# The Impact of Credit Counseling on Consumer Outcomes: Evidence from a National Demonstration Program

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Abstract:

Despite purported benefits, relatively little is known about credit counseling's impact on consumer outcomes. This analysis leverages data on more than 6,000 consumers completing credit counseling through a national demonstration program implemented by the National Foundation for Credit Counseling. Administrative data are linked to quarterly credit report data for 18 months after completion of counseling services. In partnership with Experian, a matched comparison group is generated through Coarsened Exact Matching. We estimate a series of differences-in-differences models to trace the evolution of credit outcomes for the counseled group relative to the matched comparison group. The results demonstrate that counseled consumers have reductions in both total debt and revolving debt relative to the matched comparison group. These reductions hold even when accounting for consumer bankruptcies, foreclosures, debt charge-offs, or participation in debt management plans. Consumers with weaker credit profiles also demonstrate improvements in payment delinquency metrics relative to the comparison group.

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# INTRODUCTION

As the U.S. economy begins to recover from the Great Recession, the use of consumer credit continues to increase. In the first quarter of 2016, the level of non-housing debt held by consumers in the U.S. approached 3.5 trillion dollars, up from just over 2 trillion dollars during the first quarter of 2004 (Federal Reserve, 2016). Combined with lower levels of savings, higher debt levels can place consumers at risk of default and financial instability, particularly when unexpected financial shocks occur in future periods, such as the loss of a job or a medical crisis (Getter, 2003; Agarwal, Liu & Mielnick, 2003).

Since the 1950's, nonprofit credit counseling agencies in the U.S. have offered services to consumers to help them negotiate and manage their debt obligations. In terms of overall reach, non-profit credit counseling agencies have provided services to between 1.5 and two million consumers per year in 2013 and 2014, and at the height of the recession these agencies provided services to nearly four million consumers in one year (NFCC, 2015; Keating, 2012).[3] To the extent that consumers are better able to repay and manage their debts as a result of the services received, these agencies can play a substantial role in the functioning of consumer credit markets in the U.S., increasing the likelihood of repayment to creditors and increasing the probability that consumers will be able to access to liquidity through borrowing in future periods (Hunt, 2007).

Despite purported benefits, relatively little is known about credit counseling's impact on consumer outcomes. To date, there has only been one systematic evaluation of credit counseling, which found modest improvements in the credit outcomes of high-risk consumers, while the results were more mixed for the general counseling population (Elliehausen, Lundquist, & Staten, 2007). That evaluation, however, only focuses on credit indicators at two points in time (the year a consumer received counseling and three years after they received counseling), which may ignore critical shorter-term changes in consumer credit profiles. Further, the prior study focuses on clients who received counseling but who did not participate in debt management plans. Debt management plans are often offered to clients as part of

[3] These numbers have historically been much higher when including clients served at any credit counseling agencies, rather than just non-profit agencies. In 2003, for example, it was estimated that around nine million total clients sought credit counseling in any agency (Loonin & Plunkett, 2003).

credit counseling, and those who are unable or unwilling to participate in a debt management plan may be systematically different than those who choose to participate.

This study addresses these gaps in the literature through an evaluation of a nationwide credit counseling program called Sharpen Your Financial Focus, an initiative launched by the National Foundation for Credit Counseling (NFCC) in September of 2013.[4] The Sharpen initiative builds upon and enhances the standard counseling model implemented by NFCC affiliate agencies. As of March 2015, more than 40,000 consumers have received credit counseling services under the Sharpen initiative. This analysis uses data on 6,094 consumers enrolling during the first quarter of the initiative through 13 different affiliate agencies. In partnership with Experian, a matched comparison group is generated through Coarsened Exact Matching (CEM).

We estimate a series of differences-in-differences models to trace the evolution of credit outcomes for the counseled group relative to the matched comparison group, from a pre-counseling baseline period to six quarters (18 months) post-counseling. In addition to estimating the impact of counseling, we account for other time-varying credit interventions after counseling, including bankruptcies, charge-offs and foreclosures. In an alternative specification, we trace outcomes separately for counseled consumers enrolling in DMPs.

The results indicate that consumers enter counseling at times of substantial financial distress, as indicated by higher rates of account delinquencies and declines in credit scores around the time of counseling. This is corroborated by administrative data tracking the reasons consumers give for entering counseling, in which they frequently indicate seeking counseling because of job loss or an unexpected increase in expenses. After the initial decline in credit outcomes at the time of counseling, consumers' credit scores and debt payment behaviors return to their pre-counseling levels about one year after counseling and begin to exceed their pre-counseling levels by the end of the evaluation period.

[4] The NFCC is an umbrella membership organization representing more than 70 affiliate nonprofit financial and credit counseling agencies nationwide.

Relative to the comparison group, counseled consumers have significant reductions in their debt balances after counseling. Specifically, counseled consumers have reductions in both total debt and revolving debt relative to the matched comparison group. These reductions hold even when accounting for consumer bankruptcies, foreclosures, debt charge-offs, or participation in a DMP. Consumers participating in agency-sponsored DMPs experience even greater reductions in debt balances relative to the comparison group. Consumers with weaker credit profiles also demonstrate improvements in credit scores relative to the comparison group, though this improvement is not present across all consumers.

## PRIOR LITERATURE ON CREDIT COUNSELING

While the credit counseling industry has been around for a long period of time, relatively little is known about the impact of credit counseling on consumer outcomes. Indeed, much of the existing literature focuses less on credit counseling explicitly and instead focuses on targeted services that are often offered by credit counseling agencies, such as pre- or post-purchase homeownership counseling (e.g. Agarwal, Amromin, Ben-David, Chomsisengphet, & Evanoff, 2009; 2010; Ding, Quercia, & Ratcliffe, 2008; Hartarska & Gonzalez-Vega, 2005; Quercia & Spader, 2008); matched savings programs or access to banking services combined with financial counseling (e.g. Clancy, Grinstein-Weiss & Schreiner, 2001; Wiedrich, Gons, Collins, & Drever, 2014); or financial education workshops for specific populations (e.g. Haynes-Bordas et al., 2008; ). These studies tend to find modest improvements among counseled households in areas such as reduced mortgage delinquency or improved knowledge about financial matters (Collins & O'Rourke, 2010).

There are a few studies that focus on credit counseling explicitly. Kim, Garman, and Sorhaindo (2003) use pre- and post-counseling surveys and find that, while enrollment in a credit counseling program has no direct effects on financial behaviors, credit counseling participants do have a lower propensity to experience future financial stressor events like collection calls or foreclosures, and that those who remain active in DMPs have better self-assessed financial outcomes than those who do not. Bagwell (2000) uses a similar research design and finds that credit counseling participants report

improved financial behaviors post-counseling relative to their pre-counseling behaviors, and also show improvements in financial stress levels one year after counseling. Barron and Staten (2011) do not test the overall impacts of credit counseling, but rather explore the relative effectiveness of "technology-assisted" counseling (counseling done over the phone or online) versus in-person counseling. Using the change in credit scores from pre-counseling to post-counseling, they find few differences between the modes of delivery on consumer outcomes. While these studies can provide descriptive insights, they lack a comparison group of non-counseled consumers against which to compare the outcomes of credit counseling consumers—a necessary component for evaluating program impacts.

One exception is a study on credit counseling conducted by Elliehausen, Lundquist, and Staten (2007). Using credit bureau data, Elliehausen, Lundquist, and Staten (2007) construct a comparison dataset of consumers who did not receive credit counseling, matched to be otherwise similar at baseline to a sample of consumers receiving credit counseling from NFCC member agencies in 1997. They employ a two-stage least squares model to first predict selection into the credit counseling program, and then use a selection-corrected model to predict the impact of the receipt of counseling on an array of credit indicators. While they find that the impact on credit scores is relatively minimal once selection is taken into account, they find positive impacts from credit counseling on debt levels, accounts held, and bank card use. They find that positive effects tend to be stronger for those with the weakest credit profiles prior to counseling.

Despite its strengths relative to other existing analyses, the Elliehausen, Lundquist, and Staten (2007) study does not account for debt reductions stemming from charge-offs or bankruptcies (rather than consumer or program-driven debt reductions), and does not include counseled consumers who participated in DMPs. Further, the study of outcomes is limited to one point in time, three years after the initial counseling session. This does not allow for the investigation of dynamic patterns in credit changes over time.

There are several different mechanisms by which credit counseling may lead to improved credit outcomes. While empirically isolating these mechanisms is not the central focus of our study, it is important to consider theoretically how credit counseling may impact specific consumer behaviors. We focus on four channels that are likely common across credit counseling programs: (1) increased awareness of and attention to household finances; (2) increased financial knowledge and more informed financial decisions; (3) increased accountability and support regarding financial decisions; and (4) counseling-related structural changes that alter the composition or cost of debt.

First, changes in consumer behavior from credit counseling may be driven in part by increased awareness of their financial situation. As part of the counseling session, consumers complete a written budget documenting their expenses and income. They also receive a copy of their credit report. In some cases, consumers may even receive a financial health score or rating through technology-assisted tools (like those included in the Sharpen initiative), designed to increase a consumer's awareness of his or her present financial situation. Research has shown that people operating under stress or financial scarcity (presumably many of the consumers seeking credit counseling) often face high degrees of drain on their cognitive resources which limits their willpower and prevents them from thinking about longer-term goals (Baumeister, 2002; Mullainathan & Shafir, 2013), and recent research by Stango and Zinman (2014) demonstrates that even responding to survey questions about financial matters such as overdraft fees for checking accounts can lead to improved consumer behaviors is in the near term, such as a reduction in being charged overdraft fees. Thus, by participating in the counseling session, consumers may pay more attention to their use and management of their income and debt the period following the session, which may lead to lower overall levels of consumer debt relative to non-counseled individuals.

Second, credit counseling may impact consumer behavior through increased financial knowledge. For example, consumers may be aware of the interest rate on their credit cards, but may not fully understand how interest compounds over time and affects the amount they will owe. Once they learn this information, they may be more likely to pay off their balances each month rather than incurring interest or

late fees. This type of information may be transmitted during the counseling session informally, through a discussion with the counselor about the consumers' obligations, or it may occur through workbooks, brochures or educational classes or workshops that are offered alongside credit counseling programs.

There is some evidence that low levels of financial knowledge are associated with suboptimal financial behaviors. Lusardi and Mitchell (2014) find that only 30 percent of the US population can correctly answer three basic questions on personal finance. They also demonstrate that sub-optimal borrowing behaviors such as late bill payments, going over credit limits, or paying minimum amounts on credit card debt are associated with lower levels of financial literacy. While financial literacy is associated with consumer behaviors, there is mixed evidence regarding the ability of financial education to change consumer behaviors (Miller et al. 2014; Fernandes, Lynch, & Netemeyer 2014), although there is some evidence of stronger impact when financial education is provided "just in time," alongside important financial decisions (Fernandes, Lynch, & Netemeyer 2014). To the extent that consumers enter counseling due to an immediate or pending change in their financial circumstances, they may be more likely to use the information from counseling to make better financial decisions post-counseling.

Third, credit counseling may enhance consumers' sense of accountability and support with regard to their financial decisions. For example, counseled consumers may commit to reduce expenses as part of an action plan developed during the counseling session. By making this written commitment, the consumer may feel accountable to the counselor if they do not adhere to their action plans, and this sense of accountability may lead to better adherence to the plan (Lerner & Tetlock, 1999). This is particularly true to the extent that there is any ongoing contact between the counselor and consumer after the initial session. Some credit counseling agencies follow-up with consumers at set intervals post counseling to check on their progress towards their financial goals (Wang, 2010)—a form of financial coaching. Financial coaching has grown out of the more general field of "coaching" and has a variety of attributes including monitoring and evaluating progress and providing feedback, being collaborative and client-driven in nature, and focusing on the development of a client's strengths (Collins & O'Rourke, 2012). There is an evolving body of literature that suggests that financial coaching can lead to improved

consumer behaviors (Collins & O'Rourke, 2012; Collins, 2013; Moulton et al., 2015; Theodos et al., 2015). The relationships counselors form with their clients, including any ongoing contact to monitor progress, may lead to further positive changes in consumer financial behaviors.

Finally, credit counseling may impact consumer behavior through structural changes to debt that occur as a result of a consumer's participation in counseling. For example, by participating in counseling, consumers may be less (or more) likely to file for bankruptcy, thus affecting their overall indebtedness. Or, for homeowners, they may be more likely to be referred to a mortgage modification program and thus prevent foreclosure. Most notably, credit counseling agencies typically offer consumers the option of participating in a debt management plan (DMP). Through a DMP, counseling agencies negotiate with creditors to lower interest rates or waive fees for consumers, making an individual's overall debt situation more sustainable and increasing the likelihood of successful debt repayment (Bagwell, 2000). By consolidating multiple debt streams into one, DMPs eliminate the need for consumers to manage multiple payments; they no longer have to track multiple due dates and differing payment requirements for each debt stream. This reduction in complexity may enhance the propensity for consumers to successfully pay off their debts, though the existing research on this potential is mixed (Amar, Ariely, Ayal, Cryder, & Rick, 2011; Gal & McShane, 2012).

# DATA AND METHODS

## Sample Construction

### *Counseled Sample Construction*

To analyze the relationship between credit counseling and consumer outcomes, we use data from the NFCC's Sharpen Your Financial Focus credit counseling program. The NFCC launched the Sharpen initiative in September of 2013, and through March of 2015, 43,072 consumers have received services through the initiative. Prior studies of credit counseling tend to be limited to evaluating the services provided by a single agency or small set of agencies due to the heterogeneity of services offered by

different agencies (e.g. Bagwell, 2000; Kim et al., 2003; Elliehausen, Lundquist, & Staten, 2007). By contrast, the Sharpen initiative has the benefit of standardizing the counseling services offered to a large number of consumers across multiple affiliate agencies.

Specifically, the services provided by agencies under the Sharpen initiative represent recent industry innovations and best practices, including an online financial stress test (named "MyMoneyCheckUp") aimed at increasing consumers' awareness of their own financial activities and overall financial health; a financial review with an NFCC-certified financial professional to help consumers establish goals and action plans; and the opportunity to receive targeted education or additional information (referred to as a "deep dive") on a financial area of interest or concern to the consumer.[5] As appropriate to their financial circumstances, consumers receiving services under the Sharpen program may also be referred to participate in an agency-sponsored DMP. In this way, the Sharpen initiative incorporates the three core elements of standard credit counseling: credit and budget counseling, financial education, and debt management (Loonin & Plunkett 2003; Samuelson & Stiller 2012).

The sample for this study is limited to consumers receiving services from 13 of the 70 member agencies, for whom credit attribute data could be linked to administrative counseling data.[6] Through March of 2015, the 13 member agencies served a combined total of 18,829 consumers, comprising 44 percent of the total 43,072 consumers enrolled in Sharpen. We further limit the sample to 10,925 consumers enrolling during the first quarter of the program, from September 1, 2013 to November 30, 2013. This allows for the collection of eighteen months of post-counseling data for all households in the sample. Finally, the analysis sample is limited to those consumers with complete credit data (n=8,963), for whom a match could be generated during the baseline period, resulting in 6,094 counseled consumers.

[5] More details on the NFCC's Sharpen Your Financial Focus initiative are available online, at: https://sharpen.nfcc.org/

[6] Thirteen agencies were selected based on successful implementation of the Sharpen initiative, as well as their capacity to submit additional data including documented permission from clients to obtain credit data. Only those agencies who had obtained consent from consumers to use their data for research purposes were included in the evaluation.

Appendix A provides a visual diagram of the sample construction for this analysis. Appendix B provides a comparison of the administrative characteristics for the sample of consumers counseled by the member agencies included in this analysis, relative to the full population of Sharpen participants.[7]

Data on counseled consumers are generated from two sources. Administrative data is compiled by counseling agencies, measuring consumer demographic and financial data as well as reasons for seeking counseling and the outcomes of the counseling session.[8] Longitudinal credit attribute data is provided by Experian, which includes a variety of credit indicators including credit score, revolving and installment balances, debt payment delinquencies, and the number of charge-offs, bankruptcies, and foreclosures on an individual's credit record. The administrative data is cross-sectional and recorded at the time a consumer enrolls in counseling (baseline), while the credit data is provided at quarterly intervals. For each consumer included in the analysis sample, we have credit attribute data for the quarter prior to baseline and six quarters post-baseline.

On average, consumers in this credit counseling program tend to be female, white, unmarried (either single, widowed, or divorced), and middle aged. They also tend to be well-educated with around two-thirds reporting some education beyond high school, and come from relatively small households. In terms of financial characteristics, the average counseled consumer has monthly household income of about $3,000, and savings of $500, with the median counseled consumer reporting no savings. The administrative counseling data provides some evidence of a shock driving consumers to seek counseling. The majority of consumers (almost two-thirds) reported seeking counseling because of reduced income, while another ~30 percent reported facing increased expenses. Tables 1 and 2 provide summary statistics for counseled consumers, including self-reported motivations for seeking counseling.

[7]All metrics except consumers' average monthly income are significantly different between the groups; however, the differences are not substantively large. In terms of the demographic characteristics, consumers in both agency groups are roughly similar, though consumers in non-participating agencies are more likely to have a high school diploma or four year college degree. There are some notable differences in the financial characteristics between agencies. While the average monthly income and monthly housing expenses are relatively similar, consumers in participating agencies had fewer debt-related expenses, more tangible assets, less in liquid savings, and more liabilities.

[8] Counseling outcomes include whether or not the consumer was referred to a DMP, whether or not the consumer completed the online financial health check-up, and whether or not the consumer completed additional financial education.

[Insert Tables 1 & 2 Here]

*Matched Comparison Sample Construction*

The comparison group was drawn using Experian's credit database which contains credit information for all households in the United States. From this database, a five percent random sample of U.S. individuals was generated and comparison group members were selected based on their similarity to counseled individuals across the matching covariates referenced above. Specifically, comparison group members were identified using Coarsened Exact Matching (CEM), a method of data processing which uses Monotonic Imbalance Bounding to match treated and untreated observations and allows for causal analyses using a variety of estimation approaches. This technique is similar to more traditional propensity score matching, but has been found to improve the balance, error, and efficiency of traditional propensity score matching methods (Iacus, King, & Porro, 2012).

In CEM, data to be used for matching are first "coarsened" into categories by variable, and then observations in the treatment and comparison groups are assigned into strata that correspond to the exact combination of categories for the matching variables. Weights are then assigned by stratum to account for multiple treatment and comparison observations within a given stratum, and for differences in the overall size of the treatment and comparison groups. Observations from the treatment group that are assigned to a stratum without an equivalent match in the comparison group are given a weight of "0", and are excluded from the analysis.

Credit indicators used to construct the match include revolving debt levels,[9] bankruptcy history, the age of the oldest trade, mortgage debt levels, the presence of any payment delinquencies 60 days or greater in the past 12 months, the presence of any mortgage payment delinquencies 90 days or greater in the past 24 months, the balance-to-credit ratio, the credit score, and the state of residence.[10] These

[9] Specifically, individuals in the comparison and counseled groups were matched on *open* revolving debt, which does not include balances on accounts voluntarily closed by consumers. This debt measure is a very good proxy for total revolving debt, and as can be seen from Table 3, the comparison and counseled groups are still extremely well matched on total revolving debt.

[10] Matching was also attempted on the first three digits of the zip code rather than the state of residence, but this resulted in too few matches so the geographical scope was broadened to the state level.

indicators were selected for the matching process because they represent a diverse array of elements which may impact a person's short- and long-term credit outcomes. A history of delinquent payments may indicate a higher propensity have future delinquencies; debt levels may impact the rate at which a person pays down their debts (this may also be influenced by the type of debt); bankruptcy impacts a person's access to future credit; the age of accounts serves as a proxy for a person's experience with credit and plausibly captures certain life cycle factors that can affect debt levels, savings, income, etc.; and the state of residence serves to capture specific macroeconomic or institutional factors which may be relevant, such as the employment conditions of a state.

Out of 8,963 counseled consumers, matches were found for 6,297, or 70 percent.[11] Of these matched consumers, 137 observations were dropped from the comparison group because they had received credit counseling and were in the counseling sample. After excluding any observations with data issues, 6,094 counseled consumers remained matched with 6,005 non-counseled individuals.

In order to assess the accuracy of the matching process, differences in the means of each matching variable between the counseled and comparison groups at baseline were calculated, and standardized differences are reported. Ideally, the resulting sample will be completely balanced, with little to no difference in baseline characteristics between groups (standardized differences below 0.05).[12] As reported in Table 3, the standardized differences for the matching variables range between 0.01 and 0.04, indicating a well-balanced sample. At baseline, consumers from both the counseled group and the matched comparison group have credit scores just under 600, open revolving debt levels of around $10,000, installment debt levels around $21,000, mortgage debt around $45,000, around 0.3 bankruptcies

[11] Almost by definition, consumers for whom there was no match likely have more unique credit circumstances, so by excluding these consumers for lack of a match it is also possible we are failing to capture credit counseling's impacts on these relatively idiosyncratic clients. A comparison of the characteristics and credit outcomes between matched and unmatched consumers (available from the authors upon request) shows that counseled consumers who were unmatched are relatively distressed compared to the matched counseled consumers, with lower credit scores and higher debt levels; however trends in credit scores and debt levels for the counseled consumers in the unmatched group are similar to those of the matched group.

[12] Standardized differences are a function of the differences in the variable mean between the groups divided by the total standard deviation of the combined sample (Austin, 2009). Per the Institute of Education Sciences (2014) best practices, any variable with a standardized difference below 0.05 between groups is considered to be well-balanced.

on average, an oldest account around 15 years old, 0.6 payments 60 days delinquent or more in the last year, 0.1 delinquent mortgage payments in the last two years, and a balance to credit ratio of 0.5.

Additionally, several variables are included in Table 3 that were not matching variables but are dependent variables used in the analysis: total revolving debt (including closed accounts), total overall debt (including installment, revolving, and mortgage debt), and the number of payments 60 days delinquent or more in the last six months. Even though these metrics were not used in matching, counseled consumers and the comparison group are still very similar across these variables at baseline, having around $16,500 in total revolving debt, over $80,000 in total debt, and around 0.45 60-day payment delinquencies in the last six months.

[Insert Table 3 Here]

## Methods

For this analysis, we estimate differences in differences using an individual fixed effects panel regression model, where the credit outcome of interest is measured at baseline and for six subsequent quarters for each individual, as follows:

$$y_{it} = a_i + \pi \text{Counseling}_{it} + \lambda \text{Quarter}_t + \delta(\text{Counseling}_{it} * \text{Quarter}_t) + \beta_j x_{it} + \varepsilon_{it}$$

where y is the credit outcome of interest, the coefficient $\pi$ captures the overall impact of receiving counseling (coded 0 for all individuals in the baseline period and 1 for counseled consumers after they receive counseling), $\lambda$ measures the quarterly changes in outcomes for the comparison group, $\delta$ measures the quarterly changes for the treatment group, $\beta$ measures the impact of j time varying control variables (several models in this study control for bankruptcies, charge-offs, and foreclosures), $\varepsilon$ is the error term of the model, and $\alpha$ is a constant which represents the average value of the variable for the full sample. The model is estimated with standard errors clustered on each individual.

In addition to estimating the model with the full sample, supplemental analyses are conducted for subgroups of analytical interest. These subgroups includes consumers in the bottom $25^{th}$ percentile of the credit score distribution at baseline who may have different debt and credit trajectories than other

consumers, as found by Elliehausen, Lundquist, and Staten (2007). We also split our sample by whether or not consumers were recommended into DMP plans. To construct these subgroups within the context of the Coarsened Exact Matching analysis, counseled consumers were only compared to comparison group individuals who were matched to them in the full analysis.

A substantial issue for research on credit counseling is accounting for self-selection, or unobserved differences between consumers who select into credit counseling and those who do not, that may also contribute to the observed changes in credit outcomes. Our difference in difference estimation strategy includes individual fixed effects, which allow us to hold constant unobserved characteristics within an individual that do not vary over time. Further, by constructing the comparison to be similar to the counseled sample on observable characteristics at baseline (through CEM), the intent is that unobserved characteristics that are correlated with the observed characteristics will also be equally distributed between the counseled and comparison groups. However, we are unable to account for unobserved characteristics that are not correlated with the observed matched variables at the baseline period and that also vary over time and contribute to the observed outcomes—this is a limitation of our estimation strategy.

*Dependent Variables*

This analysis traces the evolution of a number of different key credit metrics, including: (1) revolving debt and total debt levels; (2) balance-to-credit ratios; and (3) credit scores and payment delinquencies. With regard to debt measurement, there are a number of different debt indicators which can be used to assess consumer financial health. The level of consumer revolving debt and total debt can be used to get a sense of the consumer's overall debt profile. Revolving debt includes balances on credit cards (open and closed) and home equity lines of credit (HELOCs). The total debt measure includes debt from any revolving, mortgage, and non-mortgage installment accounts updated within the last year. While revolving debt measures are presumed to be the most sensitive to counseling interventions and subsequent behavioral changes, understanding how counseled consumers' total debt profiles change provides a more robust sense of their overall financial state. In addition to debt levels, we consider the total revolving

balance to credit ratio, which measures the total balance on all revolving accounts (open and closed), as a percent of the high credit limit. This ratio includes balances on both open and closed revolving accounts, and is thus an indicator of overall revolving debt burden. Levels of the balance to credit ratio of less than "1" indicate that the consumer has some amount of revolving credit available from which to borrow, with lower values indicating a higher amount of liquidity. Access to liquidity has been described as a type of financial "slack" allowing individuals a degree of flexibility in managing their finances (Mullainathan & Shafir, 2009, 2013).

The credit score used in this analysis is the Vantage 3.0 scoring metric, which is a similar metric to the more traditional FICO credit score[13] and spans an identical range to the FICO score (300 to 850). This score is used here as it is the primary credit reporting metric of the credit data provider for this study (Experian). Finally, the number of debt payment delinquencies for both counseling and comparison groups will be explored. While the counseling and comparison groups were matched based on the number of payments 60 days delinquent within the last 12 months (to capture a longer history of potential delinquency), this study presents the number of delinquencies in the last six months in order to provide more sensitivity to any changes in payment behaviors. When analyzed at quarterly intervals, the number of delinquent payments in the last six months can be understood as a moving average of delinquent payments over time, which means immediate reductions in the number of delinquent payments will take time to fully manifest.[14]

*Control Variables*

Given that the CEM procedure produced strongly balanced samples across a wide array of metrics at baseline, the need for control variables is limited. However, this study will control for three time varying covariates which may drive differences in outcomes between the two groups in the post-counseling period: Bankruptcies, debt charge-offs, and foreclosures. The logic behind the inclusion of

[13] Key differences are that paid collections are not counted against consumers under the VantageScore, and that VantageScores can be calculated with less of a credit history (Credit.com, 2015).
[14] Given the quarterly nature of this analysis, the ideal would be to track the number of delinquent payments made within the last three months. However, these data were not available.

these controls is that they may occur after counseling and influence the dependent variables of interest in this study. For example, credit counselors may suggest bankruptcy as a possible strategy for their consumers to manage their debts (indeed, bankruptcy counseling has been a rapidly growing service offered by credit counseling agencies; Wilshusen, 2011), and this may lead to a higher propensity to declare bankruptcy for counseled consumers.[15]

Alternately, if consumers seeking credit counseling are experiencing financial distress not captured in their pre-counseling credit data (i.e. from the loss of a job), this may result in a greater likelihood for experiencing debt charge-offs or foreclosures. In these cases, consumers experiencing these events would show declines in their debt levels, but these declines are not necessarily driven by improved financial behaviors like prudent debt management and paying off balances. As such, these controls help isolate the behavioral components driving changes in credit outcomes. Each of these variables are coded as 0 if a consumer does not have an increase in the number of bankruptcies, charge-offs, or foreclosures in the post-counseling period, and 1 if they do. Once these variables are coded as 1, they remain coded as 1 for all remaining quarters as the impacts of these events on consumer credit profiles are likely long-lasting.[16]

## RESULTS

### Overall Results

First, the impact of credit counseling on overall debt levels (revolving and total debt) is estimated. Figures 1 and 2 show the quarterly changes in these debt metrics for the counseled and comparison groups. For both total debt and revolving debt, the counseled and comparison groups have similar trajectories through the first post-counseling quarter, but in subsequent quarters the counseled group

[15] In an alternative specification, we estimate the likelihood of having a charge-off, bankruptcy, or foreclosure after the baseline period. This analysis found that the odds of having a post-baseline charge-off were 2.2 times higher for counseled consumers, while the odds of having a bankruptcy or foreclosure in the post-baseline period were 4.0 and 1.1 times higher for counseled consumers, respectively.

[16] Other specifications of these variables were also tested, including only coding them as 1 in the quarter when they happened and simply controlling for the number of these events in each quarter. Regardless of the specification, results were similar.

exhibits substantial declines in their debt levels relative to the comparison group; these declines continue through the end of the evaluation period.

[Insert Figures 1 & 2 Here]

Table 4 reports the estimated impact of counseling on four different debt indicators. Across all the debt metrics explored, the counseled consumer group experiences significant improvements relative to the comparison group. Notably, counseled consumers have significantly lower levels of debt by the end of the evaluation period. Compared to their matched non-counseled individuals, the counseled group reduces their revolving debt (Model 1) by an average of around $3,600 and reduces their total debt (Model 2) by around $11,300. In addition, counseled consumers show significant reduction of four percent in their balance-to-credit ratio (Model 3) on *any* revolving accounts, including closed accounts.[17]

[Insert Table 4 Here]

While overall debt is declining among counseled consumers, this decline can be attributed to behavioral changes, debt reductions from interventions (such as the debt management plan), creditors charging off severely delinquent debts, or consumer bankruptcy. To explore these debt dynamics, Table 5 presents the models for revolving and total debt, controlling for the initiation of a bankruptcy, charge-off, or foreclosure over the evaluation period. In a subsequent section, we will explore debt outcomes based on DMP status.

[Insert Table 5 Here]

What these results show is that, even controlling for debt write-offs, the decline in these debt metrics for the counseled group is greater than for the comparison group. Controlling for bankruptcies, charge-offs, and foreclosures, revolving debt declines by around $2,000 for the counseled group relative

[17] As a note, the R-squared measures in the full sample models without controls are relatively low, ranging from 0.01 to 0.04. This low R-squared is only concerning inasmuch as the weak fit of the models is associated with inconsistent estimation of the treatment effect. However, the treatment effects of credit counseling are robust to the inclusion of a number of controls that also substantially improve the fit of the models; the fit of the debt models is improved substantially by the inclusion of controls for bankruptcies, charge-offs, foreclosures, and HELOC debt, and the treatment effect remains largely consistent with the basic models excluding controls. Given this, the low R-squared values are likely not a major concern.

to the comparison and total debt declines by about $6,600. The change in the balance-to-credit ratio for counseled consumers, however, loses significance when controlling for debt write-offs.

In addition to consumer debt outcomes, we track the impact of counseling on credit score as well as debt payment delinquencies. Figures 3 and 4 plot the evolution in credit scores and 60 day payment delinquencies over the evaluation period.

[Insert Figures 3 & 4 Here]

Figure 3 reveals a marked difference in the credit score trends between the counseled consumers and the comparison group. Though the two groups begin with very similar scores, the counseled group faces a steep drop of about 13 points in their credit score between the pre-counseling quarter and the first post-counseling quarter which persists through the second quarter. The comparison group however has a modest upward trend over this same interval, and this trend persists across all quarters. The counseled group begins to recover in the third quarter after the receipt of counseling. By the sixth post-counseling quarter the counseled group has a slightly higher credit score (601) than they did when they began, but the overall increase in their credit score is still 6.8 points lower than the comparison group's credit score increase. Similarly, we plot the trends in 60 day delinquencies over time. Figure 4 shows an inverted pattern to the development in credit scores. The baseline delinquencies between the two groups are roughly identical (~0.45 delinquent payments on average for each person in the sample). Post-counseling, there is a spike in payment delinquencies for the counseled group (the delinquencies for the comparison group stay roughly flat over the entire period) which peaks in the second post-counseling quarter before declining substantially over the study period. By the sixth post-counseling quarter, payment delinquencies fall below their pre-counseling levels and are at parity with the comparison group.[18]

[18] The number of payments 60 days delinquent in the last six months can be understood to be a moving average of the number of payment delinquencies over time (since any delinquencies in the past six months are counted). To get a more dynamic read on what is happening with payment delinquencies, the number of payments *currently* 60 days or more delinquent in any quarter was also investigated. Though the graphical analysis is not featured here, the payment delinquency spike for current delinquent payments is over by the third post-counseling quarter and by the fifth post-counseling quarter the level of current delinquencies is actually *lower* than it was at baseline.

Table 6 presents the difference in difference results for credit score and debt payment measures. When measured as total change over the evaluation period, receiving counseling is negatively associated with the change in credit score (Model 1),[19] and there is no significant difference between counseling and comparison groups in terms of having payments 60 days or more delinquent (Model 3). This is not unexpected, in light of the dynamic time trend analysis that shows an initial shock in both indicators shortly after the baseline period. When controlling for debt write-offs including bankruptcies, charge-offs, and foreclosures, the credit score results (Model 2) do not change markedly, but counseled consumers demonstrate a modest increase in their payment delinquencies (Model 4) relative to the comparison group. This result indicates that some of the reduction in payment delinquencies after the spike shown in Figure 4 is due to the fact that written off debts can no longer incur payment delinquencies; controlling for the effect of these write-offs thus causes a modest increase in delinquencies relative to the comparison group. However, even controlling for debt write-offs, counseled consumers still show a marked decline in payment delinquencies after their peak, and a longer period of post-counseling observation may reveal payment delinquencies continuing to decline.

[Insert Table 6 Here]

Subsample Analysis: Bottom 25$^{th}$ Credit Percentile

We estimate a sub-sample analysis for consumers in the bottom 25$^{th}$ percentile of the initial credit score distribution (which translates to a credit score at or below 540). The purpose of this analysis is to explore how credit indicators evolve for consumers with relatively weak or distressed credit profiles at the time of counseling. There are 1,315 counseled consumers in the bottom 25$^{th}$ percentile of the credit distribution, matched to 1,243 individuals in the comparison group.

Table 7 presents the difference in difference results. While the amount of total revolving debt for counseled consumers declines by $166 relative to the comparison group, this decline is not statistically significant. This is perhaps driven in part by the fact that individuals with such low credit scores at

[19] Throughout this analysis, the base size for credit score models will be slightly lower than for models investigating other credit indicators, as credit scores were not available in all periods for a small subset of clients.

baseline do not have high levels of revolving debt to begin with (relative to the general counseled population). Interestingly, total debt for this subsample increases relative to the comparison group, though this increase is only marginally significant. As revolving debt stays largely flat, this indicates that the most credit-distressed households are not taking on credit card debt after counseling, and may be taking on longer-term debt like car loans and mortgages (since the total debt measure is comprised of revolving, installment, and mortgage debt). In terms of credit scores, counseled consumers in the bottom 25th percentile of the distribution experience positive and statistically significant growth in their credit scores relative to the comparison group over the evaluation period. By the sixth post-counseling quarter, counseled consumers' credit scores have grown 6.2 points higher relative to the comparison group's scores ($p<0.01$). While the delinquency metrics improve for this group, the change is not statistically significant.

[Insert Table 7 Here]

Figure 5 traces the change in credit scores for clients in the bottom 25th credit percentile at baseline. Interestingly, the credit scores for this high-risk group grow roughly parallel to the comparison group for the first three post-counseling periods before diverging, with the counseling group experiencing more rapid growth in their credit scores in the final quarters of the evaluation period than the comparison group.

[Insert Figure 5 Here]

## Sub Sample Analyses: By DMP Status

Table 8 summarizes the relative changes in credit and debt outcomes based on consumer DMP status. Each outcome covered in Table 8 controls for experiencing a bankruptcy, charge-off, or foreclosure over the evaluation period. While this analysis cannot track who entered into a DMP, we do have information on which consumers were *recommended* into a DMP. To analyze consumer outcomes based on DMP status, this analysis separates DMP and non-DMP consumers into two separate models,

with DMP consumers only compared to their matched equivalents (as are the non-DMP consumers).[20] Table 8 shows that the DMP group reduces their debt more than the non-DMP group, a difference of about $350 at the end of the evaluation period. Further, consumers recommended into a DMP have stronger credit score outcomes by the end of the evaluation period than the non-DMP group (though both groups still demonstrate a relative decline in credit scores). However, there is no difference in payment delinquency outcomes between these groups.

[Insert Table 8 Here]

## Alternative Model Specifications

*Modeling the Credit Score Shock*

As shown in Figures 3 and 4, counseled consumers often experience a financial shock around the time they seek counseling, causing a spike in payment delinquencies and a decline in credit score. A number of methods of modeling this shock were undertaken. These included matching on the trends in credit scores from the baseline to the first quarter post-counseling, and matching using dummy variables to capture whether individuals had an increasing, decreasing, or stable credit score over this same time period. Regardless of the modeling approach, the results were similar: By the end of the evaluation period, counseled consumers typically had higher credit scores than comparison individuals with similar trends in credit scores, but this difference never became statistically significant.

*Outliers & Extreme Values*

Each of the basic treatment effect models in this analysis were assessed for the possible influence of outliers. Outliers are defined as any observation with exceedingly high residuals relative to the overall residual distribution of the panel regression model. Only the two debt models (revolving debt and total debt) have clear outliers, and only one observation in each of these models is identifiable as an outlier. As

[20] As a note, the DMP client sample models contain 3,801 clients recommended for DMPs (and 3,926 comparison individuals); the non-DMP client sample contains 2,293 clients not recommended for DMPs (and 2,442 comparison individuals). The combined number of comparison individuals between DMP and non-DMP models slightly exceeds the total number of comparison individuals because comparison individuals could be matched to both DMP and non-DMP clients within strata, leading to some slight overlap in comparison individuals between models.

a robustness check, these models were re-run excluding the outlier individuals. The exclusion of these individuals did not substantially impact the coefficients, significance, or overall fit of the models.

Given the relatively high levels of debt held by individuals in this analysis and large changes in other credit indicators such as credit scores, it is important to check to verify that extreme values are not influencing the analysis. Table 9 presents the results of two models excluding individuals in the highest one percentile of revolving debt or total debt prior to counseling, and those in the top fifth percentile of revolving or total debt. While counseling's impact on both debt measures is lessened when excluding these relatively extreme values, the debt reduction for counseled consumers relative to the comparison group is still substantial and significant.

*Agency-Level Effects*

An additional set of models was constructed to account for the possibility of any agency-specific effects in the results. Specifically, indicators were created to identify the counseling agency for each consumer (coded '0' for all individuals pre-counseling and '1' for every consumer in a specific agency post-counseling) and these indicators were used as controls in every model presented in this analysis. When controlling for agency-level effects, the results are largely unchanged for every model.

*Additional Debt Specifications*

Models were also developed controlling for the amount of HELOC debt in each quarter as well as the presence of bankruptcies, charge-offs, or foreclosures. These models found that including HELOC debt lessened the reduction in debt by about $200 in each full sample model (there was no change in the significance of any variable), though the R-squared for the revolving debt models did increase substantially when including HELOCs, from 0.08-0.10 to 0.53-0.54.

Each of the models featured in this analysis were also estimated for a sample restricted to only those with who held revolving debt at baseline. Unsurprisingly, restricting the sample to those with revolving debt increased the relative debt reduction for counseled consumers, and these consumers also demonstrated further improvements in their balance-to-credit ratio. These improvements were all robust to controlling for debt write-offs.

*Expanded Baseline Sample*

The sample used for the analyses presented thus far includes only consumers enrolling during the first quarter of the Sharpen initiative. Focusing on the first quarter enrollment period allows us to track outcomes over six full quarters post counseling. In order to assess whether or not the results hold for consumers enrolling outside this period, data were also collected for consumers enrolling during the second quarter of the Sharpen initiative (between December of 2013 and February of 2014). For this expanded enrollment period, which includes 1,864 additional matched individuals, post-counseling data is only available for five post-counseling quarters. Analyses conducted on this expanded baseline revealed no substantial changes in baseline credit characteristics or long-term credit outcomes.

## DISCUSSION & LIMITATIONS

This paper leverages data from a nationwide demonstration program to analyze the impact of credit counseling on consumer credit outcomes, using a matched comparison sample and differences in differences analysis. The size and scale of this program allow us to measure the impact of credit counseling across multiple agencies, with quarterly observations of credit outcomes over time. Overall, the results indicate that consumers receiving credit counseling have statistically significant improvements in debt reduction relative to a comparison group, though relatively credit-distressed consumers (those in the bottom $25^{th}$ percentile of the credit distribution) do exhibit a marginally significant increase in total debt after counseling. This research has also provided evidence that relatively credit-distressed counseled consumers experience more substantial credit score gains post-counseling than the general credit counseling population. The combination of increased credit scores and increased installment/mortgage debt for credit-distressed consumers is interesting and may indicate that counseled consumers experience increased access to long-term loans post-counseling. This is an avenue for future research.

Broadly speaking, these results are similar to the other systematic evaluation of credit counseling conducted by Elliehausen, Lundquist, and Staten (2007), who found that credit counseling was associated with very modest credit improvements for consumers in the bottom credit quartile and also found

substantial reductions in revolving debt for the general counseling population. This article also reinforces the more descriptive analyses of credit counseling initiatives (Bagwell, 2000; Kim et al., 2003), which found that consumers had better self-assessed financial behaviors and outcomes after going through credit counseling.

Even as this analysis has reinforced the findings of existing studies of credit counseling programs, it also substantially extends them. In particular, the tracking of outcomes on a quarterly basis has illustrated important dynamics in credit trajectories around the time of counseling that would be missed if one only looked at outcomes at the time of counseling and one or more years after counseling. As illustrated in this analysis, the average counseled consumer experiences a drop in credit score and an increase in delinquencies in the first quarter after counseling, relative to the pre-counseling period. This should not be interpreted as evidence that counseling caused credit decline. Rather, the evidence is in-line with a counseled consumer experiencing a debt- or income-based shock (such as a hospitalization or the loss of a job) around the time of counseling (perhaps motivating them to seek counseling), resulting in a downward trend in their credit score that persists for the first quarter after counseling. The self-reported motivations for seeking counseling (presented in Table 2) corroborate this explanation.

This credit shock has implications for future research. Research designs that compare pre-counseling credit outcomes to credit outcomes one year or more in the future may understate the impact of counseling on consumer credit outcomes. The pre-counseling credit measures may not fully reflect the true decline in credit experienced by a consumer undergoing a shock, and thus the change from pre to post periods may not appear to be large or significant. By using quarterly data, we are able to observe the post-counseling decline in credit that may help explain the lack of significant improvement in credit score and payment delinquencies for the full sample of consumers in our sample. However, ideally, we would have constructed our comparison group to include consumers experiencing a similar shock, allowing us to better isolate the effects of the shock empirically. Future analyses could address this by using a “dynamic baseline” approach, wherein counseled consumers would be matched with comparison group individuals based on multiple pre-counseling periods. This would allow for individuals to be matched based on the

*trends* in their credit indicators as well as the indicators themselves, and would potentially allow the analysis to match consumers experiencing deteriorating credit scores with non-counseled individuals experiencing a similar credit decline.

While this analysis is unable to isolate the precise mechanisms that lead to the observed results, the primary findings hold even after controlling for structural mechanisms that may lead to debt reductions or improved credit. The results hold among consumers regardless of whether or not they were referred to a DMP, and even hold after controlling for post-counseling structural changes to debt including bankruptcies, foreclosures, and charge-offs. This suggests that credit counseling may not just change the structure of debt, but also consumer behaviors regarding their debt. Future research is needed that can better isolate the behavioral mechanisms underlying the credit counseling intervention, likely best tested through field experiments or lab settings.

## CONCLUSIONS & POLICY IMPLICATIONS

As individuals continue to struggle with high debt levels, employment volatility, anemic savings, and inadequate retirement assets, both policymakers and creditors are examining a variety of options for addressing these problems and their associated risks. This article provides evidence that consumer credit counseling, a decades-old service that has nevertheless been under-researched, can provide a means of improving consumer financial outcomes, particularly for those undergoing substantial financial distress. Of particular interest, the results observed are not strictly driven by structural changes to consumer debt that are commonly associated with counseling—such as participation in debt management plans (DMPs). This is an important distinction, as the past two decades have witnessed a dramatic increase in for-profit and nonprofit "debt consolidation" and bankruptcy counseling agencies, whose services may be easily confused with those offered by nonprofit consumer credit counseling organizations, such as those affiliated with the NFCC. These non-affiliated agencies tend to charge much higher fees for their services and often do not include broader counseling and debt management services that are offered by their nonprofit credit counseling agency counterparts, and have been the subject of a significant amount of

controversy and regulatory change over the past decade (Cowen and Kawecki, 2004; Hunt, 2007; Federal Reserve Bank of Dallas, 2007).

What this analysis cannot explain is the exact source of this change in outcomes. Perhaps credit counseling's function of calling attention to financial problem areas and providing concrete action plans causes consumers to focus more on their own behaviors and manage their money better. Perhaps the check-ins and payment monitoring done by counseling agencies reminds consumers of their obligations and drives their actions. Perhaps the credit counseling agency acts as a hub to provide consumers with additional resources such as other nonprofit or public programs to assist them with job-training or high debts. It is also possible that some of this reduction stems from intrinsic characteristics also associated with the motivation to seek credit counseling. By virtue of being the type of person to seek credit counseling, one may also be the type of person likely to responsibly manage one's debts. While our research design and estimation strategy attempt to address these issues, absent an experimental design concerns about self-selection remain.

Though this research is not intended to provide a cost-benefit analysis of credit counseling, it is worth briefly discussing the implications of this study from a cost-benefit perspective. The cost of each counseling session administered as part of the Sharpen program was $125 to $150. Through the Sharpen initiative, none of the cost was borne by the consumer. Counseling services in nonprofit agencies are typically free or low-cost to consumers and funded through the revenue streams available to the nonprofit credit counseling agencies. By the end of the evaluation period, the Sharpen program had enrolled around 40,000 consumers. At $150 per counseling session, the Sharpen program spent six million dollars on consumer counseling (absent any DMP expenditures).

Taking the most conservative estimate of credit counseling's debt impact in this study, which is the impact for non-DMP consumers controlling for bankruptcies and debt charge-offs, the average reduction in revolving debt is $1,762 eighteen months after counseling. If the average reduction seen among the consumers in this study is the same for all Sharpen consumers, this translates to around 70.7 million dollars in revolving debt reduction over the evaluation period. Put differently, credit counseling

programs have the potential to drive almost 12 dollars in debt reduction for every dollar spent on service delivery; an outcome that may be a conservative estimate. Given the potential benefits from this relatively low cost investment, credit counseling programs should continue to be part of the policy discussion to address issues of consumer debt.

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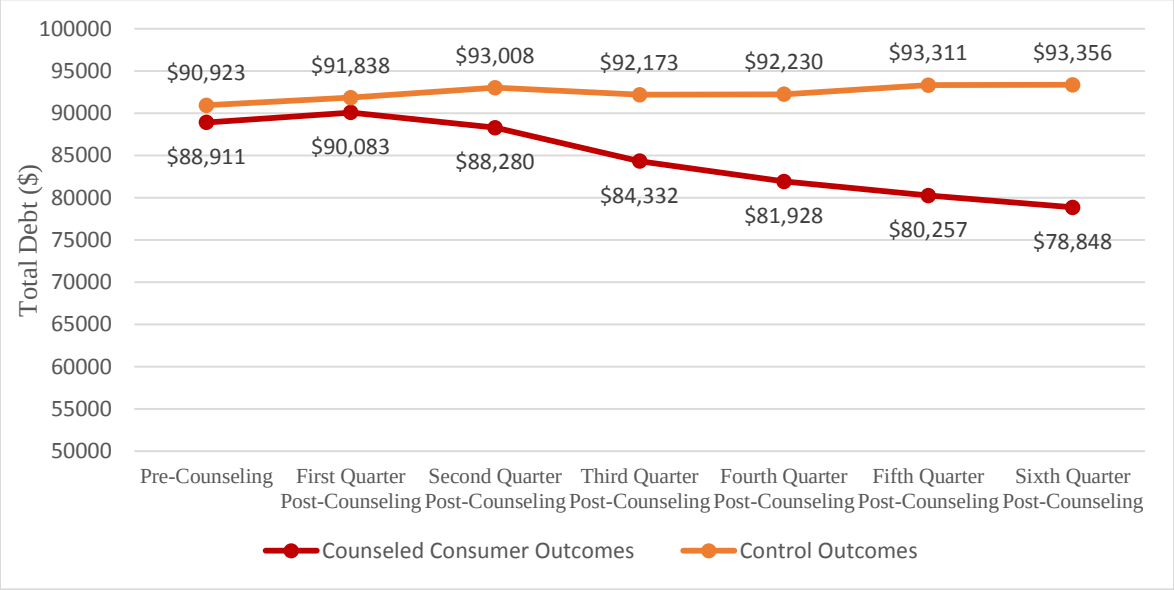
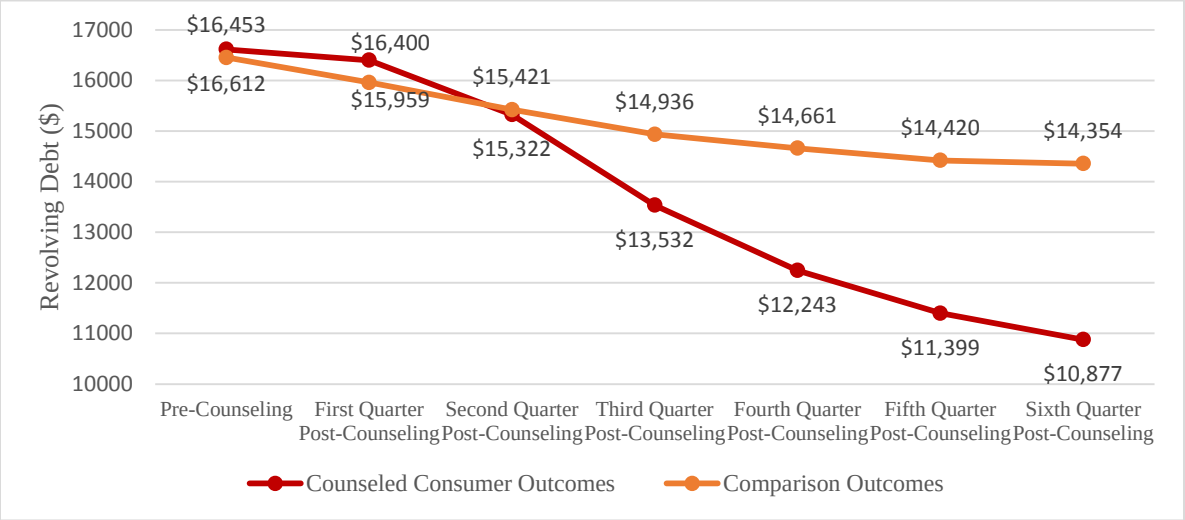
## FIGURES

### Figure 1: Total Debt Over the Evaluation Period



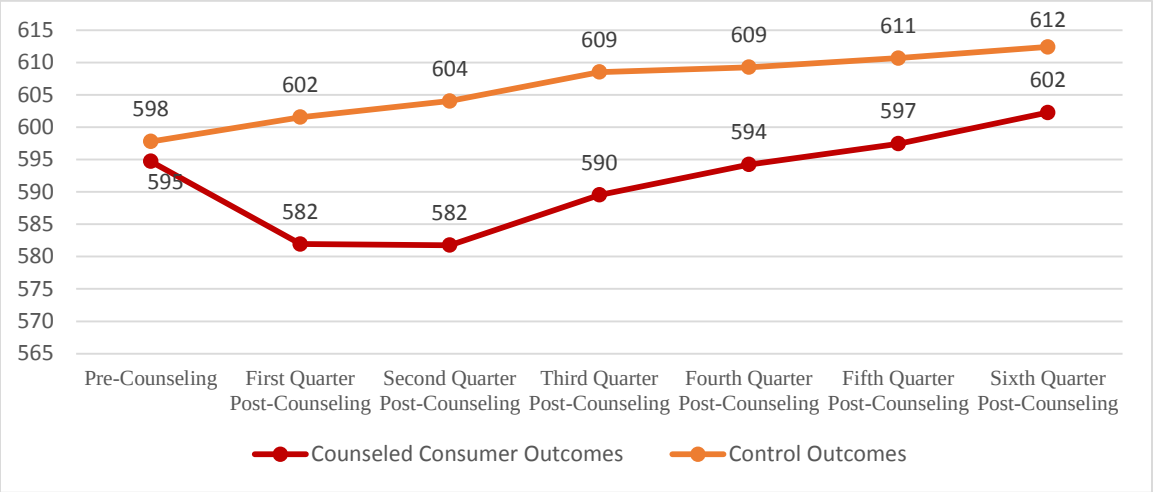

*n=12,099*
*Source: Credit Attributes Data*

**Figure 2: Revolving Debt Over the Evaluation Period**



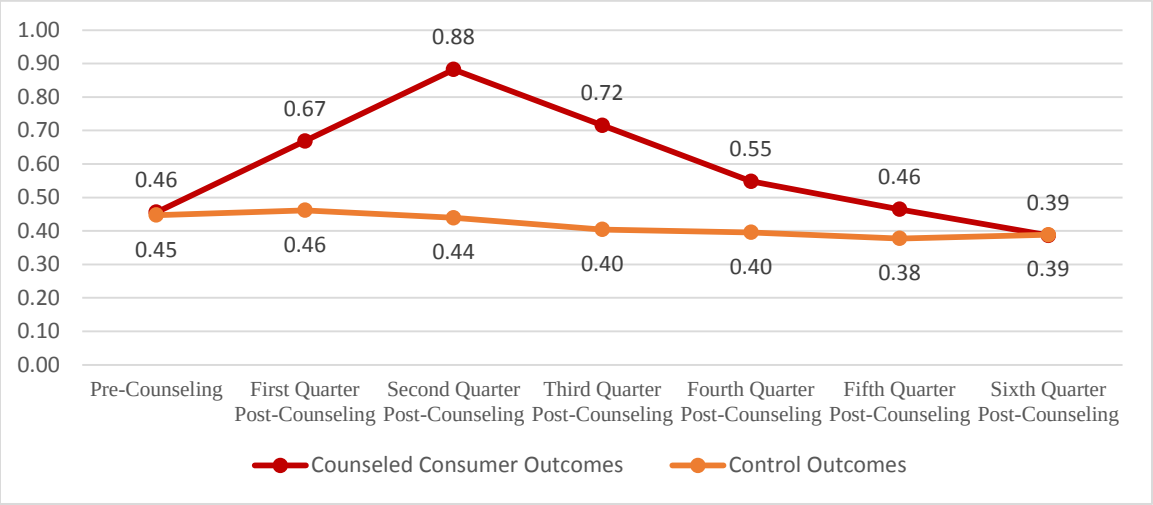

*n=12,099*
*Source: Credit Attributes Data*

**Figure 3: Credit Score Over the Evaluation Period**



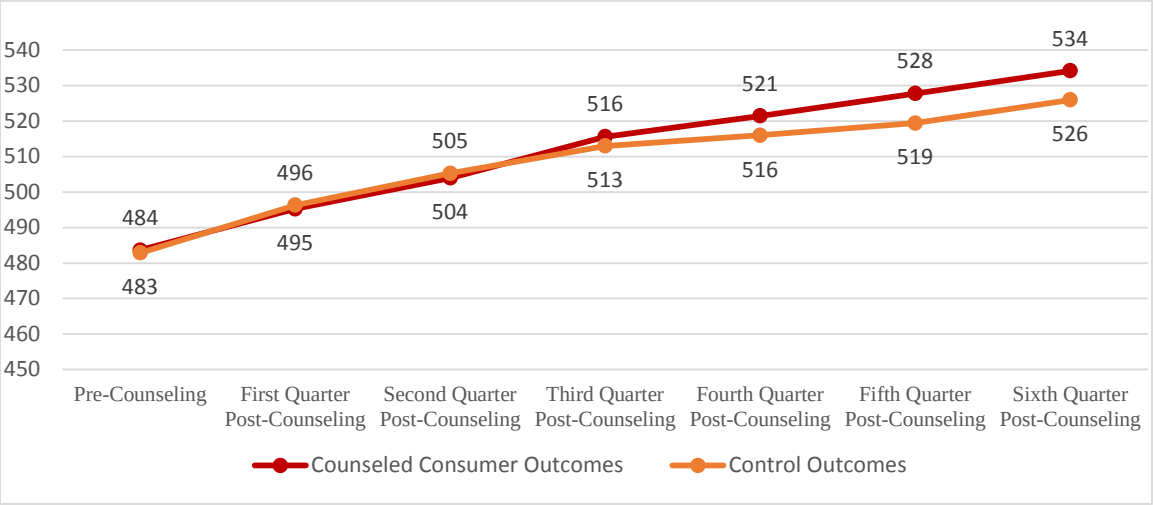

*n=11,837*
*Source: Credit Attributes Data*

**Figure 4: 60-Day Payment Delinquencies Over the Evaluation Period**




*n=12,099*
*Source: Credit Attributes Data*

**Figure 5: Credit Score Over the Evaluation Period (Bottom 25th Credit Percentile)**




*n=2,558*
*Source: Credit Attributes Data*

**Table 1: Summary Statistics, Administrative Data**

| | Mean |
|---|---|
| Gender, Female | 69% |
| Status, Single | 39% |
| Status, Separated | 6% |
| Status, Divorced | 13% |
| Status, Married or Living with a Partner | 39% |
| Status, Widowed | 3% |
| Race, Asian | 3% |
| Race, Black | 22% |
| Race, White | 64% |
| Race, Other | 12% |
| Ed, Less than High School | 3% |
| Ed, High School Graduate | 30% |
| Ed, Two Year College/Technical School | 34% |
| Ed, Four Year Degree | 21% |
| Ed, Graduate Degree | 12% |
| Region, Midwest | 18% |
| Region, Northeast | 25% |
| Region, South | 30% |
| Region, West | 26% |
| Age | 42.8 |
| Average Monthly Income | $3,093.2 |
| Savings | $559.0 |
| Household Size | 2.5 |
| Children Under 18 | 0.8 |

*n=6,094 credit counseling consumers*

*Source: NFCC Administrative Data*

**Table 2: Reasons for Seeking Counseling**

| | # | % |
|---|---|---|
| **Reduced Income** | **4,804** | **79%** |
| Domestic Conflict | 390 | 6% |
| Un/underemployment | 1,762 | 29% |
| Other | 2,652 | 44% |
| **Increased Expenses** | **1,321** | **22%** |
| Costs of death in family | 35 | 1% |
| Creditors increased interest rates | 148 | 2% |
| Increased family size | 128 | 2% |
| Medical/Disability expenses | 404 | 7% |
| Other | 606 | 10% |
| **Other Reasons** | **1,350** | **22%** |
| Bad credit | 149 | 2% |
| Previous bad experience | 45 | 1% |
| Other | 1,156 | 19% |

*n=6,094 credit counseling consumers*

*Source: NFCC Administrative Data*

*Respondents could select multiple reasons for seeking counseling

**Table 3: Summary Statistics for Treatment and Comparison Groups (CEM)**

| Matching Variable | Counseled Mean (St. Dev) | Comparison Mean (St. Dev) | % Difference (Treatment/ Comparison) | Balance* |
|---|---|---|---|---|
| Credit Score (Vantage 3.0) | 594 | 597 | -1% | 0.04 |
| | (77.1) | (80.3) | | |
| Open Revolving Debt ($) | 10,582 | 10,248 | 3% | 0.02 |
| | (15,346) | (14,947) | | |
| Total Revolving Debt ($)† | 16,612 | 16,453 | 1% | 0.00 |
| | (35,612) | (38,893) | | |
| Total Installment Debt ($) | 20,425 | 21,113 | -3% | 0.02 |
| | (34,647) | (44,461) | | |
| Mortgage Debt ($) | 44,021 | 46,565 | -5% | 0.02 |
| | (104,449) | (131,740) | | |
| Total Debt ($)† | 81,059 | 84,130 | -4% | 0.02 |
| | (129,829) | (159,032) | | |
| Number of Bankruptcies | 0.30 | 0.29 | 3% | 0.01 |
| | (1.6) | (1.6) | | |
| Age of Oldest Account (Months) | 182 | 183 | -1% | 0.01 |
| | (105.4) | (109.5) | | |
| Payments 60 Days Delinquent (Last 12 Months) | 0.58 | 0.59 | -1% | 0.01 |
| | (1.6) | (1.7) | | |
| Payments 60 Days Delinquent (Last 6 Months)† | 0.46 | 0.45 | 1% | 0.00 |
| | (1.4) | (1.5) | | |
| Mortgage Payments 90 Days Delinquent (Last 24 Months) | 0.11 | 0.12 | -8% | 0.01 |
| | (1.2) | (1.4) | | |
| Balance to Credit Ratio on Revolving Debt | 0.52 | 0.52 | 1% | 0.01 |
| | (0.4) | (0.4) | | |
| *Observations* | *6,094* | *6,005* | | |

*Source: Credit Attributes Data*

*Balance is calculated as a function of the absolute difference between the counseled and comparison means, divided by the standard deviation for the full sample.

†These variables were not used in the matching procedure, but are dependent variables used in the differences-in-differences analysis.

**Table 4: Differences-in-Differences Analysis, Debt Indicators**

| Model (Standard Errors in Parentheses) | 1 | 2 | 4 |
|---|---|---|---|
| Dependent Variable | Total Revolving Debt | Total Debt | Total Balance-to-Credit Ratio |
| **Counseled Consumer** | **-3,637.18*** ** | **-11,341.00*** ** | **-0.04*** ** |
| | **(341.88)** | **(1,368.07)** | **(0.01)** |
| **Quarter Indicators (Baseline as Reference)** | | | |
| 1Q Post-Counseling | -493.93*** | 512.71 | -0.03*** |
| | (94.55) | (657.35) | (0.00) |
| 2Q | -1,031.38*** | 1,735.79** | -0.05*** |
| | (198.23) | (694.10) | (0.00) |
| 3Q | -1,516.85*** | 1,288.81* | -0.08*** |
| | (209.31) | (776.91) | (0.00) |
| 4Q | -1,791.68*** | 1,391.67* | -0.09*** |
| | (220.78) | (836.38) | (0.00) |
| 5Q | -2,032.59*** | 2,420.78*** | -0.09*** |
| | (227.78) | (868.70) | (0.01) |
| 6Q | -2,098.07*** | 2,808.70*** | -0.10*** |
| | (239.86) | (968.64) | (0.01) |
| **Treatment Quarter Interactions (Final Quarter as Reference)** | | | |
| Treatment*1Q Post-Counseling | 3,918.54*** | 12,014.93*** | 0.05*** |
| | (329.36) | (1,266.27) | (0.01) |
| Treatment*2Q | 3,378.52*** | 9,290.58*** | 0.03*** |
| | (252.74) | (1,167.90) | (0.01) |
| Treatment*3Q | 2,074.04*** | 6,277.40*** | 0.02*** |
| | (226.10) | (1,047.73) | (0.01) |
| Treatment*4Q | 1,059.97*** | 4,075.49*** | 0.02*** |
| | (177.01) | (864.83) | (0.01) |
| Treatment*5Q | 456.61*** | 1,540.19** | 0.01* |
| | (122.36) | (700.31) | (0.00) |
| Constant | 16,532.97*** | 82,582.95*** | 0.52*** |
| | (100.20) | (406.35) | (0.00) |
| R-squared | 0.04 | 0.01 | 0.03 |
| *Observations (Individuals*Quarters)* | *84,693* | *84,693* | *84,693* |
| *Unique Individuals* | *12,099* | *12,099* | *12,099* |

This table presents the results for a fixed effects panel regression with standard errors clustered by observation. The Counseled Consumer indicator measures the difference in outcomes for counseled consumers relative to a matched non-counseled comparison group.

*Source: Credit Attributes Data*

** p<0.1; ** p<0.05; *** p<0.01*

**Table 5: Differences-in-Differences Analysis, Debt Indicators Controlling for Debt Write-Offs**

| Model (Standard Errors in Parentheses) | 1 | 2 | 3 |
|---|---|---|---|
| Dependent Variable | Total Debt | Total Revolving Debt | Total Balance-to-Credit Ratio |
| **Counseled Consumer** | **-6,604.27*** ** | **-1,993.28*** ** | **0.01** |
| | **(1,305.71)** | **(322.93)** | **(0.01)** |
| Bankruptcy Post-Baseline† | -58,237.28*** | -13,941.72*** | -0.30*** |
| | (3,859.80) | (1,003.50) | (0.02) |
| Charge-Offs Post-Baseline† | -9,852.71*** | -5,758.23*** | -0.22*** |
| | (841.14) | (311.67) | (0.01) |
| Foreclosures Post-Baseline† | -64,529.61*** | -3,320.38** | 0.02 |
| | (11,665.13) | (1,400.29) | (0.02) |
| Constant | 82,582.95*** | 16,532.97*** | 0.52*** |
| | (397.55) | (98.34) | (0.00) |
| R-squared | 0.04 | 0.08 | 0.10 |
| *Observations (Individuals*Quarters)* | *84,693* | *84,693* | *84,693* |
| *Unique Individuals* | *12,099* | *12,099* | *12,099* |

This table presents the results for a fixed effects panel regression with standard errors clustered by observation. The Counseled Consumer indicator measures the difference in outcomes for counseled consumers relative to a matched comparison group. Output for the quarter indicators and counseling/quarter interactions is suppressed.

*Source: Credit Attributes Data*

** p<0.1; ** p<0.05; *** p<0.01*

†Coded as '0' or '1' in each quarter. Once variable is coded as 1, it remains coded as 1 for all subsequent quarters.

**Table 6: Differences-in-Differences Analysis, Credit Indicators**

| Model (Standard Errors in Parentheses) | 1 | 2 | 3 | 4 |
|---|---|---|---|---|
| Dependent Variable | Credit Score | Credit Score | Payments 60 Days Delinquent (Past 6 Months) | Payments 60 Days Delinquent (Past 6 Months) |
| **Counseled Consumer** | **-6.76*** ** | **-6.39*** ** | **-0.01** | **0.11*** ** |
| | **(1.23)** | **(1.23)** | **(0.03)** | **(0.03)** |
| **Quarter Indicators (Baseline as Reference)** | | | | |
| 1Q Post-Counseling | 3.78*** | 4.25*** | 0.01 | 0.04*** |
| | (0.49) | (0.50) | (0.01) | (0.01) |
| 2Q | 6.24*** | 7.16*** | -0.01 | 0.05** |
| | (0.61) | (0.61) | (0.02) | (0.02) |
| 3Q | 10.67*** | 11.90*** | -0.04** | 0.03* |
| | (0.67) | (0.66) | (0.02) | (0.02) |
| 4Q | 11.45*** | 12.91*** | -0.05** | 0.04* |
| | (0.73) | (0.73) | (0.02) | (0.02) |
| 5Q | 12.95*** | 14.63*** | -0.07*** | 0.03 |
| | (0.79) | (0.78) | (0.02) | (0.02) |
| 6Q | 14.64*** | 16.53*** | -0.07*** | 0.05** |
| | (0.83) | (0.83) | (0.02) | (0.02) |
| **Treatment Quarter Interactions (Final Quarter as Reference)** | | | | |
| Treatment*1Q Post-Counseling | -9.55*** | -9.78*** | 0.22*** | 0.12*** |
| | (1.19) | (1.18) | (0.03) | (0.03) |
| Treatment*2Q | -12.14*** | -12.26*** | 0.45*** | 0.37*** |
| | (1.10) | (1.09) | (0.03) | (0.03) |
| Treatment*3Q | -8.81*** | -8.59*** | 0.31*** | 0.28*** |
| | (1.01) | (1.00) | (0.03) | (0.03) |
| Treatment*4Q | -4.86*** | -4.69*** | 0.15*** | 0.13*** |
| | (0.86) | (0.85) | (0.03) | (0.03) |
| Treatment*5Q | -3.11*** | -3.02*** | 0.08*** | 0.08*** |
| | (0.66) | (0.66) | (0.02) | (0.02) |
| Bankruptcy Post-Baseline† | | 28.80*** | | -0.66*** |
| | | (2.70) | | (0.06) |
| Charge-Offs Post-Baseline† | | -13.15*** | | -0.54*** |
| | | (0.93) | | (0.04) |
| Foreclosures Post-Baseline† | | -11.56** | | -0.27*** |
| | | (4.79) | | (0.09) |
| Constant | 595.12*** | 595.12*** | 0.46*** | 0.46*** |
| | (0.39) | (0.38) | (0.01) | (0.01) |
| R-squared | 0.03 | 0.04 | 0.01 | 0.03 |
| *Observations (Individuals*Quarters)* | 82,859 | 82,859 | 84,693 | 84,693 |
| *Unique Individuals* | 11,837 | 11,837 | 12,099 | 12,099 |

This table presents the results for a fixed effects panel regression with standard errors clustered by observation. The Counseled Consumer indicator measures the difference in outcomes for counseled consumers relative to a matched non-counseled comparison group.

*Source: Credit Attributes Data*

** p<0.1; ** p<0.05; *** p<0.01*

†Coded as '0' or '1' in each quarter. Once variable is coded as 1, it remains coded as 1 for all subsequent quarters.

**Table 7: Differences-in-Differences Analysis, Credit Indicators (25th Credit Percentile at Baseline)**

| Model (Standard Errors in Parentheses) | 1 | 2 | 3 | 4 |
|---|---|---|---|---|
| Dependent Variable | Total Debt | Total Revolving Debt | Credit Score | Payments 60 Days Delinquent (Past 6 Months) |
| **Counseled Consumer** | **2,942.14*** | **-166.72** | **6.24**** | **-0.07** |
| | **(1,743.35)** | **(343.61)** | **(2.55)** | **(0.10)** |
| Bankruptcy Post-Baseline† | -23,885.18*** | -3,800.45*** | 40.10*** | -0.90*** |
| | (4,185.25) | (813.42) | (4.98) | (0.17) |
| Charge-Offs Post-Baseline† | -4,680.59*** | -3,019.17*** | -0.02 | -0.86*** |
| | (819.38) | (269.73) | (1.58) | (0.08) |
| Foreclosures Post-Baseline† | -45,089.43** | -3,129.76 | 1.25 | -0.10 |
| | (20,791.19) | (2,471.46) | (7.78) | (0.16) |
| Constant | 27,787.93*** | 3,631.72*** | 487.04*** | 1.48*** |
| | (525.29) | (125.43) | (0.73) | (0.04) |
| R-squared | 0.03 | 0.08 | 0.17 | 0.08 |
| *Observations (Individuals*Quarters)* | *18,095* | *18,095* | *17,906* | *18,095* |
| *Unique Individuals* | *2,585* | *2,585* | *2,558* | *2,585* |

This table presents the results for a fixed effects panel regression with standard errors clustered by observation. The Counseled Consumer indicator measures the difference in outcomes for counseled consumers relative to a matched non-counseled comparison group. Output for the quarter indicators and counseling/quarter interactions is suppressed.

*Source: Credit Attributes Data*

** p<0.1; ** p<0.05; *** p<0.01*

**Table 8: Differences-in-Differences Analysis, Comparing Client Outcomes Based on Debt Management Plan Recognition (Controlling for Debt Write-Offs)**

| | Counseled Consumer DMP Status | |
|---|---|---|
| | DMP Recommendation | No DMP Recommendation |
| Total Revolving Debt | -2,110*** | -1,762*** |
| Total Debt | -6,975*** | -5,849*** |
| Credit Score | -4.05*** | -9.80*** |
| 60-Day Payment Delinquencies | 0.11*** | 0.11** |

This table presents summarizes the impact of credit counseling for those who were recommended for a DMP and those who were not. Results are from a fixed effects panel regression with standard errors clustered by observation, controlling for the presence of any bankruptcy, charge-off, or foreclosure after the receipt of counseling.

*Source: Credit Attributes Data*

** p<0.1; ** p<0.05; *** p<0.01*

**Table 9: Debt Results Excluding Large Baseline Values**

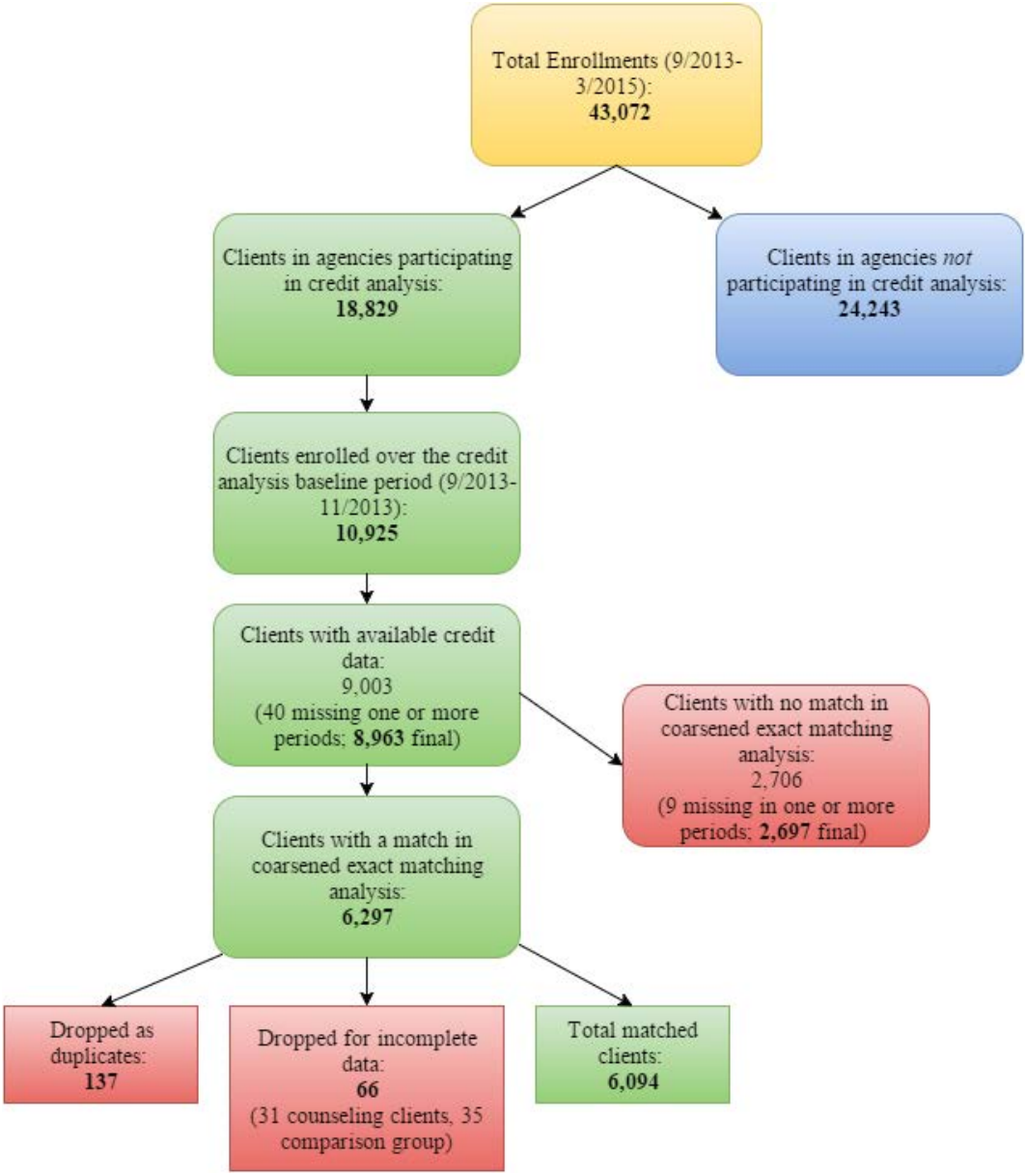
| | Sample Restriction Criteria | | |
|---|---|---|---|
| | Full Sample | Excluding Highest 1% at Baseline | Excluding Highest 5% at Baseline |
| Total Revolving Debt | -3,637*** | -3,444*** | -2,768*** |
| Total Debt | -11,341*** | -9,954*** | -8,516*** |

This table presents a comparison of consumer outcomes based on the exclusion of extreme values, defined by the value of revolving debt and total debt measures at baseline. This table includes results for the full sample, the sample excluding the highest one percent of baseline debt, and the sample excluding the highest five percent of baseline debt.

*Source: Credit Attributes Data*

* p<0.1; ** p<0.05; *** p<0.01

**Appendix A: Analysis Sample Construction**



## Appendix B: Comparison of Consumers from Participating and Non-Participating Agencies

| | Participating Agencies | Non-Participating Agencies | Significance* |
|---|---|---|---|
| | Mean | Mean | |
| Age (Years) | 42.4 | 44.3 | *** |
| Male (%) | 34% | 33% | ** |
| **Marital Status** | | | |
| Married or Living with a Partner (%) | 43% | 40% | *** |
| Single (%) | 36% | 34% | *** |
| **Race** | | | |
| Black (%) | 19% | 22% | *** |
| White (%) | 69% | 65% | *** |
| **Education** | | | |
| Four-Year College Degree (%) | 26% | 33% | *** |
| High School Graduate or GED (%) | 32% | 37% | *** |
| **Financials** | | | |
| Average Monthly Income ($) | 3,420 | 3,394 | |
| Monthly Housing Expenses ($) | 1,162 | 1,010 | *** |
| Debt-Related Expenses ($) | 1,132 | 1,527 | *** |
| Tangible Assets ($) | 81,774 | 72,079 | *** |
| Savings ($) | 940 | 1,402 | *** |
| Liabilities ($) | 79,770 | 67,953 | *** |
| *Total Consumers* | *18,829* | *24,243* | |

*Source: NFCC Administrative Data*
*Significance for continuous variables is measured by t-tests, significance for dichotomous variables is measured by chi-squared tests