained via solicitations of bank and credit union customers (and thus consist of people who hold checking and/or savings balances). It is also possible that, since participants self-selected for the study, they are the most likely to have an interest in their credit histories. We believe that these factors constitute a conservative bias; i.e., the composition of our sample would bias against finding substantive errors in CRA data.

Incidence of Data Errors

As noted previously, prior research on the frequency and materiality of erroneous information in CRA files is not conclusive. A primary aim of our research is to provide insights into the data validity issue.

We identified two general categories of "alleged errors." A "significant inaccuracy" is defined as an alleged error which, by itself, is unlikely to impact the consumers' FICO® score. Examples of these items include the following:

- incorrect current address
- error in previous address (i.e., address with which participant has no prior affiliation)
- error in employment history (citing an employer for whom the participant had not worked)
- reporting of credit accounts not opened by (or cosigned on) by participant
- reporting of incorrect account balance (balance beyond limits that could have been reached at any time in the reporting period
- reporting of credit inquiries not initiated by the participant
- reporting of negative items that had not occurred
- error in the total number of accounts that could have had nonzero balances at any time in the reporting period
- accounts submitted for collection and current balances thereon
- error in the bureau's measure of revolving credit utilization

On the other hand, a "material inaccuracy" was defined as something which could change the participant's FICO® score and, therefore, potentially impact him/her financially. In those cases where a material inaccuracy was alleged, we identified the account for rescoring of the frozen file by the Fair Isaac Corporation. As noted previously, researchers facilitated the dispute process, and drew another credit report to determine the outcome subsequent to completion of the dispute resolution process.

Our screening process for error materiality was as follows.

The results of the credit report reviews appear in Table 4.

[INSERT TABLE 4 HERE]

Overall, 11.7 percent of the study participants (15 of 128) alleged that there was at least one material error a credit report. Perhaps not surprisingly, the incidence of alleged errors was inversely related to initial FICO® score. At the low end, half of those participants with FICO®

scores under 610 alleged at least one material error in their credit reports. The proportion of cases with material errors falls to one-third for those with FICO® scores in the 610 to 689 range, to zero for those participants with FICO® scores above 790.

Twelve consumers filed disputes with one or more credit bureaus for the purpose of correcting alleged data errors.[8] We have grouped errors into nine categories, which are reported in Table 5.

[INSERT TABLE 5 HERE]

The most frequently occurring error, "incorrect collection account reported" appeared six times, and resulted in nine dispute filings. (Note that, for a given consumer, a single error can show up in the files of one, two, or three credit bureaus.) The second most frequently-alleged error is the reporting of accounts extinguished as a result of a Chapter 7 bankruptcy as "delinquent," and the next is incorrect reporting of a late payment.[9]

In total, 33 items were disputed by the twelve consumers represented in Table 5. The CRAs corrected 25 of the alleged errors as requested, partially corrected one, and declined to change seven items.

As noted above, the credit files of study participants who alleged material errors were "frozen" and then resubmitted to the Fair Isaac Corporation for rescoring upon resolution of the items in dispute. Table 6 reports the results of this process.

[INSERT TABLE 6 HERE]

In order to ensure anonymity, each study participant was assigned a "study ID." These appear as "Case" identifiers in Table 6. Columns 1 through 3 report the "initial" (i.e., pre-dispute) FICO scores obtained for each consumer, based on the information in his/her initial credit file.[9] Post-dispute FICO scores are reported in columns 4 through 6.

The impact of the dispute process on FICO® scores is generally positive for the consumer, although the magnitude and direction of the change are not completely uniform. In the first consumer case, disputes were filed with credit bureaus B and C, and while one FICO® score increased by 90 points, the other fell by 2 points. Similarly, disputes were filed with bureaus A and C by the second participant listed, and one FICO® score was unchanged, while the other increased by 24 points. In all, the filing of disputes caused 80 percent (20 of 25) FICO® scores to increase, four were unchanged, and one decreased slightly.

Conclusion

Consumer credit scores have become ubiquitous and have the potential to impact consumers in several ways. As such, the quality of the data underlying these scores is of paramount importance. This study represents the first attempt to evaluate the quality of the data in consumer credit files by reviewing those files directly with those most knowledgeable about its accuracy – the consumer herself. We find that potentially material errors exist in a significant proportion of the files examined, and that correction of those errors via the dispute resolution process impacted computed FICO® scores. We close by noting that, while this study is characterized as "exploratory" due to the relatively small sample, the results suggest that further examination of this issue is warranted.

Notes

1. See "Americans' Credit Scores at New Lows," at the MSNBC website:

   http://www.msnbc.msn.com/id/38205674/ns/business-personal_finance/ retrieved July 12, 2010.

2. In discussing the issue of the accuracy of consumer credit data, Hunt states that "no other issue about this industry generates more heated debate than the accuracy of credit reports. For all of that heat, there aren't a lot of data available." (2002, p. 21)

3. The use of credit scores in decision-making has increased dramatically over time. Chye, et al., note that credit scores are now used not only by financial institutions in personal lending decisions, but also to set credit limits, and facilitate targeted credit card marketing. Insurers use scores to "decide on the applications of new insurance policies and the renewal of existing policies . . . adjust premiums . . . [and] assess consumer accountability and performance under the conditions of a life insurance policy." Landlords now use scores to "determine whether potential tenants are likely to pay their rent on time," public utilities use scores in the decision to provide service, and "some employers make use of credit history and credit scores to decide whether to hire a potential employee." (2004, p. 29) However, 1996 amendments to the Fair Credit Reporting Act of 1970 limit the conditions under which credit information can be obtained by a potential employer. See Staten and Cate, pp. 14-15. (2004)

4. See, for example, Hunt (2002), and Staten and Cate (2004).

5. This point is underscored in Fair Isaac Corporation's Understanding Your Credit Score: "A credit score is a number that summarizes your credit risk, based on a snapshot of your credit report at a particular point in time . . . FICO develops FICO scores *based solely on the information in consumer credit reports maintained at the credit reporting agencies*." (emphasis added)

6. Karig writes: "The FICO® score is primarily affected by five key dimensions on the credit report: (1) payment history, (2) level of indebtedness, (3) length of credit history, (4) the consumer's pursuit of credit, and (5) mix of credit with which the consumer has experience. The resulting FICO® score is intended to rank consumers based on their likelihood of missing a payment or having some other derogatory payment event within the next 24 months. Payment history and level of indebtedness are the two strongest predictors in the FICO® score. For payment history, the score assesses the magnitude, frequency, and recency of missed payments or other derogatory information on a credit report such as bankruptcies and collections. For level of indebtedness, the score reflects how much a consumer owes to various lenders relative to the amount of credit that is extended to them. The remaining three factors are secondary predictors relative to payment history and level of indebtedness, but continue to add value "on margin" to the first two factors. The third factor is the length of credit history.

Consumers who have more experience with clean credit behavior have been shown expose lenders to less credit risk. Fourth, consumers who are seeking credit as measured by excessive inquiry behavior or the opening of multiple new credit obligations tend to pose more risk to lenders. Finally, the FICO score examines the mix of credit that a consumer possess, such as the amount of credit a consumer has, and how much experience a consumer has with various credit types with credit cards, retail cards, and installment loans – with wider mix generally indicating lower credit risk." See Karig (2010) p. 8, footnote 3.

7. We emphasize here that differences in credit files across CRAs can be the result not only of bureau errors, but also timing differences, differing reporting policies by lenders, and keypunch errors. We also note that, for analysis purposes, a given discrepancy appearing in more than one credit bureau file is treated as a single item.

8. Note that this study was performed prior to the July 1, 2010 date that the FACTA Furnisher Rules went into effect. The Direct Dispute rule allows the consumer to file disputes directly with the firm that supplied the information in their credit report. For further information, see: http://www.ftc.gov/opa/2009/07/facta.shtm .

9. Chapter 7 of the U.S. Bankruptcy Code provides for liquidation of an individual's assets for distribution to creditors. See: http://www.uscourts.gov/FederalCourts/Bankruptcy/BankruptcyBasics/Chapter7.aspx .The "Lawyers.com" website states that Chapter 7 bankruptcy is "known as 'liquidation' or 'straight' bankruptcy" and "is generally the simplest and the quickest" form of bankruptcy for individuals. See: http://bankruptcy.lawyers.com/Bankruptcy-Basics/Chapter-7-Bankruptcy-Basics.html. Both items retrieved September 20, 2010.

10. Identification of the credit bureaus with corresponding FICO® scores is prohibited by the grant contract under which this study was performed.

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Table 1.Yields from Alternative Recruitment Channels

Recruiting Channel	Letters Sent	Consents Rec'd.	Reports Drawn and Mailed	Reviews Completed
Direct mail to households	203	13	12	12
Credit union mailing 1	500	25	25	24
Credit union mailing 2	500	19	19	17
Credit union mailing 3	500	8	8	7
Commercial bank mailing 1	500	7	7	7
Commercial bank mailing 2	2,000	48	48	39
Volunteer income tax assistance	N/A	10	10	9
Miscellaneous	N/A	19	13	13
Total	4,203	149	142	128

Table 2. Sample Characteristics

Panel A. Age distribution

Age range	Percent of sample
Under 25	4.7
25 – 34	13.3
35 - 44	21.1
45 - 54	21.9
55 - 64	22.7
65 and over	15.6
Total	99.3

Panel B. Household Income

Income range	Percent of sample
Below $25,000	6.4
$25,000 - $50,000	16.7
$50,000 - $75,000	22.2
$75,000 - $100,000	15.9
Over $100,000	34.1
Total	95.3

Panel C. Distribution of FICO© Scores

Score range	Sample distribution (percent)	National distribution (percent)	Difference
Under 600	7	15	−8
600-649	3	12	−9
650-699	9	15	−6
700-749	17	18	−1
750-799	41	27	+14
800 plus	23	13	+10
Total	100	100	

Table 3. Distribution of Sample FICO Scores

High-Low Score Difference	Number of Observations	Percent of Sample	Cumulative Percent
0 to 10 points	14	10.8	10.8
11 to 20 points	29	22.3	33.1
21 to 30 points	34	26.2	59.3
31 to 40 points	23	17.7	77.0
41 to 50 points	11	8.5	85.5
51 to 60 points	7	5.4	90.9
61 to 70 points	5	3.8	94.7
71 to 80 points	0	0	94.7
81 to 90 points	0	0	94.7
91 to 100 points	2	1.5	96.2
Greater than 100 points	5	3.8	100.0
Totals	130	100.0	

Table 4. Distribution of Alleged Errors in Credit Bureau Files

Initial FICO Score	Total Number Of Participants	Number of Cases with No Alleged Error	Number of Cases with At Least One Alleged Material Error	Percent of Cases with at Least One Alleged Material Error
Under 610	10	5	5	50.0
610-689	12	8	4	33.3
690-749	27	23	4	14.8
750-789	35	33	2	5.7
Over 790	44	44	0	0
Totals	128	113	15	11.7

Table 5. Distribution of Potentially Material Errors

Type of Alleged Error	Number of Potentially Material Errors	Number of Bureau Disputes	Number of Full Corrections	Number of Partial Corrections	Number Unchanged
Incorrect Collection Account Reported	6	9	7	0	2
Incorrectly reported late payment	3	5	1	0	4
Incorrectly reported consumer finance account	1	1	0	0	1
Multiple report of account in bankruptcy	2	4	4	0	0
Multiple report of account with late payment	2	2	2	0	0
Paid account reported as delinquent	1	1	1	0	0
Current collection balance reported incorrectly	1	2	2	0	0
Closed account reported delinquent	1	3	2	1	0
Chapter 7 accounts reported delinquent	4	6	6	0	0
Totals	**21**	**33**	**25**	**1**	**7**

Table 6. Outcome of the Dispute Resolution Process

Case	(1) Initial Credit Score Bureau A	(2) Initial Credit Score Bureau B	(3) Initial Credit Score Bureau C	(4) Rescored Credit Score Bureau A	(5) Rescored Credit Score Bureau B	(6) Rescored Credit Score Bureau C
FTCG47L	752	666	654	N/A	756	652
FTCE68J	760	780	728	760	N/A	752
FTC7L90	737	706	701	N/A	N/A	701
FTCGN72	543	560	541	553	599	561
FTCSXL4	492	477	453	N/A	541	N/A
FTC7X60	723	734	792	779	781	N/A
FTC0KD0	809	727	823	N/A	806	N/A
FTCFP8A	680	668	655	697	684	656
FTCID00	684	679	677	703	N/A	740
FTC8RH3	487	588	558	590	640	N/A
FTCJE9W	493	511	530	516	531	530
FTCUANS	513	634	660	578	608	660

Exhibit 1. Consumer Participation Flowchart

Participants register at ftcstudy.umsl.edu

Participants register at myfico.com

Reports are pulled from myfico.com and mailed to participants

Reports are analyzed and prepared for review

Offered expedited review

YES

NO

Written confirmation of no errors

NO

Reports are reviewed with participant

YES

Closing survey

NO

Error alleged

YES

Error process

Database update

Process complete

```
                          ┌──────────┐
                          │  Error   │
                          │ Process  │
                          └────┬─────┘
                               │ 4
                               │ 0
                               ▼
┌────────────┐    2    NO  ╱────────╲  YE  1   ┌────────────┐   1   ┌────────────┐
│ Dispute    │◄───5───────╱ Potentiall╲──S──5──►│ Dispute    │───5──►│ Dispute    │
│ is reworked│            ╲  materia  ╱         │ is reworked│       │ is sent to │
│ and sent   │            ╲         ╱           │ and sent   │       │ Fair Isaac │
│ to         │             ╲───────╱            │ to         │       │ for        │
│ participant│                                  │ participant│       │ rescoring  │
└─────┬──────┘                                  └─────┬──────┘       └──────┬─────┘
      │ 2                                             │ 1                   │
      │ 5                                             │ 5                   │
      ▼                                               ▼                     │
  4 N ╱──────╲  YE  2                       4  N  ╱───────╲  YE   1         │
 ◄───╱Postcar ╲──S──1                      ◄────O ╱ Postcard╲──S──1 1       │
     ╲receive ╱     │                           ╲received  ╱               │
      ╲  d   ╱      │                            ╲        ╱                │
       ╲────╱       │                             ╲──────╱                 │
┌──────────┐        │              ┌──────────┐       │                    │
│ Follow-up│        │              │ Follow-up│       │                    │
│ call/    │        │              │ call/    │       │                    │
│ email    │        │              │ email    │       │                    │
└────┬─────┘        │              └────┬─────┘ 4     │                    │
     │              │                   └─────────────┤                    │
     └──────┬───────┘                            15   ▼                    │
            │ 2                               ╱──────────────╲             │
            │ 5                          1  N╱ Confirmation   ╲ YE   4      │
            ▼                           ────O╱ from participant╲─S───      │
     ┌──────────┐                       1   ╲ disputes         ╱           │
     │ Closing  │                            ╲ by credit      ╱            │ 1
     │ survey   │                             ╲ bureau       ╱             │ 5
     └────┬─────┘                              ╲────────────╱              │
          │ 2                                        │ 1                   │
          │ 5                                        │ 5                   │
          ▼                                          ▼                     │
     ┌──────────┐                             ┌──────────┐                 │
     │ Database │                             │ New report│                │
     │ update   │                             │ is drawn  │                │
     └────┬─────┘                             │ and       │                │
          │ 2                                 │ analyzed  │                │
          │ 5                                 └────┬─────┘    ┌──────────┐  │
          ▼                                   1    │         │ Re-score │◄─┘
      ╱───────╲                               2    │◄────────┤ is       │
     │ Process │                                   ▼     1   │ received │
     │ complete│                             ┌──────────┐ 4  └──────────┘
      ╲───────╱                              │ Results  │
                                             │ are      │
          25                                 │ recorded │
                                             └────┬─────┘
                                                  │ 1
                                                  ▼
                                             ┌──────────┐
                                             │ Closing  │
                                             │ Survey   │
                                             └────┬─────┘
                                                  │ 1
                                                  ▼
                                             ┌──────────┐
                                             │ Process  │
                                             │ complete │
                                             │ with     │
                                             │ database │
                                             │ update   │
                                             └────┬─────┘
                                                  │ 1
                                                  ▼
                                              ╱───────╲
                                             │ Process │
                                             │ complete│
                                              ╲───────╱
                                                          12
```