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The Impact of Credit Counseling on Subsequent Borrower Behavior

The study examined the impact of individualized credit counseling delivered to nearly 8,000 consumer clients during 1997. Credit bureau data provided objective measures of credit performance at a variety of margins between 1997 and 2000 for counseled clients, relative to a comparison group of uncounseled borrowers. Receipt of counseling was associated with a positive change in borrower credit profiles. Techniques to control for self-selection into counseling reveal that much of the improvement was attributable to characteristics unique to consumers who sought counseling. But counseling itself was associated with substantial reductions in debt and account usage, and appeared to provide the greatest benefit to those borrowers who had the least ability to handle credit prior to counseling.

Each year, millions of households find themselves overwhelmed with debt and struggling to maintain their monthly payments. In 2003, over 1.6 million U.S. households resorted to personal bankruptcy as a solution.[1] Upward of nine million people sought advice and assistance from a credit counseling agency, sometimes prior to bankruptcy but mostly as an alternative to bankruptcy (Consumer Federation of America and the National Consumer Law Center 2003). Providing assistance to financially troubled consumers has become a growth industry: as recently as 1990, the annual number of new clients seeking assistance at credit counseling agencies totaled less than 500,000.[2]

We are aware of no studies to date that demonstrate the impact of credit counseling on the subsequent credit usage of counseled borrowers. There are at least two reasons why such evidence would be valuable. First, public policy is

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1. Administrative Office of the U.S. Courts, cited on the Web site of the American Bankruptcy Institute. http://www.abiworld.org.

2. NFCC, Silver Spring, MD. NFCC-member agencies comprise the oldest network of nonprofit credit counseling agencies in the United States.

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increasingly viewing counseling as important for preventing financial problems in the future. Homeownership counseling has long been required by the U.S. Department of Housing and Urban Development in conjunction with a variety of affordable housing programs. More recently, regulatory attempts to reduce predatory lending in mortgage markets have required mandatory financial and homeownership counseling for subprime borrowers who are considering high-cost mortgage loans. Additionally, an important provision of the new federal bankruptcy law (effective in October 2005) requires that all consumers receive credit counseling from a court-approved provider prior to filing for bankruptcy and another round of counseling prior to receiving a discharge of their debts under either Chapter 7 or Chapter 13 of the Bankruptcy Code. Each of these counseling requirements seems to envision either a rehabilitative or preventive role for credit counseling to avoid future financial problems. A small body of empirical work has established that prepurchase homeownership counseling reduces mortgage delinquency (Hirad and Zorn 2002) and raises prepayment rates (Hartarska and Gonzalez-Vega 2005). Regarding the question of the impact of credit counseling on borrowers who are experiencing financial distress, however, the literature is silent.

A second reason for determining the value of credit counseling is that the market's ability to continue providing these services requires it. Most of the credit counseling industry in the United States follows a peculiar business model in which the bulk of the revenue generated by counseling agencies derives from a debt repayment product (called a debt management plan or DMP) delivered to a subset of borrowers who receive counseling. Unsecured creditors typically pay agencies a percentage of the funds recovered under these DMPs but do not compensate the agencies for counseling borrowers who do not enter a DMP. Clients who start DMPs repay some or all of their unsecured debt under the plans, and at least one study found that clients who stay on plans for more than eighteen months reported improved financial management behaviors and fewer stressful events (Kim, Garman, and Sorhaindo 2005).

However, for most agencies, customers on DMPs represent the minority of clients counseled.[3] For the remaining majority of counseled clients, the

3. During 1999, counseling agencies affiliated with the NFCC counseled over 800,000 consumers in 1,300 offices across the United States. For these agencies, only about one-third of counseled consumers were placed on DMPs. Approximately 72% of NFCC-agency revenues derived from the fees paid by creditors out of client DMP payments. DMP clients (consumers) are often asked to pay an additional monthly fee to agencies for the duration of the repayment plans. Agencies derived about 18% of their total revenues from these client fees. Consequently, nearly 90% of NFCC agency revenues derived from the DMP plan product that was delivered to just one-third of all clients. Source: Bayshore Consulting analysis of 1999 NFCC Agency Operating Reports, outlined in letter to NFCC national office, April 26, 2000. A copy of the letter is on file with the authors.

agency output is less tangible, consisting of education, budget analysis, advice, possible referrals to social service agencies or other institutions to solve specific problems, and general recommendations for specific changes in clients' behavior. Creditors do not compensate agencies for counseling these consumers. In fact, creditors generally do not know when one of their accountholders has been counseled, unless that consumer agrees to a DMP.

A recent report by the Consumer Federation of America concluded that "multi-service agencies are a dying breed …. The multi-service agencies are struggling to keep affordable counseling services for those consumers who are not enrolled in DMPs" (Consumer Federation of America and the National Consumer Law Center 2003, 19). The Consumer Federation of America report sharply criticized the counseling industry for maintaining business models that rely to such a large degree on funding from DMPs. But given the absence of demonstrated value from counseling itself (outside of a plan designed to collect a debt), the market has yet to produce alternative revenue streams to fully compensate for those services for the majority of agencies.

This paper takes a step toward determining whether credit counseling is associated with a measurable positive effect on a consumer's subsequent credit behavior. We examine the impact of one-on-one counseling delivered during a five-month period during 1997 by five nonprofit credit counseling agencies to approximately 8,000 clients. Recognizing that the DMP product offered to qualified consumers conveys benefits separate from the counseling itself, we focus on borrowers who receive financial counseling only but do not enroll in a DMP. Credit bureau data provide objective measures of credit performance for these clients over a three-year period following the initial counseling session, as well as for a large comparison sample of individuals with risk profiles and geographic residences similar to the client group in 1997 but who were not counseled.

METHOD

Any study of the impact of credit counseling on borrowers faces some formidable methodological hurdles, as discussed by Mallach (2001) and Quercia and Wachter (1996). For example, counseling content may vary across providers so that some means of standardization is necessary to properly define the "treatment" of counseled borrowers. The counseling content will also dictate the objectives, which in turn will influence the researcher's choice of behaviors to examine for evidence of counseling's effectiveness. In order to test the impact of counseling on borrowers,

a research design must identify and incorporate data on observationally similar borrowers who did not experience the counseling treatment. In addition, the treatment is generally not randomly assigned across borrowers. Instead, borrowers typically choose whether or not to seek counseling and those who do are likely to differ in important ways (e.g., motivation, experience with financial difficulties, severity of financial distress) from those who do not. If these differences are also correlated with measures of counseling success, then the research design must attempt to disentangle the influence of the consumer's initial characteristics from the influence of the counseling itself. This section discusses how the current study addresses each of these methodological issues.

Standardization of Content

Credit counseling entails the tailoring of information and advice to an individual borrower's specific circumstances. All of the counseling analyzed in this paper stems from one-on-one sessions between the borrower (often a couple) and a certified agency counselor. The counseling assessed in this study was administered between April and August 1997 by five nonprofit member agencies of the National Foundation for Credit Counseling (NFCC). The requirements imposed by the NFCC for agency membership standardize the counseling treatment. All clients received one or more sessions with a certified credit counselor. The initial 60- to 90-minute session provided an opportunity to analyze the family's or individual's financial situation in a give-and-take forum that raises and resolves questions related to debt, income, and payment issues. The counseling session normally includes several key components: a discussion of the financial goals of the family, financial strengths and weaknesses, and a comprehensive detailed review of the family's budget and spending patterns. In essence, counseling amounts to "decision assistance" for financially troubled consumers. A written action plan is developed to identify the next steps. As appropriate, referrals to organizations in the community are made—perhaps to a social service agency to address issues that may be contributing to family instability (e.g., addiction). Some clients may participate in additional follow-up sessions.

Identification of Counseled Individuals

The NFCC obtained the cooperation of five member agencies for this study. Participating agencies included the Consumer Credit Counseling Service (CCCS) of Atlanta, CCCS Farmington Hills (suburban Detroit),

CCCS of San Francisco, CCCS Southwest (Phoenix), and CCCS of Dallas. Each of these agencies operated multiple offices in their geographic market area (sometimes encompassing several states). Each agency provided data on clients who received an initial counseling session between April and August 1997 but did not establish a DMP; a total of 55,527 clients.

Clients in the sample received counseling evaluation and education but no additional product. The sample consists of consumers in four categories: (1) those who were not recommended for a DMP because the counselor determined they could handle their debts on their own (approximately one-third of all counseled clients); (2) those for whom debts were too high, income too low, or one or more creditors were uncooperative such that it prevented setting up a DMP that would amortize the outstanding debt within 48 months; (3) those who had specific problems that prompted a referral for other legal or social service assistance (e.g., substance abuse programs); and (4) those to whom a DMP was offered but the consumer declined. Consequently, the sample spans the range of economic circumstances of counseled clients but does not include those clients who received counseling as well as the rehabilitative benefit (if any) of the debt payback experience and the regular agency follow-up contact associated with starting a DMP.

Not all the counseling sessions were conducted face to face. Telephone counseling emerged in the mid-1990s and has become an increasingly popular alternative to in-person meetings. Consumers may favor telephone counseling because of the convenience in terms of reduced time and travel costs. Agencies have also found that some consumers are more comfortable discussing their financial affairs if they can do so from a distance. Many agencies favor it from an operational standpoint because a given volume of clients can be served at lower cost, relative to the brick-and-mortar office capacity required for in-person counseling.

The sample contains both in-person and telephone-counseled clients but, unfortunately, does not identify the specific delivery channel for each client. Only aggregate statistics on the percent of clients counseled by telephone by agency are available. Table 1 displays the percentage of clients who were counseled in person for each agency during 1997. If there is a difference in the effectiveness of the two delivery methods, our results reflect a blend of the two.

What Behavior Should Be Measured?

Counseling has at least two objectives. Since clients almost always seek counseling assistance because they sense that they are in financial trouble,

TABLE 1
Client Characteristics, 1997

Agency	Number of Offices	1997 Clients	Percent Counseled in Person
CCCS of Atlanta	15	15,684	87.5
CCCS Farmington Hills, MI	36	10,212	100.0
CCCS of San Francisco	12	7,289	48.1
CCCS Southwest, Phoenix	16	13,900	74.5
CCCS of Dallas	32	8,442	85.6
Total	111	55,527	81.1

a primary goal is to provide advice and assistance to relieve the immediate problem and to lower the debt burden. But a second and longer-term goal is to improve borrower awareness, planning, and budgeting skills to prevent overextension in the future. Decision assistance "triage" and education are intertwined in a good counseling session. An evaluation of progress toward both goals requires some objective measures of credit usage and payment performance over an extended period.

Credit report information provides such a measure. For this project, one of the three major credit bureaus in the United States, Trans Union LLC, provided credit bureau snapshots for individuals in both the counseled and the comparison group samples at multiple points in time and under appropriate confidentiality and disclosure agreements. Credit report data included the full set of variables describing the various credit data fields on the credit report, plus several types of credit risk scores. Trans Union depersonalized (i.e., removed the personal identification fields) the data set before providing it to the authors for analysis.

The analysis below examines the credit bureau profile for each member of the counseled and comparison groups at two points in time, June 1997 and June 2000. The objective is to determine whether the counseled group's credit profile (defined in a variety of ways) improved over the three-year period following the initial counseling session, relative to consumers in the comparison group.

Ideally, for this analysis we would see a consumer's credit profile at the moment he or she enters the first counseling session. The consumer's credit report provides an imperfect but useful substitute. Because creditors typically only report updates on account activity once per month, there is always lag time between a credit event and the time it is first reflected on the credit report. The lag is typically 30–60 days.

Because we have access to a single credit bureau snapshot in June 1997, we selected into our analysis all clients of the five participating agencies for whom the initial counseling session took place between April 1 and August

31 in 1997 (sixty days on either side of the June bureau snapshot). Note that this includes a group of counseled clients for whom the snapshot precedes their counseling session by as much as two months. This allows us to explore the hypothesis that the decision to seek counseling may reveal information about the borrower's circumstances that is not yet evident in the credit report. This idea will be developed more fully in the following sections. The final sample of counseled borrowers who met these criteria included 14,559 individuals.

Identification of a Comparison Group

A key component of the analysis was the selection of a comparison group of similarly situated borrowers who did not experience credit counseling during 1997. Since the counseled group came from five specific agencies around the country (versus a random sample of all clients nationally), geographic location was one of the two criteria for selection into the comparison group. The other criterion was that the borrower had a credit profile similar to members of the counseled group.

There are several hundred variables in a credit report, complicating the task of deriving a single measure that encompasses all dimensions of the borrower's credit profile. Fortunately, credit bureaus have developed risk score products that are constructed to consolidate the predictive value of the individual credit report variables into a single index that measures the relative likelihood of future payment difficulties. The Empirica score contained in the Trans Union credit files predicts the likelihood that the borrower will experience a new incident of serious delinquency, bankruptcy, charge-off, or repossession at some point during the subsequent twenty-four months. The Empirica score was constructed by the Fair Isaac Corporation and is Trans Union's version of the well-known FICO risk score. The score is based on the values of up to two dozen variables from a borrower's credit report, scaled so that higher score values signal lower credit risk. These scores are sold commercially and are widely used by creditors to evaluate borrower risk. Consequently, the Empirica score provided a comprehensive and objective measure of creditworthiness for purposes of this analysis.

From a nationally representative random sample of nearly one million borrowers with credit reports, a comparison group was selected consisting of all borrowers who met the following specific criteria: (1) each resided in the three-digit ZIP code geographic areas represented in the counseled client sample, (2) a borrower did not appear on the list of clients counseled by the five participating agencies during 1997, (3) each had both a credit report

and an Empirica score for June 1997 and June 2000, and (4) each borrower's Empirica score value fell within the same range as observed in the counseled client sample. The resulting sample that served as the comparison group for subsequent analysis contained 91,307 records.

One final point is important when comparing the performance of the counseled versus noncounseled groups. Even if some comparison group members do not appear on the list of individuals counseled at the five participating agencies in 1997, it does not guarantee that they were never counseled. Some comparison group members could have sought counseling from these agencies in either earlier or later years. Although the participating agencies had exclusive rights to use the brand "Consumer Credit Counseling Service" in their respective geographic markets and dominated those geographic markets in 1997, there were other competitors also offering services. Telephone counseling specialists were a far smaller component of the industry in 1997 than today (Staten 2006), but some comparison group members could have received counseling by phone at any time. Since the incidence of financial counseling is not reported to a credit bureau, there is no way to use credit report data to filter out counseled borrowers. For our purposes, the potential for some members of the comparison group to have received counseling at a different time or from a different agency raises the bar for demonstrating a positive impact of counseling. In other words, if counseling actually has a positive effect and if some members of the comparison group received counseling, then the overall performance of the comparison group will be elevated to some degree. The impact of counseling would need to be strong to demonstrate statistically significant improvement in the performance of the counseled group relative to a comparison group that may contain some counseled borrowers.

THE EMPIRICAL MODEL

Regression analysis was used to detect whether receipt of credit counseling was associated with a change in consumers' subsequent borrowing and payment behavior between June 1997 and June 2000. The analysis utilized seven alternative indicators of the borrower's credit profile and specific behaviors as the dependent variable: (1) a summary measure of creditworthiness as provided by the Empirica risk score and (2) six different measures of credit use (e.g., change in revolving debt, change in the number of bank cards with positive balances). The specific measures of credit usage represent actions that counseled borrowers were advised to take (e.g., reduce number of credit lines, reduce debt levels). Table 2 provides definitions and descriptive statistics for the dependent variables in this study.

TABLE 2
Variable Definitions and Descriptive Statistics for Dependent Variables

Dependent Variables	Definition (change in credit profile indicators, June 1997 to June 2000)	Mean	SD
ΔEmpSc	Empirica score	1.879	56.399
ΔAccounts	Total number of accounts with positive balances	−0.380	3.118
ΔTotlDebt	Total debt, dollars	7,850	67,737
ΔConsDebt	Consumer debt, dollars	404	27,220
ΔCrdAccts	Number of bank card accounts with positive balance	−0.165	1.646
ΔCrdUtl	Bank card utilization, percent of credit limit	−2.947	30.998
ΔReDebt	Revolving debt, dollars	−434	13,668

We considered two models to evaluate the effects of counseling: a basic model estimated the change in behavior associated with counseling, and a selection-corrected model estimated the effects of counseling, controlling for borrower motivation and other factors that influence the decision to seek counseling.

The Basic Evaluation Model

We modeled the change in each of the credit profile indicators as dependent on receipt of credit counseling, the borrower's demonstrated ability to handle debt at the outset of the observation period, the initial level of the behavior being measured, and a set of demographic variables that generally influence consumer credit use. Table 3 provides the variable definitions and descriptive statistics for the independent variables used to explain borrower performance. Each is described below.

Receipt of Credit Counseling and Initial Ability to Handle Debt

For the basic model, receipt of credit counseling is indicated by a dummy variable that equals one if the borrower received counseling and zero if the borrower is in the comparison group. The borrower's revealed debt management ability is captured in the initial Empirica risk score, which is constructed exclusively from credit report data on past payment performance and current obligations in 1997. We inferred that borrowers with high initial Empirica scores (which signal lower risk) had greater personal financial management skills than borrowers with lower scores.

The impact of counseling is likely to differ depending on the borrower's ability. Borrowers with a history of credit problems attributable to poor

TABLE 3
Variable Definitions and Descriptive Statistics for Explanatory Variables Used in the Evaluation Models

Variable	Definition	Mean	SD
Receipt of counseling			
C	Basic model: received counseling = 1, otherwise = 0	0.102	0.302
$\hat{Pr}$ (*C*)	Selection-corrected model: predicted probability of receiving counseling	0.108	0.141
Borrower credit profile/behavior indicators (initial values in 1997)			
EmpSc	Empirica score	697.738	87.788
Accounts	Total number of accounts with positive balance	4.319	3.527
TotlDebt	Total debt, dollars	54,837	76,976
ConsDebt	Consumer debt, dollars	16,279	25,777
CrdAccts	Number of bank cards with positive balance	1.711	1.703
CrdUtl	Bank card utilization, percent of credit limit	35.927	36.182
ReDebt	Revolving debt, dollars	6,981	13,507
Month in which counseling was received (April 1997 omitted)			
May	May 1997 = 1, otherwise = 0	0.021	0.145
June	June 1997 = 1, otherwise = 0	0.020	0.139
July	July 1997 = 1, otherwise = 0	0.021	0.144
August	August 1997 = 1, otherwise = 0	0.022	0.146
Demographic variables (percent of population unless otherwise noted)			
Black	Black	12.159	19.623
Asian	Asian	5.518	8.743
Hispanic	Hispanic	16.430	16.649
Unmarried	Never married	27.939	8.654
Divorced	Divorced	11.777	3.297
Widowed	Widowed	5.513	2.527
NoHSDipl	No high school diploma	12.147	8.540
HSDipl	High school diploma	28.991	9.338
SomeColl	Some college	27.455	5.626
Graduate	Graduate degree	9.231	5.751
Homeowner	Homeowner	67.276	17.132
Age18	Age 18–24	11.816	4.623
Age25	Age 25–34	18.665	5.242
Age35	Age 35–44	23.941	4.879
Age55	Age 55–64	10.714	2.918
Age65	Age 65 or older	15.138	8.293
AvgHHInc	Average household income, dollars	77,165	36,051
AvgHHSize	Average household size	2.637	0.365
Density	Population per square mile	2,625	3,086
State of residence (Texas omitted)			
AZ	Arizona = 1, otherwise = 0	0.264	0.441
CA	California = 1, otherwise = 0	0.141	0.348
GA	Georgia = 1, otherwise = 0	0.198	0.398
IL	Illinois = 1, otherwise = 0	0.001	0.035
MI	Michigan = 1, otherwise = 0	0.105	0.307
NM	New Mexico = 1, otherwise = 0	0.082	0.274
NY	New York = 1, otherwise = 0	0.042	0.200
OK	Oklahoma = 1, otherwise = 0	0.001	0.029
WI	Wisconsin = 1, otherwise = 0	0.001	0.028

money management skills would be more likely to benefit from counseling than borrowers with good prior credit profiles who suddenly find themselves in a financial crisis, perhaps due to job loss, divorce, or illness. Since the borrower's initial Empirica score serves as a proxy for ability, we hypothesize that borrowers with lower initial Empirica scores are likely to benefit more from counseling than borrowers who have higher initial scores. The interaction of counseling and Empirica score is modeled as the product of the counseling dummy and a dummy variable indicating the quintile of the initial distribution of Empirica scores into which the borrower's Empirica score falls. This specification allows the magnitude of the interaction effect to differ from one quintile to the next.

We also accounted for the month in which the client was counseled to help control for any timing mismatch between each client's actual credit profile at the time of counseling and his/her credit bureau profile in June 1997. As mentioned, borrowers in the sample sought and received counseling between April and August 1997. We hypothesize that observed changes in counseled borrowers' behavior, as measured by a comparison of credit reports in June 1997 and June 2000, will be smaller for those counseled in later months than earlier months. Those clients who did not seek counseling until July or August are less likely to have adverse information reflected in the June credit report, relative to borrowers counseled earlier in the period. This is because the sample of borrowers counseled in July and August is likely to be more heavily populated by clients for whom a financial crisis (which increases the demand for counseling) occurred *after* the June bureau snapshot. The June bureau snapshot overstates the creditworthiness of these borrowers at the time of counseling (the start of the observation period) and consequently would understate the observed improvement over the subsequent three years. The month in which counseling was received is indicated by a set of dummy variables. Consumers counseled in April are the omitted group.

Finally, the initial level of the behavior being measured may affect observed changes in the dependent variable. Borrowers with a small number of accounts will not have large decreases in the number of accounts for example, and borrowers with large total debt outstanding are more likely to be repaying debt than incurring new debts.

Demographic Variables

A borrower's income or life cycle stage may affect observed changes in behavior. Unfortunately, credit bureau data do not include much demographic information. Data from the U.S. Census for the geographic area

in which a borrower lives serve as proxy variables. While these aggregated statistics imperfectly approximate individual borrower characteristics, they do convey group, social, and environmental factors that have been shown to influence individual decision making (Engel, Blackwell, and Miniard 1997).

The set of demographic variables includes characteristics of the borrower's neighborhood (and, by probabilistic inference, the borrower): race and ethnicity, marital status, education, homeownership, age, average household size, average household income, and population density. Marital status, homeownership, age, and average household size are life cycle characteristics associated with demand for debt (Aizcorbe, Kennickell, and Moore 2003; Juster and Shay 1964; Lansing, Maynes, and Kreinin 1957). Racial and ethnic characteristics may reflect differences in the wealth levels and credit market experience of different groups (Aizcorbe, Kennickell, and Moore 2003). Average household income reflects the economic resources of a borrower's neighborhood and serves as a proxy for a borrower's own resources. Density reflects the urban or rural nature of a borrower's residence, which may influence the degree of anonymity a borrower experiences in dealing with financial distress (Barron, Elliehausen, and Staten 2000). The model also includes dummy variables for a borrower's state of residence to capture variance in economic conditions and consumers' debt payment performance across states.

Accounting for Self-Selection into the Counseled Group

Borrowers receive credit counseling as a consequence of their own choice rather than random selection. Consequently, it is quite possible that borrowers who choose counseling are signaling a greater willingness to take action to deal with financial distress than a comparison group of borrowers with similar risk scores and geographic location who do not seek counseling. If so, then some or all of any observed change in performance could be attributable to a borrower's motivation instead of the counseling itself. It is also possible that borrowers who seek counseling are less confident in their ability to resolve problems on their own, or are suffering from greater financial stress, than is the case for borrowers who have similar credit reports but do not seek counseling. In other words, the choice of counseling could be correlated with the error term in the estimated evaluation equation, making the basic evaluation model estimates of the effects of counseling biased and inconsistent. This problem is called selection bias.

We correct for selection bias by estimating the model using a two-stage, instrumental variable procedure suggested by Barnow, Cain, and Goldberger

(1980). In the first stage, a model is estimated to predict whether or not a borrower seeks and receives counseling. In the second (evaluation) stage, the basic evaluation model is adjusted so that the predicted probability of choosing counseling from the first stage is used in place of the counseling dummy variable to estimate the effects of counseling. To be effective, the explanatory variables in the first-stage model must include variables that are not correlated with the error in the evaluation equation. This procedure produces a statistically unbiased estimate of the counseling effects and is commonly used to account for self-selection in labor market and policy analysis studies (e.g., see Carneiro, Heckman, and Vytlacil 2003).

The Decision to Seek Counseling

The model of the decision to seek counseling includes indicators of a borrower's level of financial distress, willingness to take action, and skill in handling credit. Proxies for these characteristics are derived primarily from credit report data on a borrower's current and past credit use and payment behavior. Table 4 provides definitions and descriptive statistics for the specific variables included in the model.

TABLE 4
Instrumental Variables Used to Predict Receipt of Counseling

Variable	Definition	Mean	SD
Likelihood of financial distress			
Accounts	Total number of accounts with positive balances	4.802	3.486
TotlDebt	Total debt, dollars	54,837	76.976
DebtBurden	Consumer debt to average household income, percent	24.105	37.719
NewRe	New bank accounts opened in past 12 months	0.475	0.845
ReUtil	Bank card debt to aggregate credit limit, percent	37.941	234.604
ReDebt	Revolving debt, dollars	6,981	13,507
Inquiries	Number of credit inquiries in past 6 months	0.527	1.078
NewLate30	Number of accounts 30–59 days past due in past 12 months	0.104	0.434
MedExp	Aggregate medical to total expenditures, percent	7.111	0.678
HealthIns	Aggregate health insurance to total expenditures, percent	2.222	0.254
Willingness and ability to resolve problems			
OldDelinq	Number of accounts 60+ days past due from June 1993 to June 1996	0.796	1.927
Bankrupt	Number of previous bankruptcies	0.049	0.250
Derog	Number of previous derogatory public record files	0.154	0.690
MoonFile	Months in credit bureau files	129.591	61.933
NeverDelinq	Number of accounts that have never been delinquent	85.201	22.463

Ten variables provide indicators that a borrower is experiencing financial distress that could trigger a decision to seek counseling. Borrowers with many debts, large amounts of debt, and large amounts of debt relative to income are more vulnerable to financial difficulties from disruptions in income or unexpected expenses and so are more likely to have reason to seek counseling in a given period than borrowers with few debts and low debt burdens (Barron, Elliehausen, and Staten 2000; Getter 2003). Debt burden is measured by the initial consumer debt for each borrower as a percentage of average household income for the geographic area in which each borrower resides.

Borrowers facing financial distress may attempt to "stay afloat" by opening new revolving accounts or using a greater percentage of their revolving credit limits (Barron, Elliehausen, and Staten 2000; Bizer and DeMarzo 1992; Gross and Souleles 2002). The set of variables reflecting such new borrowing include the number of new bank card accounts opened in the past twelve months, the total amount of revolving debt, and the percentage utilization of revolving credit limits. In addition to new account openings and percentage utilization, the number of credit inquiries in the past six months is included to account for unsuccessful attempts to obtain additional credit, which would also signal distress but are not captured in the variable on new account openings. Larger values for each of these variables would be associated with greater probability of seeking credit counseling.

Recent delinquency is an indicator of current financial distress. A commonly used measure of recent delinquency is the number of accounts on which the borrower was 30–59 days past due during the prior twelve months. A greater number of recent delinquencies is likely to be associated with a greater probability of seeking credit counseling.

Rounding out the set of ten variables indicating financial distress are U.S. Census variables on the proportion of household expenditures for medical expenses and the ratio of health insurance expenditures to total expenditures. Medical expenses are often unexpected expenditures that create financial distress. Health insurance expenditures mitigate the economic consequences of illness and are inversely related to personal bankruptcy (Barron, Elliehausen, and Staten 2000). Of course, values on these variables are based on expenditures in the borrower's local geographic area and therefore only probabilistically reflect a borrower's individual situation.

Borrowers differ in their willingness to handle credit and resolve financial difficulties in order to repay debts as scheduled. While some borrowers make every effort to pay promptly and rarely experience delinquencies, others are quite casual in making payments and develop a history of late

payments. Thus, a chronic history of late payments (as opposed to a rash of new delinquencies but no prior payment problems) may suggest a lower willingness to repay and lower propensity to seek counseling assistance. The model uses nonrecent serious delinquencies (i.e., number of accounts sixty or more days past due between June 1993 and June 1996) to measure chronic late payment behavior. Further evidence of lower willingness to repay would be previous bankruptcy or other derogatory public record files. Such events may suggest a tendency to walk away from debts rather than seek to resolve payment difficulties. Accordingly, borrowers having a greater number of previous bankruptcies or other derogatory public record files might be less troubled by new repayment problems and might consequently be less likely to seek credit counseling. In addition, population density provides an indicator of anonymity, which insulates borrows from any stigma associated with curing financial distress by filing for bankruptcy (Barron, Elliehausen, and Staten 2000). Bankruptcy is a very public "cure" for financial distress, while counseling is a much more private alternative. Consequently, we hypothesize that the likelihood of a borrower seeking counseling rises as population density falls.

Because skill in handling debts likely rises with experience, the expected benefit from counseling is likely to be lower for experienced borrowers than for inexperienced borrowers. Consequently, the number of months of credit history in a borrower's credit report should be inversely associated with the probability of obtaining counseling. Another proxy for skill in handling debts would be the number of accounts that did not have any delinquencies of thirty days or more during the entire seven-year period for which delinquency information is retained in credit bureau files. Borrowers having a greater number of accounts that have never been delinquent would be less likely to choose counseling. Rounding out the model estimating the choice of counseling are the demographic variables (racial and ethnic characteristics, marital status, education, homeownership, age, average household income, and average household size), which reflect borrower characteristics or group, social, and environmental factors that may influence individual decisions.

RESULTS OF MODEL ESTIMATION

The final sample used for analysis consisted of 73,880 borrowers, of which 7,979 were in the counseled group and 65,901 were in the comparison group. Sample sizes of both groups were reduced because of missing values for Census variables. For about three-fifths of our observations, the credit bureau supplied geographic information that matches the borrower to

a Census block group, the smallest geographic area for which the Census Bureau reports statistics. Borrowers appear to be missing geographic information at random. That is, the credit bureau data attributes for the group of borrowers with geographic information do not differ from the attributes of the group missing the geographic location information. The evaluation models estimated for 73,880 borrowers with geographic information were nearly identical to ones estimated for the entire sample.

The Selection Model

The results of estimating the selection model indicate that a model based on credit bureau and area demographic data can predict the choice of credit counseling reasonably accurately. The logistic regression model for the probability of obtaining counseling was significant at the $p < .01$ level (see Table 5). Using the population proportion as a threshold for classification, the model correctly classified 76% of counseled borrowers and 76% of borrowers in the comparison group. Also, there is inconsequential correlation between the error in the selection-corrected model and the credit usage and performance variables used to predict receipt of counseling.

The estimated coefficients for the model predicting receipt of counseling were generally significant with the expected signs. Holding other factors constant, a larger number of accounts, higher levels of consumer debt relative to income, higher revolving account balances and utilization rates, a larger number of new revolving accounts, and larger numbers of credit bureau inquiries were all positively related to receipt of counseling.

Instances of delinquency also played a significant role in the decision to seek counseling. Recent delinquencies (the number of 30- to 59-day delinquencies in the past twelve months) were positively related to the probability of obtaining counseling. This result suggests that new delinquencies may provide a catalyst that prompts a borrower to seek help with current difficulties. On the other hand, historical delinquencies, measured by the number of times a borrower's accounts were delinquent sixty days or more between June 1993 and June 1996 (i.e., serious delinquencies more than twelve months in the past), were negatively related to the probability of obtaining counseling, other things constant. This finding is consistent with the hypothesis that a chronic history of delinquencies signals less motivation to seek counseling in response to current difficulties. Similarly, the coefficient for previous bankruptcy was negative, indicating that borrowers with a history of walking away from debts were less likely to seek counseling to resolve current credit problems.

TABLE 5
Selection Model Logistic Regression Results: Receipt of Credit Counseling

Variable	Estimated Coefficient	Standard Error
Accounts	0.168**	0.004
TotlDebt (in thousands)	0.003**	<0.0005
DebtBurden	0.002**	<0.0005
NewRe	0.036*	0.016
ReDebt (in thousands)	0.012**	0.001
ReUtil	<0.0005*	<0.0005
Inquiries	0.120**	0.010
NewLate30	0.714**	0.025
OldDelinq	−0.029**	0.007
Bankrupt	−0.114*	0.056
Derog	0.005	0.018
MoonFile	−0.002**	<0.0005
NeverDelinq	−0.030**	0.001
Density (in thousands)	0.010	0.007
Black	<0.0005	0.001
Asian	0.008**	0.002
Hispanic	−0.001	0.001
Unmarried	0.003	0.004
Divorced	0.006	0.007
Widowed	−0.007	0.014
NoHSDipl	0.003	0.005
HSDipl	0.016**	0.004
SomeColl	0.010*	0.005
Graduate	0.020**	0.008
Homeowner	−0.004	0.002
Age18	−0.006	0.009
Age25	0.008	0.010
Age35	0.011	0.010
Age55	−0.018	0.013
Age65	0.026**	0.001
AvgHHInc (in thousands)	−.005**	.001
AvgHHSize	0.120	0.089
MedExp	0.335	1.260
HealthIns	−1.642	3.368
Memo		
−2 Log L	39,732.71	
Chi-square	10,847.33**	
Number of observations	73,880	

*$p < .05$, **$p < .01$.

The results for credit experience and ability were consistent with the hypothesis that borrowers with less ability in managing their finances would be more likely to choose counseling than borrowers with greater ability. Longer credit histories and larger numbers of accounts with no history of delinquency were associated with lower probability of obtaining counseling.

In sum, estimation of the selection model suggests that motivation, financial distress, and lack of experience may all play a role in determining whether a borrower seeks counseling. Consequently, borrower self-selection into counseling has at least three potentially offsetting effects on the observed performance of counseled borrowers. Higher motivation to seek assistance in resolving financial stress may cause counseled borrowers to outperform borrowers in the comparison group during a multiyear period following counseling. But lower ability and greater financial stress may cause counseled borrowers to perform more poorly than the borrowers in the comparison group. Thus, the net effect of selection on observed performance is ambiguous.

Evaluation Models

To determine the impact of credit counseling on subsequent behavior and to differentiate that effect from the influence of the specific characteristics that lead borrowers to choose credit counseling as a remedy, models were estimated with and without the correction for borrower self-selection. The basic uncorrected model utilized a dummy variable to indicate the receipt of counseling. The selection-corrected version of the evaluation model substitutes the predicted probability of seeking counseling from the logistic regression in place of the dummy variable for seeking counseling in the evaluation equation. The discussion below describes the estimation results for each of the three categories of borrower credit use attributes that comprise the set of dependent variables.

Summary Measure of Credit Performance: The Empirica Risk Score

Table 6 presents estimation results for the change in a borrower's Empirica risk score, with and without the correction for self-selection. *F*-tests indicate that each model was significant. The models explained 9.91% and 10.56% of the change in scores between 1997 and 2000, respectively.

Of the key explanatory variables in the respective models, both the dummy variable for receipt of counseling in the basic model and the estimated probability of choosing counseling in the selection-corrected model were significant at the 1% level. The positive coefficients on the two versions of the counseling variable indicate that membership in the counseled group is associated with larger Empirica score changes over time, controlling for a borrower's initial score and other factors. The variable capturing a borrower's initial Empirica score was negative and significant at the $p < .01$ level, as predicted.

TABLE 6
Evaluation Model Estimation Results: Change in Empirica Score, 1997–2000

	Basic Model		Selection-Corrected Model	
Variable	Estimated Coefficient	Standard Error	Estimated Coefficient	Standard Error
C or $\hat{Pr}$ (C)	25.194**	1.909	29.523**	2.638
C or $\hat{Pr}$ (C) × 2nd Empirica score quintile	−11.105**	2.000	−23.018**	3.061
C or $\hat{Pr}$ (C) × 3rd Empirica score quintile	−23.955**	2.024	−51.299**	3.415
C or $\hat{Pr}$ (C) × 4th Empirica score quintile	−46.179**	2.002	−121.238**	3.626
C or $\hat{Pr}$ (C) × 5th Empirica score quintile	−52.676**	2.026	−118.397**	4.331
LEmpSc	−0.18**	0.003	−0.196**	0.003
May	−4.573**	1.858	−10.064**	1.398
June	−8.142**	1.900	−14.183**	1.445
July	−7.80**4	1.872	−14.915**	1.396
August	−14.338**	1.862	−22.659**	1.371
AZ	3.087**	0.816	2.891**	0.813
CA	5.643**	1.108	4.954**	1.104
GA	5.622**	0.795	5.629**	0.793
IL	−1.283	5.641	0.423	5.621
MI	5.729**	0.998	6.282**	0.993
NM	−0.125	1.105	−1.426	1.101
NY	5.153**	1.488	6.03**	1.482
OK	−0.75	6.840	0.067	6.814
WI	16.602*	7.090	15.703*	7.064
Density (in thousands)	0.015	0.112	0.095	0.111
Black	−0.157**	0.016	−0.156**	0.016
Asian	0.048	0.038	0.102**	0.038
Hispanic	−0.021	0.022	−0.027	0.022
Unmarried	−0.088	0.062	−0.078	0.062
Divorced	−0.023	0.106	0.011	0.105
Widowed	−0.165	0.202	−0.207	0.202
NoHSDipl	−0.295**	0.071	−0.311**	0.071
HSDipl	−0.224**	0.061	−0.163**	0.060
SomeColl	−0.289	0.095	−0.247**	0.095
Graduate	−0.1	0.113	−0.032	0.113
Homeowner	−0.008	0.030	−0.037	0.030
Age18	−0.239*	0.117	−0.279*	0.117
Age25	−0.23**	0.090	−0.207	0.090
Age35	−0.182	0.130	−0.14	0.130
Age55	−0.195	0.177	−0.27	0.177
Age65	−0.039	0.094	0.008	0.094
AvgHHSize	−3.499**	1.372	−2.654*	1.368
AvgHHInc (in thousands)	−0.01	0.010	−0.020	0.012
Intercept	174.367**	10.985	187.551**	11.033
Memo				
R^2 (percent)	9.91		10.56	
F-ratio	213.72**		229.53**	
Number of observations	73,880		73,880	

*$p < .05$, **$p < .01$.

The coefficients on the set of variables that capture the interaction between counseling and the initial Empirica score quintile were negative and significant at the $p < .01$ level. Borrowers in the lowest score quintile are the omitted group. The absolute value of these coefficients increased from the second to the fifth (highest) score quintile. Thus, other things equal, counseled borrowers with lower initial Empirica scores experienced larger changes in their scores over time. In other words, the counseling experience generally had a positive effect on Empirica scores measured three years after counseling, but the effect was greatest for clients who had lower Empirica scores at the outset. This finding is consistent with our hypothesis that counseling provides the greatest benefit to those borrowers with the least demonstrated ability to handle credit at the time of counseling.

Recall that while the sample contains borrowers counseled between April and August 1997, only the June 1997 credit report is available as the initial benchmark. Consequently, the credit report offers a profile of some borrowers up to two months prior to their seeking counseling and other borrowers up to two months following counseling. The estimated coefficients on the variables that capture the month in which the borrower was counseled were all negative and significant, relative to the omitted group of borrowers who were counseled in April. The coefficients generally declined (i.e., became increasingly negative) from May to August, with the exception of June and July in the basic model (which were about the same). These results indicate that the observed improvement in the Empirica score measured between June 1997 and June 2000 was smaller for individuals who were counseled in later months (relative to those counseled in April). This is consistent with our hypothesis that the decision to seek counseling is often a signal that a borrower is experiencing new financial distress, information that is often not yet apparent in a borrower's credit report.

Many of the dummy variables indicating state of residence were significant (Texas is the omitted state). These results indicate that geographic differences do play a role in explaining changes in credit indicators. This could be due to different economic factors and conditions that affect borrower incomes and ability to pay. Of the demographic variables, race, education, age, and household size variables were statistically significant in both the basic and selection-corrected models, affirming that group characteristics influence credit behavior.

The next two subsections present the basic and selection-corrected estimates of the coefficients on the counseling and interaction variables for alternative outcome measures, as captured in models of changes in revolving and general credit use.

Revolving Credit Use

Counselors typically advise clients to reduce their dependence on credit card debt. We considered three measures of credit card use—changes in the number of bank card accounts, bank card utilization, and revolving debt. We estimated basic and selection-corrected models for each of these variables.

The coefficients of particular interest, those for counseling and the set of variables capturing the interaction of counseling and initial borrower skills, are displayed in the first three columns of Table 7. All are significant (at the $p < .01$ level) and have the expected signs. For each of the three measures of revolving account usage, the counseled group experienced declines in usage relative to the comparison group, consistent with the advice offered in the counseling sessions. The estimated effect of counseling (i.e., magnitude

TABLE 7
Estimated Counseling and Interaction Coefficients for Specific Changes in Credit Behavior (all coefficients are significant at the $p < .01$ level)

Variable	ΔCrdAccts	ΔCrdUtl	ΔReDebt	ΔAccounts	ΔTotlDebt	ΔConsDebt
Basic model						
C	−0.719	−17.141	−5,220	−2.758	−25,388	−12,261
C × 2nd Empirica score quintile	0.040	5.149	527	0.329	5,076	2,345
C × 3rd Empirica score quintile	0.158	8.051	899	0.938	9,623	5,163
C × 4th Empirica score quintile	0.162	15.020	2,515	1.162	16,160	9,421
C × 5th Empirica score quintile	0.286	17.846	4,003	1.624	21,019	12,720
Memo						
R^2 (percent)	35.36	25.35	43.79	26.75	23.76	47.18
F-ratio	965.65**	504.93**	1,375**	644.58**	550.03**	1,577**
Selection-corrected model						
$\hat{\Pr}$ (*C*)	−1.360	−20.280	−8,616	−6.909	−52,385	−16,817
$\hat{\Pr}$ (*C*) × 2nd Empirica score quintile	0.010	8.258	398	0.026	8,151	3,721
$\hat{\Pr}$ (*C*) × 3rd Empirica score quintile	0.376	14.823	1,508	0.822	15,115	11,111
$\hat{\Pr}$ (*C*) × 4th Empirica score quintile	1.122	30.641	13,673	2.790	50,548	35,435
$\hat{\Pr}$ (*C*) × 5th Empirica score quintile	4.061	41.947	39,977	7.701	112,289	77,223
Memo						
R^2 (percent)	15.45	25.43	13.58	19.22	2.20	7.02
F-ratio	298.55**	507.15**	257.89**	388.83**	36.81**	123.45**

**Significant at the $p < .01$ level.

of the relative decline) was larger for those in lower initial Empirica score quintiles than for clients in the higher quintiles. Each of the models was statistically significant and explained a substantial percentage—between 15.5% and 43.8%—of the variation in the dependent variable.

General Credit Use

We also considered the effect of counseling on three measures of overall credit use—changes in the total number of accounts, total debt, and consumer (nonmortgage) debt. Both the basic and selection-corrected models were statistically significant for each of the dependent variables. The basic model explained substantial percentages of the variation in the dependent variables. The selection-corrected model explained a substantial percentage of the variation in change in the total number of accounts and smaller shares of the variation in changes in total and consumer debt. The total number of accounts, total debt, and consumer debt all declined for the counseled group relative to the comparison group. Again, the estimated relative reduction was larger for borrowers in lower initial Empirica score quintiles than higher quintiles.

Evaluation models were also estimated (but not shown in Table 7) for the change in the number of accounts with delinquencies of 30+ and 60+ days during the prior twelve months, as of 2000. As in the other evaluation models, the coefficients for the counseling variable and interaction terms were significant and opposite in sign, suggesting greater improvement (reduction in delinquencies) in the counseled group relative to the comparison group, with the largest improvement observed among counseled borrowers with the lowest Empirica scores.

Estimated Changes in Behavior due to Counseling vs. Self-Selection

How large a change in behavior is associated with the counseling experience? Table 8 compares predicted changes in Empirica scores of counseled and comparison group borrowers for the basic and selection-corrected models. The predictions are based on quintile group mean values of C or $\hat{\Pr}(C)$ and quintile group means of initial Empirica score, holding other variables constant at the sample means. The predicted values in the table suggest that selection effects associated with the group of borrowers who seek counseling (e.g., higher motivation, more immediate or severe financial distress, lower confidence in ability to handle financial problems) did influence outcomes. For example, in the lowest initial Empirica score

TABLE 8

Predicted Changes and Percent Differences in Selected Credit Behavior Variables for Counseled and Comparison Group Borrowers, by Initial Empirica Score Quintiles

	Basic Model			Selection-Corrected Model		
Quintile	Counseled Group	Comparison Group	Percent Difference in Predicted Value	Counseled Group	Comparison Group	Percent Difference in Predicted Value
Empirica score (ΔEmpSc)						
Lowest	66.22	41.03	5.11	65.34	62.21	0.63
Second	47.74	33.65	2.64	45.89	45.28	0.11
Third	27.87	26.63	0.22	29.74	31.16	−0.25
Fourth	−4.79	16.19	−3.33	6.96	11.91	−0.78
Highest	−27.85	−0.37	−3.80	−4.22	1.55	−0.80
Bank cards with positive balances (ΔCrdBal)						
Lowest	−0.74	−0.02	−38.24	−0.18	−0.16	−0.77
Second	−0.66	0.02	−36.12	−0.20	−0.19	−0.57
Third	−0.51	0.06	−29.84	−0.13	−0.14	0.83
Fourth	−0.44	0.11	−29.63	−0.04	−0.10	3.11
Highest	−0.23	0.21	−23.03	0.12	−0.13	13.57
Bank card utilization (ΔCrdUtl)						
Lowest	9.46	26.60	−47.71	16.36	18.51	−5.98
Second	9.20	21.19	−33.38	15.66	16.78	−3.11
Third	6.95	16.04	−25.30	13.69	14.04	−0.99
Fourth	6.26	8.39	−5.90	9.30	8.74	1.56
Highest	−3.05	−3.76	1.96	−2.52	−3.93	3.92
Revolving debt (ΔReDebt)						
Lowest	−5,336	−116	−70.72	−3,369	−2,456	−12.37
Second	−4,799	−107	−63.58	−2,923	−2,158	−10.36
Third	−4,419	−98	−58.54	−1,950	−1,488	−6.26
Fourth	−2,790	−85	−36.65	409	136	3.70
Highest	−1,282	−65	−16.49	2,313	274	27.62

TABLE 8
(Continued)

	Basic Model			Selection-Corrected Model		
Quintile	Counseled Group	Comparison Group	Percent Difference in Predicted Value	Counseled Group	Comparison Group	Percent Difference in Predicted Value
Total accounts with positive balances (ΔAccounts)						
Lowest	−3.86	−2.76	−35.92	−3.01	−2.28	−9.54
Second	−3.37	−2.43	−31.63	−2.55	−1.91	−8.34
Third	−2.61	−1.82	−23.70	−1.55	−1.16	−5.15
Fourth	−2.15	−1.60	−20.78	−0.79	−0.57	−2.90
Highest	−1.32	−1.13	−14.77	−0.10	−0.15	0.67
Total debt (ΔTotlDebt)						
Lowest	−13,347	12,041	−44.37	−5,880.00	−327.00	−9.71
Second	−8,761	11,551	−35.50	−646.00	3,467.00	−7.19
Third	−4,681	11,084	−27.56	4,840.00	7,263.00	−4.23
Fourth	1,162	10,390	−16.13	11,750.00	11,850.00	−0.17
Highest	4,921	9,290	−7.64	14,597.00	10,704.00	6.81
Consumer debt (ΔConsDebt)						
Lowest	−5,723	6,538	−72.83	1,212	2,994	−10.59
Second	−4,376	5,540	−58.90	2,502	3,720	−7.32
Third	−2,507	4,591	−42.16	4,740	5,110	−2.20
Fourth	334	3,179	−16.87	7,714	6,709	5.97
Highest	1,399	940	2.73	7,998	4,072	23.32

quintile, the basic model predicted that Empirica scores of counseled borrowers increased 66.22 points or 5.11% more than the Empirica scores of comparison group borrowers. Based on odds tables for the Empirica score product supplied to the authors by Trans Union, this score change translates to about a 30% reduction in the predicted frequency of charge-off/repossession/bankruptcy over the subsequent twenty-four months, relative to a borrower in the same score quintile in the comparison group. In higher initial Empirica score quintiles, the basic model indicated a negligible or small negative difference in counseled group Empirica score changes, relative to the comparison group.

Some elaboration on the credit score results is warranted. Score decreases that were observed for many borrowers following counseling are likely attributable to the financial hardship that motivated the counseling visit but was not yet reflected in the clients' credit reports at the time of the visit. This hypothesis is supported by the diminished improvement in Empirica scores for borrowers counseled in the later months during the 1997 sampling period, as was previously described in Table 6. The results for the basic model (as displayed in Table 8) show that, over a three-year period, counseling appears to boost credit scores that start low but is not particularly effective at salvaging scores that have been depressed due to new delinquency and other credit report indicators of financial distress. Since we know that borrowers in the upper score quintiles had good credit histories at the time of counseling, we speculate that the toxic effect of subsequent delinquencies, repossessions, collection activity, and other negative public record items on their credit scores rendered the credit score metric of limited use for documenting the value of counseling to these borrowers over this three-year observation period. The recovery time is just too short.

Once self-selection was taken into account, the evaluation model predicted a 65.34 point increase in Empirica scores for counseled borrowers in the lowest quintile, to a level just 0.63% greater than the scores predicted for comparison group borrowers. The selection-corrected model also indicated negligible differences in counseled and comparison group changes in Empirica scores for borrowers in the highest three quintiles. Overall, it appears that while counseled borrowers with lower risk scores at the outset clearly experienced greater improvement in risk scores three years after counseling, the large majority of the improvement is due to borrower motivation (or other unique attributes associated with borrowers who seek counseling), as opposed to the counseling itself.

In contrast to the analysis based on credit scores, counseling itself does appear to be associated with notable reductions in debt and account usage

for borrowers, especially those in the lower initial Empirica score quintiles, the group that we expect to benefit most from the information and advice acquired through counseling. In the basic model, counseled borrowers experienced larger declines compared to comparison group borrowers across all six measures of revolving and overall credit use, often by a substantial percentage. Even after correcting for self-selection, the reductions in credit usage by counseled borrowers are notable. For example, counseled borrowers in the lowest initial score quintile reduced revolving debt by 12.37% more than borrowers in the comparison group (see Table 8, Revolving debt, Row 1), other things constant. Similar differences are obtained for total number of accounts, total debt, consumer debt, and, to a lesser extent, bank card utilization. Thus, our findings suggest that counseled borrowers appear to heed the advice given in counseling sessions and take actions to reduce debt. Motivation and other selection factors clearly play a role in counseled borrowers' subsequent credit behavior, but counseling also appears to play a consequential role, especially for borrowers with limited initial ability in handling credit.

CONCLUSIONS

This study provides evidence that the receipt of one-on-one credit counseling is associated with improvement in borrower credit profiles over an extended period. The study examined the impact of credit counseling delivered to nearly 8,000 consumer clients during 1997. Credit bureau data provided objective measures of credit performance at a variety of margins for these clients over a three-year period following the initial counseling session, as well as for a stratified random sample of borrowers with similar initial risk profiles who lived in the same geographic areas in 1997 but who did not receive counseling from the participating agencies.

Conventional techniques were used in an attempt to correct for the fact that borrowers in the sample self-selected into counseling programs. These techniques revealed that credit report data, coupled with some limited demographic characteristics, are significant in predicting a borrower's choice of credit counseling, even among borrowers that commercial risk scoring models identified at the time of counseling as having equal likelihood of future default.

On seven different measures of borrower credit performance, including an overall index of creditworthiness, the borrowers who received credit counseling improved their profile and performance over the subsequent three years, relative to borrowers with similar initial credit profiles who

did not receive counseling. Statistical analysis to correct for borrower self-selection into counseling revealed that much of the improvement was attributable to motivation or other unique characteristics of the group of borrowers who chose to seek counseling. This was especially true of the observed change in borrower credit scores. But across several specific margins of credit usage (e.g., total debt, total active accounts), counseling itself was associated with substantial reduction in debt and improved account usage measured three years later. Moreover, it appears that the counseling experience provided the greatest benefit to those borrowers who had demonstrated the least ability to handle credit at the outset.

Does counseling bring about a lasting change in borrower credit behavior? With only a single postcounseling credit report snapshot, it is difficult to distinguish enduring behavior change from temporary restructuring of a borrower's debt portfolio. Multiple credit report snapshots over time or a single snapshot taken after a longer postcounseling period would help distinguish the two. The data in this paper reported the borrowers' profiles after three years, which may be sufficient to capture real behavior change, especially on the specific credit usage margins. But we should not make an assessment of the value of the counseling experience contingent on evidence of behavior change alone. Credit counselors often recommend strategic moves to boost a borrower's credit profile. Even when the advice involves simple debt consolidation (e.g., moving credit card balances into a home equity loan), it can substantially improve the borrower's credit score, and subsequent eligibility for lower interest rates, as well as reduce the likelihood of costly delinquency on one or more accounts. Since the objective of the study was to determine if credit counseling helped borrowers, such outcomes certainly seem to qualify as help—even in the absence of stronger evidence of permanent behavior change.

APPENDIX

Average Initial Value of Measures of Credit Behavior, by Empirica Score Quintile

	Initial Empirica Score Quintile				
Variable	1	2	3	4	5
Initial Empirica score	494	533	574	632	747
Accounts	6.1	6.1	5.7	5.8	4.3
TotlDebt	45,154	47,289	46,864	50,433	57,625
ConsDebt	22,227	21,682	19,781	20,947	14,254
CrdAccts	1.6	1.7	1.9	2.0	1.7
CrdUtl	96	87	78	69	25
ReDebt	7,277	7,760	7,489	8,712	6,499

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