Assessing the Effectiveness of Financial Coaching: Evidence from the Boston Youth Credit Building Initiative

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Abstract: Over the past decade there has been renewed interest in financial education programs that improve decision making, particularly among youth. Yet prior studies evaluating such programs have been mixed. Using a randomized control trial, we estimate the causal effects of a financial coaching program aimed at building credit among young adults. The program improves access to credit by 10 percentage points and increases average credit scores by 44 points among participants who initially had credit, raising the likelihood of achieving a "good" credit rating by 10 percentage points. These improvements reflect changes in financial behaviors, such as decreasing the likelihood of adverse events and having a mix of types of credit, that were primarily driven by enhanced self-efficacy. As a result of the program, participants exhibit greater access to credit, more favorable interest rates on car loans, and lower reliance on alternative financial services.

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Since the financial crisis there has been renewed interest in identifying which individuals are at greatest risk for experiencing poor financial outcomes and in providing financial education programs to improve their financial decision making. With the creation of the Consumer Financial Protection Bureau (CFPB) in 2011, the federal government now spends an additional $14 million per year on financial education (CFPB 2017). Moreover, special emphasis has been placed on developing financial skills among youth. The number of states requiring a personal financial education course in high school increased from 7 to 17 over the past decade (Council for Economic Education 2016). As of 2014, financial literacy became a required element for youth workforce development programs under the Workforce Innovation and Opportunity Act.

However, prior studies evaluating the impact of financial education programs on outcomes have not produced consistent results, particularly for programs aimed at youth, making their cost-effectiveness uncertain at best (Lyons et al. 2006; McCormick 2009; Willis 2011; Hastings, Madrian, and Skimmyhorn 2013; Cole, Paulson and Shastry 2013; Brown et al 2016; Walstad et al. 2017). Newer approaches that focus on developing financial capability among youth by combining financial literacy with access to financial products appear to hold greater promise (Johnson and Sherraden 2007, Loke, Choi, and Libby 2015). Yet, researchers have found that the effects of such programs are small (Fernandes, Lynch, and Netemeyer 2014) or affect only some outcomes (e.g., savings behavior) but not others (e.g., reducing defaults) (Miller et al. 2014).

In response, policymakers have increasingly turned to financial coaching as a way to improve consumer financial decision making by incorporating financial knowledge, access to financial products and services, and one-on-one coach-client interactions (Collins, Baker, and Gorey 2007). One of the largest such initiatives, the Working Families Success Network,

currently includes 115 sites in over 30 cities offering a range of services to low- and moderate-income people. Compared to other approaches, financial coaching is an ongoing process that involves setting goals, establishing a concrete plan of action, and monitoring individual progress—all to change financial habits and improve long-term outcomes (Collins and O'Rourke 2012). Participants receive information relevant to their situation at a time when they can apply it directly by changing their behavior, while receiving ongoing feedback and further guidance from a trained coach (Fernandes, Lynch, and Netemeyer 2014). Yet to date there exists little robust evidence that financial coaching improves economic knowledge, decision making, or well-being. Most studies fail to address selection among individuals who choose to enroll in such programs, or to identify which program mechanisms are important to achieve impacts.

In this paper, we estimate the causal effects of a one-year financial coaching program for young adults, the Boston Youth Credit Building Initiative (BYCBI), on a range of financial and behavioral outcomes. Using linked individual level data from administrative credit reports, survey responses, and focus group discussions, we measure gains in credit scores and ratings as well as improvements in financial literacy, self-efficacy, and financial behaviors. A randomized control trial provides a robust control group to assess program impacts with stratification across demographic characteristics and sites to explore heterogeneity in outcomes by subgroups.

We find that the BYCBI improves access to credit within the first six months with the treatment group being by 10 percentage points more likely to have established a credit score compared to the control group. By the end of the program, the average credit score was 44 points higher among participants who initially had credit, raising the likelihood of achieving a "good" credit rating by 10 percentage points. These improvements reflect changes in financial behaviors such as having a mix of both revolving and installment credit and decreasing the likelihood of

adverse events such as delinquencies and collections. In addition, our mediation analysis shows that these positive credit outcomes are driven primarily by enhanced financial self-efficacy, a finding confirmed by focus group discussions. The impacts persist beyond the end of the program and are greater for younger participants and African-Americans. Finally, we show that the program has meaningful impacts on individuals such as increasing the amount of available credit, reducing the reliance on alternative financial services, and lowering the interest rate paid on car loans—outcomes that are of interest to policy makers hoping to improve the financial well-being of low- and moderate-income groups. These findings are encouraging and offer important insights for states and localities seeking to experiment with incorporating financial education into youth workforce development programs as part of the new WIOA requirements with an eye toward improving both financial and labor market outcomes.

MIXED EVIDENCE FROM FINANCIAL EDUCATION RESEARCH

While the general consensus is that financial education should have a positive effect, the findings across programs have been mixed (Lyons et al. 2006). For example, while some studies find that *financial literacy* can lead to positive knowledge, attitude, and behavior change (Boyce and Danes 1998; Danes 2005; Varcoe et al. 2005; Borden et al. 2008), others show no significant differences between the treatment and comparison groups (Gartner and Todd 2005). Similarly, while some researchers have demonstrated that state mandates for personal financial education in high school have a positive effect on savings rates and net worth later in life (Bernheim, Garrett and Maki 2001), others have shown that the mandates were introduced during periods of high economic growth, thus resulting in a spurious correlation between state mandates and savings rates among students (Cole and Shastry 2009).

In contrast, *financial capability* efforts that incorporate access to financial products and services, in addition to the educational component, appear to be a more effective approach (Sherraden 2013). The general consensus is that the ability to put knowledge immediately into practice is most helpful in establishing healthy financial habits and behaviors. For example, previous studies have found that combining education and credit-card use increases mastery and self-esteem among young people. These effects are greater for those of lower- and middle-class origins by providing them with the knowledge, skills, and opportunity to establish healthy financial futures early on rather than repairing credit or managing excessive debt later on in life (Dwyer, McCloud, and Hodson 2011). Even better outcomes can possibly be achieved if educators can take advantage of the teachable moments that occur during the transition into early adulthood when many youth are receiving their first paychecks and making their first financial decisions, such as opening a bank account, acquiring a credit card or preparing to pay for college (Loke, Choi, and Libby 2015).

Research that specifically evaluates *financial coaching* is relatively new, with most of this early literature relying on descriptive work and few studies demonstrating a causal relationship between coaching and changes in behavior or outcomes. A recent review of the literature notes several consistently positive associations between coaching and client outcomes, including goal formation and greater confidence, changes in behaviors such as budgeting and saving, and improvements in debt reduction and credit building (Center for Financial Security 2015). While few studies discussed in the review use credit report data, and none employ an experimental design, nonetheless these associations are suggestive of the potential for positive effects that may arise from coaching programs (Collins and O'Rourke 2012, Moulton et al. 2013, NeighborWorks America 2013). Other quasi-experimental studies using matched comparison

groups find a positive association between credit scores and coaching provided in the context of employment (Roder 2016) or housing (Geyer et al. 2017) programs.

However, although these studies have indicated positive impacts stemming from financial coaching, the lack of a robust control group has made it difficult to extrapolate the results to the general population, highlighting the need for additional research. Of critical importance is the need to disentangle the development of financial management skills from selection into the program—particularly among youth who are likely to still be learning new skills over time as part of the developmental process. There is a clear need for experimental designs, such as that used in this evaluation, to better discern the effectiveness of specific interventions aimed at building financial capability as well as the consequences for improving longer-term outcomes such as stable employment and earnings.

Only a handful of studies have used an experimental design to date, however low take-up rates among the treatment group have made it difficult to generate conclusive evidence on the full range of impacts or to assess heterogeneity of outcomes among subgroups. One study, based on a large experiment of more than 100,000 credit card clients in Mexico, found that a financial education workshop and personalized coaching resulted in a higher likelihood of paying credit cards on time—despite a take-up rate of less than one percent (Lara Iberra, Mckenzie, and Ruiz Ortega 2017). Another randomized field experiment that assigned 295 first-time homebuyers to receive an online financial planning module and quarterly financial coaching found a 20 percent reduction in mortgage delinquency, although only 36 percent participated in the coaching (Moulton et al. 2015). Finally, a study of two community based programs, each with roughly 200-250 individuals assigned to treatment and take-up rates of one-third to one-half, detected positive improvements across both programs for only two outcomes (the number of deposits into

savings accounts and turning a credit line from 30 days delinquent to satisfactory) despite evaluating a wide range of outcomes (Theodos, et al. 2015).

This evaluation contributes to the emerging literature by using an experimental design with sufficient power in terms of sample size (N=300) and take-up rate among the treatment group (67 percent) to better estimate the causal impact of a financial coaching program. We use rich administrative data from individual credit reports to assess a variety of outcomes at six-month intervals, exploring both the differences in outcomes across various groups as well as whether the effects persist beyond the end of the program. We also link the credit report data to self-reported survey data collected at the beginning and end of the program to shed light on which factors appear to affect consumer financial decision making, and confirm our findings with insights provided by focus groups. Finally, our results provide direct evidence on a population of substantial policy interest: low-income young adults who are either working or enrolled in a workforce development program.

THE BOSTON YOUTH CREDIT BUILDING INITIATIVE

The BYCBI was developed by the Boston Mayor's Office of Financial Empowerment (OFE) and implemented by Working Credit NFP over the course of one year from March/April of 2016 through March/April of 2017. OFE recruited participants for the study during the two months prior to the start of the program, targeting low-income young adults, age 18-29, who were currently working or in a workforce development program. Most of the study participants were recruited from various organizations at a pre-arranged meeting where the program was explained in a five minute presentation and application forms were distributed. Additional individuals were also recruited by OFE directly via a marketing campaign. The goal of the program was to help individuals build strong credit scores by increasing their knowledge of credit building, supplying

them with credit building and saving products, and providing individualized advice through coaching over the course of one year. The treatment included the following program components:

Financial literacy workshop. A one-hour session was delivered at or near the individual's worksite, or as part of a mandatory staff meeting or a previously-scheduled training. The content focused on the information contained in a credit report, how the credit reporting system works, the consequences of having no or poor credit, and how to use different financial products to improve one's credit score. In addition to making payments on time, specific rules of thumb were given such as keeping one to four open lines of credit, having a mix of installment and revolving credit, having a sufficient amount of available credit for emergencies, and keeping the utilization ratio for each line of credit below 30 percent. At the end of the workshop, participants were urged to sign up for a one-on-one coaching session with a credit building counselor, either immediately after the workshop or at a later date.

One-on-one coaching. The initial coaching session was a one-hour in-person meeting that included a review of the participant's credit report and the development of an individualized budget and credit action plan focused on increasing the participant's credit score. The plan was put on paper during the session and also emailed to the participant afterwards. The counselor also assessed the participant's eligibility for the CW-3™ product. If eligible, the counselor enrolled the participant immediately. If not yet eligible, the participant received clear direction about what he/she needed to do to qualify. Regardless of whether a person was enrolled in the CW-3 product, the counselor continued to support participants with credit coaching following the first appointment. At a minimum, the counselor pulled individual credit reports at six-month intervals and shared the results, along with additional credit building guidance, in person or by email.

Enrollment in CW-3™ matched savings account. The CW-3™ product is a "locked" savings account where the individual opens a 12-month $300 Installment loan but does not take the loan proceeds; instead they are kept by the lender in an account until the loan is paid off. The individual makes 12 monthly payments of $26 that is reported by the lender to the credit bureaus, building a positive track record for the participant. At the end of the loan term, the individual has accumulated $300 in savings as well as an improved credit score. There is no risk of delinquency or default. If an individual fails to make a loan payment, Working Credit pays off the loan with the money from the "locked" savings account. To be eligible to enroll in the CW-3™ product the counselor must confirm that (1) the individual has a budget that shows they can afford to save $26 per month and (2) that taking the product would be the best way to increase the individual's credit score aside from other possible courses of action such as paying down debt.

Whether a one-hour workshop and several coaching sessions are sufficient to help low-income young adults increase their credit scores is unclear. Some might think that the intervention is too low-touch given the complexity of financial products and the magnitude of the financial decisions that this population faces, such as taking out a student loan or living independently for the first time. On the other hand, the program can be thought of as an "early intervention" to boost financial capability and develop good financial habits at a formative time when individuals may be earning their first paychecks and starting to build a credit history. Indeed, previous studies (e.g., Atkinson et al. 2006, Taylor 2011) have found that young adults are most at risk of financial difficulties that arise from poor financial planning. Young adulthood is also a crucial period for developing an internal locus of control and a sense of self-efficacy, characteristics that have been correlated with successful users of credit, even when controlling for income differences (Tokunaga 1993; Norvilitis et al. 2006; Caputo 2012). By targeting young

adults, age 18-29 years, who are less likely to have developed bad habits and more likely to apply new knowledge and good behaviors, the program may have a higher benefit to cost ratio compared to similar interventions typically aimed at older adults.

DATA

We employed a mixed-methods approach using both quantitative information from credit reports and surveys, as well as more narrative qualitative information gathered from focus groups. See Figure 1 for a timeline showing the program's implementation and data collection.

Administrative Credit Report Data

With each individual's consent, Working Credit collected administrative data on credit histories for all individuals in both the treatment and control groups. These credit pulls occurred at the initial time of application (baseline), and again at 6 and 12 months after the start of the program to be able to detect the impact of positive changes in behavior on credit scores which can take up to six months. One additional credit pull occurred at 18 months to determine whether the impacts persisted beyond the end of the program.

The credit report data provide several key advantages over many previous studies. First, the data provide a relatively complete financial profile for most of the outcomes related to the BYCBI intervention, although it does not capture alternative financial services such as payday loans, auto title loans, or informal borrowing from family and friends. Second, the data do not suffer from the biases that typically arise when using self-reported survey data, such as selection bias among respondents or the tendency to over- or under-estimate one's financial situation. Third, the data enable us to view the path of change over time at precise six-month intervals with each credit pull, an assessment that would be less feasible if relying solely on survey data.

Using these data, we evaluate the program's impact on a range of outcomes related to building an optimal credit profile, including specific practices conveyed during the workshop and financial coaching. These include the individual's credit score and credit rating (e.g., poor/fair/good/excellent) as well as the factors that affect one's credit score such as the number of open lines of credit, having a mix of types of credit (e.g., revolving and installment), the amount of available credit, the utilization ratio, the number of delinquent lines of credit (e.g., 30 days past due), and the number of outstanding negatives (e.g., collections, charge-offs, or judgements). We also assess loan history, including whether the individual has a student loan or a car loan, the interest rate on the car loan, and whether the individual has a history of sustained on-time payments or a history of any loan delinquencies.[1]

Self-Reported Survey Data

All individuals in both the treatment and control groups were asked to complete both a pre- and post-program survey that captured their detailed demographic information and current financial situation as well as data on their knowledge and behaviors related to credit building. Individuals were asked to complete the pre-survey when they applied for the program and were give a small monetary incentive (e.g., a $5 gift card plus a raffle to win one of ten iPads) to incentivize completion. The post-survey was deployed via email to both the treatment and control groups and completion was required to receive the final installment of the $150 financial incentive for participating in the program.

We used the survey data to assess a wide range of self-reported outcomes regarding changes in their financial situation as well as their financial habits, literacy, and self-efficacy.

[1] A history of sustained on-time payments is defined as ever having paid on-time time (no 30, 60, 90+ day delinquencies) to an installment account for at least one year over the entire credit history. A history of any loan delinquencies is defined as having any accounts (open or closed) that were ever delinquent.

Individuals were asked to assess their own financial situations with regard to future planning (e.g., setting aside money regularly for saving, applying for a mortgage or car loan) as well as adverse events (e.g., collection, repossession, eviction, foreclosure and bankruptcy). Financial habits were quantified using a series of questions regarding budgeting, banking, credit use, and use of alternative financial services (e.g., check-casher, payday lender, pawn shop, borrowing from friends and family). Financial literacy was evaluated based on the percent of correct answers to a series of true/false questions related to budgeting, saving, borrowing, and use of credit, including what is reported on a credit report and how that information is used. Self-efficacy, was assessed using a measure based on questions about one's confidence in one's knowledge and skills as well as satisfaction with one's ability to save and manage debt.[2] To compare impacts across our constructed measures of financial habits, literacy, and self-efficacy we constructed Z-scores based on the responses to the underlying questions that are standardized to have a mean of zero and a standard deviation of one.[3]

Focus Group Data

We held two sets of focus groups, at the beginning and the end of the program, separately for individuals in the treatment and the control group. The first set of focus groups were held in May 2016, shortly after the treatment group had participated in the workshop and the initial one-on-one coaching provided by Working Credit. The goal was to get an early assessment of how the program was going, as well as to uncover additional insights about take-up among the treatment

[2] Although there are several widely accepted psychological measures of general self-efficacy, no reliable and valid measure specific to financial behavior exists (Tokunaga 1993; Engleberg 2007). We follow Lown 2011 and use factor analysis to construct a measure of self-efficacy based on a combination of the statements that measure an individual's confidence in their knowledge and ability to manage their finances as well as their satisfaction with their ability to save. See the data appendix for more details.

[3] See the data appendix for a full listing of questions and responses for each underlying component.

group. In addition, we wanted to learn more about the particular circumstances that individuals in both the treatment and control groups were struggling with when it came to building good credit. The second set of focus groups was held in May 2017, just after the program had ended, with the aim of developing a better understanding of the program's impacts and mechanisms.

Each group was composed of five to seven young adults selected at random from the treatment and the control groups. Individuals were offered a modest financial incentive (a $50 gift card) to incentivize participation and compensate participants for their time. Focus group participants were fairly representative of the full cohort in terms of observable characteristics such as age, gender, race, and type of organization from which they were recruited. Comparing their credit histories and baseline survey responses, there was no evidence that focus group participants had more difficult or extreme financial circumstances than the full group of study participants. If anything, focus group participants were slightly more highly educated and slightly less likely to be experiencing problems with credit.

METHODS

To evaluate the impact of the BYCBI, we compared the outcomes of randomly selected individuals in the treatment group to those in the control group over time. Since the number of individuals applying for the program exceeded the number ultimately selected for participation, we were able to randomly assign participation in the program so that those individuals who applied but were not randomly selected to participate were used as a control group for the evaluation. Individuals in both the treatment and control groups received a $150 financial incentive to participate in the study for one year, which included completing both a pre- and post-program survey as well as having their credit report pulled every six months.

Experimental Design: Recruitment and Random Assignment

Working Credit's program is typically delivered to a group of employees within a large firm where participants have both a steady income for the duration of the program as well as regular and strong attachment to their employer, which helps ensure a high take-up rate. However, large firms serve only a small share of the low-income young adult population targeted for this intervention. In addition, there was interest in delivering the BYCBI to individuals in the context of a workforce development program to pilot the use of such interventions under the new WIOA requirements. As a result, it was necessary to cast a wider net for recruitment with a total of 18 different organizations participating in the study (see Table A1). While these educational and community-based organizations serve low-income young adults, they do not conform to the typical Working Credit delivery model. To account for this, we categorized organizations as "typical," "near-typical," and "atypical" based on having: (1) regular/strong contact with individuals, and (2) an employment duration that covered the duration of the BYCBI.

A total of 171 individuals were recruited from "typical" or "near-typical" organizations accounting for roughly half (53 percent) of all participants. The remainder were recruited from "atypical" organizations, primarily from a local community college and through OFE's general marketing campaign. Although somewhat complicated, this recruitment method allowed us to test the delivery model of the program. Due to concerns about fairness, we were required to randomize individuals into both treatment and control groups within each organization. This had the advantage of ensuring that program impacts are not driven by a particular site given the different settings in which the program was delivered. Yet it also created the opportunity for cross-contamination among the control group given that many of these organizations are small and individuals in the treatment and control groups could interact with one another. As such, our estimates may be biased downwards as individuals randomized into receiving no treatment may

have been unintentionally exposed to treatment through peer relationships. Although we did not ask about cross-contamination in our focus group discussions, we also did not receive any indication that information was shared across the treatment and control groups.

As part of the application process, individuals supplied information to assess their basic eligibility, which required that they be at least 18 years of age and currently working or enrolled in a workforce development program.[4] Individuals also were required to provide a written request to perform the baseline credit check as well as for subsequent credit pulls at 6, 12, and 18 months. Of the 300 individuals eligible to participate in the study, we randomly assigned applicants to one of the following two groups:

- **Treatment Group:** This group of 150 individuals were assigned to receive the financial workshop and the one-on-one coaching. They were also offered the CW-3^{TM} product if it was deemed appropriate given their current financial situation and credit history (a total of 19 participants were ultimately enrolled in the CW-3^{TM} product).
- **Control Group:** This group of 150 individuals received no intervention at all.

We also stratified our random assignment by age (18-24 versus 25-29), race (African-American versus non-African-American), and gender (male versus female) to test for heterogeneity in treatment effects, which have been shown to be important (Kaiser and Menkhoff 2017). For example, consistent with human capital theory, previous studies in the literature (Taylor 2011) have reported a negative relationship between financial capability and age. However, this relationship between score and age does not hold uniformly across racial and ethnic groups. Among African-American and Hispanic adults, growing older does not make

[4] Individuals were excluded from the research study if they were not 18 years old or if they were not working or enrolled in a workforce development program at the time of the application. This resulted in 18 individuals who were deemed ineligible for the study (3 were under 18 years of age and 15 were not currently employed or enrolled).

them more likely to obtain a credit score because these groups are less likely to participate in the mainstream economy as they age (Brevoort, Grimm, and Kambara 2015). Finally, a gender gap in financial literacy has been treated as a stylized fact in the literature (Lusardi and Mitchell 2014), which may also translate into gender differences in treatment effects across participants.

While we chose to stratify our sample by the characteristics discussed above, the distribution of the remaining demographic factors across the treatment and control groups was left to chance, as is the case with random assignment. The treatment and control groups were roughly equivalent across almost all other observable characteristics, including ethnicity, employment tenure, marital status, household size, number of children, health insurance, homeowner status, household income and confidence in their ability to save $26 per month for the CW-3^{TM} product (see Table 1). The only significant differences at baseline were that the treatment group had a higher share of individuals that were Asian and a lower share of individuals with just "some college." We note that having two statistically significant differences at the $p<0.10$ level would be expected by random chance when testing 15 different categories of characteristics. As such, given the randomization design, we do not expect these small differences to affect the program outcomes we observe across the treatment and control groups.

In terms of baseline pre-program measures of outcomes, there again were few significant differences between the treatment and control groups. The administrative data showed no significant differences in terms of the data that was collected from the credit report with an average score of about 660 for those with a credit score in either group (see Table 2). About one-third of both groups had no credit score, with the majority of remaining individuals in the "Fair" to "Good" range and no difference among any of the other factors that would be expected to

affect one's credit score.[5] About 40 percent of the individuals in our sample had a student loan with an average of $28,000 in debt, confirming that young adults do indeed make important financial decisions at this point in their lives. Based on the survey data, there were no differences in self-reported financial situation, habits, or literacy. There was no difference in terms of our overall measure of self-efficacy nor most of the underlying components with the exception that those in the treatment group were slightly less concerned about their personal financial situation than those in the control group. Again, having at least one statistically significant difference at the $p<0.10$ level across 40 plus different outcome measures would be expected even with random assignment. As such, we maintain that observed differences between the treatment and control groups in the post-program outcome measures can be attributed to the impact of the program.

Despite having applied for the program, about one-third of the individuals assigned to the treatment group did not attend a workshop nor a one-on-one coaching session. We call these individuals "study non-compliers" because despite being assigned to receive the program, they did not comply with the requirements and chose not to participate. This is not uncommon among randomized control treatment studies of financial coaching programs where half to two-thirds of participants drop out even when services are offered for free (Theodos et al. 2015). As one can imagine, it is typically lower-income and underserved populations that have "second thoughts" after applying (Rothwell and Han 2010). In our study, the non-compliers were about one year younger on average and one-third less likely to have a college degree (see Table A2). In addition, non-compliers were twice as likely to have children, suggesting that perhaps scheduling

[5] Compared to the general population reported by the Credit Builders Alliance, individuals in the treatment and control groups have similar proportions with poor credit, a greater share with fair credit, and lower shares with good or excellent credit. This is likely due to the program participants being younger than the general population and having had less of an opportunity to build good credit. See the data appendix for further details.

constraints made it difficult to attend the workshop sessions, despite several make-up sessions that were held. Despite having longer tenure with their employers, they were less likely to have employer-provided health insurance. Finally, non-compliers were more likely to have been recruited from an atypical organization and less likely to indicate that they would be able to save $26 per month.

We should emphasize that our study non-compliers did not receive any services whatsoever—they applied and then failed to show up at the first workshop. Under the standard Working Credit model, individuals usually apply to the program after the workshop, which typically yields a participation rate of over 90 percent. Indeed, of those in the study treatment group who attended a workshop, 91 percent signed up for the one-on-one coaching, suggesting that policymakers might be able to boost take-up rates using this alternative approach.

Model Specification

Because participation is randomly assigned, we can obtain causal estimates using a simple comparison of means on the outcome of interest. This *Intent to Treat* (ITT) estimate measures the impact of offering the program on the outcome. In many cases, this is the policy relevant estimate because program administrators want to account for program take-up in assessing the degree to which financial coaching could improve outcomes among all applicants, not only the participants. Note that although covariates are not necessary to derive unbiased impact estimates when treatment is randomly assigned (Bloom, 2006), we also use a regression framework to include baseline characteristics, including pre-program measures of outcome variables, to improve the precision of our estimates using equation (1) below:

$$Y_{it} = \alpha_1 + \pi_1 TREAT_i + \beta_1 Y_{i0} + \gamma_1 X_{i0} + \mu_{it1} \quad (1)$$

where Y_{it} is the post-program outcome for individual i during post-randomization period t, Y_{i0} is the pre-program measure of the same outcome, $TREAT_i$ is a dummy variable indicating the individual received an offer to participate, X_{i0} is a set of pre-existing baseline characteristics collected when the individual applied to the program, and μ_{it1} is a stochastic error term.

Nonetheless, because not all individuals who were offered the program end up participating, the ITT will understate the effects of actually participating in the program for those individuals who choose to participate. Therefore, we also provide estimates of *treatment-on-the-treated* (TOT) which provides an estimate of the program's impact independent of the take-up rate. Under the usual relevance and exogeneity assumptions for instrumental variables, this latter set of effects can be recovered from the experimental data.[6] We perform this estimation through a two-stage least squares strategy, in which random assignment ($TREAT_i$) is an instrument for actual participation (P_{it}), and P'_{it} is the predicted probability of participation from equation (2):

$$P_{it} = \alpha_2 + \pi_2 TREAT_i + \beta_2 Y_{i0} + \gamma_2 X_{i0} + \mu_{it2} \quad (2)$$

$$Y_{it} = \alpha_3 + \pi_3 P'_i + \beta_3 Y_{i0} + \gamma_3 X_{i0} + \mu_{it3} \quad (3)$$

If all individuals respond the same way to the program (i.e., if treatment effects are constant across youth), then equations (2) and (3) also yield an estimate of the *average treatment effect* (ATE) across this population of low-income young adults. Given that treatment effects are likely to be heterogeneous across young adults, then the coefficient π_3 estimates a local average treatment effect—the effect of participation on those who comply with random assignment. As long as there is no control crossover (no always-takers) in this setting, $\pi 3$ provides an estimate of the treatment-on-the-treated.

[6] In order for the random assignment variable, $TREAT_i$, to be a valid instrument, it must be correlated with program participation, P_{it}, and uncorrelated with μ_{it3}.

Finally, we explore the program's mechanisms by relating the credit report outcomes to the behavioral outcomes using a mediation analysis. Consistent with the literature, we hypothesize that the financial coaching provided by the BYCBI helps individuals achieve higher credit scores by changing their financial habits through both improved financial literacy as well as enhanced financial self-efficacy (Collins and O'Rourke 2012). We use the credit score as the primary outcome and the mediator variable is one of the self-reported outcomes from the survey data that measures one of the two channels we are interested in (e.g., financial literacy or financial self-efficacy). To test this, we first establish that a significant relationship exists between the hypothesized mediating variable (M_{it}) and the independent variable ($TREAT_i$) using the following equation:

$$M_{it} = \alpha_4 + \pi_4 TREAT_{it} + \eta_4 M_{i0} + \gamma_4 X_{i0} + \mu_{it4} \qquad (4)$$

We then show that the mediating variable (M_{it}) is significantly related to the dependent variable (Y_{it}) when both the treatment dummy and the mediating variable are included in equation (1) while controlling for both demographic characteristics and baseline outcomes:

$$Y_{it} = \alpha_5 + \pi_5 TREAT_i + \eta_5 M_{it} + \beta_5 Y_{i0} + \gamma_5 X_{i0} + \mu_{it5} \qquad (5)$$

To be a valid mediator, the impact of participating in the program on the outcomes must be reduced when the mediating variable is added to the original specification. Specifically, the coefficient (π_5) on the treatment dummy in equation (5) that includes the mediating variable must be smaller (in absolute value) than the coefficient (π_1) on the treatment dummy in equation (1) without the mediating variable (Baron and Kenny 1986).[7]

Note that this part of the evaluation is more exploratory in nature because although the treatment and control groups were randomly selected, those who chose to respond to the post-

[7] Researchers often test whether there is complete or partial mediation by testing whether $\pi 5$ is statistically significant, which is a test of whether the association between the independent and dependent variable is completely accounted for by the mediator.

survey were not, even when offered a financial incentive of $150 to participate. However, almost identical response rates were achieved across the two groups (Treatment=64.0 percent, Control=65.3 percent). As such, we feel that this analysis is still informative, if only suggestive, as to how the program achieves better credit outcomes for those who participate.[8]

RESULTS

Assessing BYCBI Impacts on Credit Outcomes Using Administrative Data

Although there were no significant differences in the credit scores between the two groups at baseline before the program started, the treatment group showed significant improvements relative to the control group, largely driven by those who participated in the program. Figure 2 shows a simple comparison of mean credit scores at six month intervals for the control group versus the treatment group, as well as a separate line for participants (treatment compliers). Panel A shows that for the full sample, the mean credit score for the treatment group increased significantly by 21 points during the first six months of the program, largely led by a rapid improvement of nearly 80 points among the participants. The growth in credit scores over the first six months was not simply driven by a few outliers making big gains. Indeed, 58.4 percent of participants increased their credit score during the first six months compared to only 45.3 percent of the control group. Although the participants continued to show significant improvements through the six months after the program ended, these gains were not large enough to raise the mean score of the entire treatment group suggesting that the impact of the

[8] Surprisingly, individuals in the treatment group who responded to the survey exhibited characteristics that indicate they were less positively selected compared to survey responders in the control group. Treatment responders were more likely have only a high school diploma, receive health insurance through Medicaid, and rent rather than own their home (see Table A3). Note that the direction of the bias goes against the detection of program impacts for the survey responders in the treatment versus the control groups. Nonetheless, we control for both demographic characteristics and baseline outcome measures to minimize the bias.

program is greatest during the first six months when participants receive both the information from the workshop as well as their first coaching session to establish an individualized plan.

Moreover, the rapid increase in credit scores during the first six months of the program was primarily due to individuals with no credit score establishing a line of credit—resulting in an automatic increase of 300 points. Indeed, Panel B of Figure 2 shows that excluding individuals who initially had no credit at baseline reduces the magnitude and significance of the reported gains among the treatment group over the control group. However, the mean credit score of participants in the treatment group eventually outpaced the control group by 44 points at the 18-month mark—six months after the program ends. This delayed improvement could be an indication of the lag time required for positive changes in credit usage and loan repayment behaviors to significantly affect credit scores or may simply reflect the incremental nature of the improvement that accumulates over time and ultimately becomes significant.

Are the improvements in credit scores among the treatment group large enough to boost their credit ratings? Figure 3 shows the share of individuals falling into each credit rating category over time (no credit through excellent credit). While at baseline there were no significant differences in the distribution of credit ratings across the treatment and control groups, sizeable improvements were observed during the first six months of the program that largely persisted even after the program had ended. During the first six months of the program, the treatment group was 4 percentage points less likely than the control group to have no credit rating—primarily due to the treatment compliers establishing credit (-10 percentage points). Yet there were also improvements in credit ratings among the participants during the first six months that went beyond simply establishing a line of credit, such as being less likely to have poor credit (-4 percentage points) and more likely to have good credit relative to the control group (+15

percentage points). Although those in the control group also advanced their credit ratings over time, by the end of the program 35.6 percent of the participants had increased their credit rating compared to only 26.0 percent of the control group. Moreover, the relative shift among the participants from having poor to good credit persisted through the 18-month credit pull that occurred six months after the end of the program.

The observed improvements in credit scores and ratings over time for the treatment group are correlated with changes in the underlying factors that were discussed during the one-hour workshop and one-on-one coaching sessions. For example, Figure 4 indicates significant improvements over time in credit use among the treatment group versus the control group such as maintaining at least one to four open lines of credit and using a mix of both installment and revolving credit, although little improvement was observed in maintaining a credit utilization ratio of less than 30 percent. Participants (treatment compliers) were less likely to have any delinquent lines of credit or any outstanding negatives—items that typically decrease an individual's credit score by 30 to 100 points. Similarly, Figure 5 shows improvements in loan use with the treatment group being 5 percentage points more likely than the control group to have obtained a car loan by the end of the program. Moreover, by the six month mark, the participants in the treatment group were 12 percentage points less likely than the control group to have a history of 30-day delinquencies and 13 percentage points more likely to have a history of sustained on-time payments—although the latter impact had diminished by the end of the program.[9]

[9] Note that information on current and historical loan performance was only collected by Working Credit through the end of the program. No 18 month data on loan performance is available.

Are the improved scores and credit ratings among the treatment group economically meaningful? One frequently touted benefit of having a better credit rating is the ability to get better borrowing terms. Among individuals with a car loan, those in the treatment group had interest rates that were 3.6 percentage points (40 percent) lower than those in the control group—and this impact persisted through the end of the program at 12 months (see Figure 5). Compliers in the treatment group had even more favorable rates than the control group resulting in a 5.5 percentage point difference by the end of the program. To put this into perspective, on a $10,000 auto loan with a term of five years, the observed difference in interest rates would imply that individuals in the treatment group would save $31.26 per month on average compared to individuals in the control group—enough to pay for an individual's basic monthly cell phone bill or groceries for one week. This is a meaningful impact for this low-income population, of which roughly 40 percent were on Medicaid and several had indicated during the focus group discussion that they relied on food stamps to make ends meet each month.

The ITT and TOT regressions largely confirm what we see in the descriptive analysis presented above. Controlling for baseline measures of outcomes and demographic characteristics, credit scores among the treatment group were 46.8 points higher than the control group six months after the program began (see Table 3).[10] Most of this improvement came from individuals obtaining credit with a 5.6 percentage point decline in the share of individuals having no credit among the treatment group. In contrast, the TOT estimates show that credit scores among those who complied with the program were 76.6 points higher than the control group at the six month mark and that this relative improvement was largely maintained through month 18—a full six months after the program had ended (see Table 4). Moreover, the program's

[10] See Table A4 for a full listing of coefficients for all variables in the regression.

impact was not limited to individuals obtaining credit but also improving their scores. Among those who complied with the program, the share of individuals having good credit increased by 13.5 percentage points. Significant improvements also were observed among the underlying factors affecting the credit score that largely persisted through the end of the program, including maintaining one to four open lines of credit, having a mix of revolving and installment credit, no current outstanding negatives, and no history of 30-day delinquency on loans. By the end of the program, individuals in the treatment group had interest rates on their car loans that were 4.6 percentage points less than those in the control group—even when controlling for baseline interest rates and demographic characteristics (see Table 3).

We find some support for heterogeneous impacts suggesting that the program might yield greater benefits for some groups and could perhaps be targeted if policymakers wanted to make the best use of limited resources. Based on prior studies from the literature, we hypothesized that the program would have a greater impact on younger participants, African Americans, and females. To test these hypotheses, we initially stratified our random assignment across these subgroups to ensure that there would be sufficient representation to detect differential impacts. As would be consistent with human capital theory, younger participants are more likely to benefit simply because they have had less exposure to financial knowledge and fewer opportunities to build credit (Taylor 2011, Atkinson et al. 2006). Similarly, researchers have documented that the racial wealth gap reflects lower participation in mainstream financial services among African Americans, which may stem from either a greater likelihood of growing up in a low-income household with less access to information and opportunities regarding finances or socioeconomic and political structure barriers that restrict access to financial services

(Brevoort, Grimm, and Kambara 2015, Hamilton and Darity 2017).[11] Table 5 confirms that the BYCBI did indeed have a greater impact on both younger participants and African-Americans with both groups improving their credit scores by over 100 points yielding a 14 percentage point decline in the share with no credit and a 16 percentage point increase in the share with good credit. In contrast, there was no significant difference in program impact between males and females despite a well-documented gender gap in financial literacy (Lusardi and Mitchell 2014). It could be the case that this gap widens over time, as do many other gender gaps, when men exceed women in terms of employment and earnings later in life.

Finally, we also stratified our sample by the type of organization from which individuals were recruited to test the efficacy of the program's delivery mechanism. Although individuals in the treatment group who were recruited through "atypical" organizations had somewhat lower improvements in terms of credit scores (+80.5 points) than those recruited from organizations that fit the typical Working Credit model (+120.1 points), this difference was not statistically significant (see Table 5). This suggests that the BYCBI pilot could be expanded across these atypical sites to reach youth where they are most likely to be found without a significant loss in terms of program efficacy. However, as we discussed above in the methodology section, the study non-compliers who applied but chose not to participate in the program were more likely to be recruited from atypical organizations. As such, policymakers may need to investigate what

[11] While we did not initially stratify our sample by household income, we test the possibility that the observed heterogeneity by race could be driven by differences in household income yet we find only partial support for this hypothesis. While participants from households with incomes below the 2016 median for Greater Boston ($71,992) did experience a larger increase in their credit score (64.7 points) compared to those from households above the median (42.5 points), this difference was not statistically significant. However, the given that over 90 percent of individuals in both the treatment and control groups were from households below the median, this test lacks sufficient power to be meaningful.

barriers exist with regards to participation among this population before any expansion to be able to maximize program efficiency.

Exploring Program Mechanisms Using Survey and Focus Group Data

To explore the program's mechanisms, we make use of the responses from the pre- and post-program survey as well as the insights gained from our focus groups to assess the individual's perceptions of their financial situation as well as changes in their financial habits, literacy, and self-efficacy. Consistent with the administrative data, individuals in the treatment group reported being in better financial situations than those of the control group after the program had ended. Table 6 reports the ITT and TOT estimates for each self-reported outcome captured by the post-program survey. Individuals in the treatment group were less likely to report having a utility company currently holding a deposit (-7.3 percentage points), being contacted by collection agencies about unsettled claims over the past three months (-9.5 percentage points), or being evicted or in the process of eviction over the past year (-4.6 percentage points). In addition, the treatment group was 11.9 percentage points more likely than the control group to report having a credit counseling or a debt management plan, likely the result of their one-on-one coaching. No significant differences were reported for having one's wages garnished, utilities disconnected, car repossessed or for entering foreclosure or bankruptcy—although these events occurred with very low frequency even at baseline and in some cases, may take longer than a year to resolve.

Financial coaching programs differ from other approaches primarily due to the continuous feedback loop that involves setting goals, establishing a concrete plan of action, and monitoring individual progress—with the objective of changing financial ***habits*** to improve long-term outcomes—rather than simply increasing knowledge of or providing access to

financial products (Collins, and O'Rourke 2007). Indeed, we find that by the end of the program, the use of alternative financial services (e.g., such as using a check-casher, payday lender, or pawn shop, or borrowing from friends and family) was roughly 30 percent lower among the treatment group relative to the control group (see Table 6). This is consistent with our earlier finding that the program expanded access to formal credit and also increased the dollar value of available credit among the treatment group, potentially making it less likely that they would continue to rely on costly alternatives.

What are the mechanisms by which the BYCBI achieves better financial outcomes for individuals? Initially, we hypothesized that the financial coaching provided by the BYCBI could help individuals change their financial habits and achieve higher credit scores through two primary channels: financial literacy and/or financial self-efficacy. Using the standardized z-scores in our regressions, the bottom of Table 6 compares the magnitude of the program impact across each domain. While the BYCBI had a significant impact on both the financial literacy and financial self-efficacy of the treatment group, the latter effect was twice as large in magnitude. For example, column (2) of Table 6 shows that the BYCBI lead to a 0.329 standard deviation increase in the financial literacy test score compared to a 0.630 standard deviation increase in the overall self-efficacy score.

These results suggest that both financial literacy and financial self-efficacy have the potential to be mediators through which the BYCBI affects financial habits and improves credit scores. Recall that to be a valid mediator, the impact of participating in the program on the primary outcomes must be reduced when the mediating variable is added to the original specification. For example, the coefficient on the treatment dummy in our credit score regressions that include the mediating variable must be smaller (in absolute value) than the coefficient on the treatment dummy when we do not include the mediating variable (Baron and

Kenny 1986). Panel A of Table 7 reports the results of including our two primary mediators in our TOT regressions where the 12-month credit score is the dependent variable. We find that including the self-efficacy z-score in the regression does indeed have a separate impact on credit scores and reduces both the magnitude and the significance of the coefficient on the BYCBI dummy variable. The inclusion of the financial literacy z-score does neither. The inclusion of both mediators eliminates the program impact entirely. Panel B reports the same regressions with the 12-month alternative financial services score as the dependent variable and demonstrates even stronger results. Thus it appears that the impact of financial coaching on changing behaviors and subsequently improving credit scores stems primarily from increasing financial self-efficacy among individuals to be able to act on the financial information and opportunities with which they are presented.

The importance of self-efficacy was also a key theme that emerged from our focus group discussions both at the beginning and the end of the program. Panel A of Figure 6 compares the most frequent themes that occurred for the treatment versus the control groups during the first set of focus group discussions.[12] In the treatment group, issues of credit history, lessons learned in the credit workshop and counseling, and strategies for dealing with credit dominated the discussion. In the control group, while approximately a third of the time was devoted to one's credit history and strategies for dealing with credit, discussions of their dire financial situations and lack of financial guidance dominated the conversation. While individuals in the treatment group expressed the same concerns as those in the control groups, they exhibited less anxiety that appeared to stem from a greater locus of control. For example, whereas members of the treatment knew specific things they had done that had damaged their credit, members of the

[12] See the data appendix for a detailed discussion of how we coded the themes emerging from the focus groups.

control group still did not have a clear idea of their specific mistakes. Similarly, members of the treatment group referenced concrete steps they had learned through the credit workshop and/or counseling, and seemed confident that these steps would be beneficial. In contrast, members of the control group who described their financial strategies stated that they did not understand whether they were doing the "right" things and were still casting about for solutions. Finally, members of the control group mentioned financial anxiety much more frequently than the treatment group and reported feeling overwhelmed by paying off credit. These feelings of anxiety were not reported in the treatment group, despite the treatment group also having large amounts of credit card debt.

When asked about how their lack of knowledge about specific areas contributed to their financial circumstances, both groups expressed frustration that practical financial guidance had not been taught in high school. During the course of the discussion, two distinct stories emerged around credit cards and student debt. One participant noted that he did not get a credit card till much later because he was scared of it, "but that also hurts you because then you don't have any credit at all." Three participants talked about problems with student debt, including both loans and direct debt to the college. Two of them said that they took on student debt without understanding what it meant to pay it back and had to drop out of school before completing their degrees because of financial difficulty, making it even harder to pay back their loans.

When asked about how their credit history affected their current and/or future plans, a range of answers was given. Almost all participants reported having to rely on cash availability to meet expenses and none felt they could cover themselves in case of an emergency. One talked about being hesitant to get married and buy a home. Another talked about how she wants to buy a house but found it hard to save money because of credit card payments. A third talked about

being forced to wait to buy a car because she will have to take a high interest rate unless she improved her credit score. A fourth reported she was unable to get a car and had to get two people to cosign for an apartment so she was "not even thinking about house, car, future planning, etc. for at least five years" until she got her finances in order.

Panel B of Figure 6 shows that many of these themes persisted or even strengthened over time. By the end of the program, the treatment group talked about specific information about how credit works, strategies for credit and financial planning, knowledge gained from the credit counseling and workshop, and a sense of personal responsibility, control, and confidence over their credit and finances. The control group still exhibited confusion around how to proceed to fix their finances, felt anxious and squeezed for money, and believed that essential information about credit and finances was inaccessible to the general public—revealing a feeling of lack of control. As a result, much of the discussion in the control group reflected the emotional toll of constantly wondering whether one is making the right financial decisions and feeling that no help is available. While the treatment group demonstrated actual understanding of credit or financial planning and talked about specific strategies, the control group rarely did. In contrast, the control group appeared to add to their cognitive load by needing to try many different strategies without a system or framework for vetting them. Indeed, the control group displayed a notable amount of help-seeking/ help-giving behavior during the focus group, such as asking questions and sharing specific information about financial tools, institutions, and apps with their peers.

DISCUSSION

Benchmarking and Interpreting the BYCBI Results

The BYCBI impacts on the administrative credit outcomes for the treatment group are large at the beginning of the program and persist through 18 months for the participants. These results

stand somewhat in contrast to much of the existing literature on financial education interventions, which has produced mixed results to date, even when assessing programs that aim to develop financial capability by combining financial literacy as well as access to financial products. Instead, our findings are largely consistent with more recent, albeit descriptive, studies specifically focused on financial coaching that find positive associations between coaching and client outcomes including greater confidence, changes in behaviors such as budgeting and saving, and improvements in credit building (Collins and O'Rourke 2012, Moulton et al. 2013, NeighborWorks America 2013, Center for Economic Progress 2015). In addition, the one experimental study most similar to ours found that financial coaching had positive effects on some credit-related variables, raising credit scores by as much as 20 points, although these gains were not consistent across the two sites, likely due to low compliance rates (Theodos et al. 2015). Yet if one were to extrapolate the size of the impact for the three-month intervention in that study over the course of one year, the magnitude would be comparable with the BYCBI effect size (76.6 points).

Based on our survey data, individuals in the treatment group reported being in better financial situations than those of the control group after the program had ended. In addition, the BYCBI had a significant impact on the financial habits of the treatment group by reducing their use of alternative financial services. Finally, the program has a greater impact on financial self-efficacy rather than financial literacy which appears to be driving both the change in financial behaviors and the improvement in credit scores. Again, the only comparable experimental study (Theodos et al. 2015) corroborates some of these findings, although not consistently across both sites studied. They find significant increases in satisfaction with one's current situation as well as a reduction in the use of two types of alternative financial at one coaching site, but none at the

other. In addition, they find significant decreases in financial stress at one of their sites that was similar in magnitude to our self-efficacy components, yet "no impact of financial coaching on factual financial knowledge as we measured it."

The larger effect size of the BYCBI on credit outcomes is perhaps unsurprising in hindsight. First, the BYCBI achieved a greater take-up rate compared to other experimental studies of financial coaching, making it more likely that we would be able to detect impacts. In addition, our intervention was longer in duration and greater in intensity with credit pulls and coaching every six months to measure each individual's progress toward their goals. Finally, the BYCBI was focused solely on improving credit scores whereas the aims of other financial coaching programs are more broadly encompassing, making it more difficult to detect impacts given that outcomes can vary considerably from person to person based on their goals.

Cost Comparisons

According to Working Credit, the program costs approximately $180 per person when delivered in an employer setting. Typically the cost is subsidized by the employer on behalf of the worker as an employee benefit so that the cost to the worker is on average $5 per month or one-third of the total annual cost (e.g., $60 for the year). Recall that by the end of the program, individuals in the treatment group had interest rates on their car loans that were nearly half (5.5 percentage points lower) the rates paid by those in the control group—resulting in savings of about $30 per month on a five-year $10,000 car loan. Thus, on an individual basis, the program is certainly "worth it"—even without the employer subsidy—especially when one factors in having lower interest rates on all future loans going forward. Indeed, we found larger effects for the younger participants among our group of young adults which is consistent with the notion

that human capital investments that occur earlier in life have a greater net benefit over the lifecycle.

Yet is there a less costly alternative that could achieve the same benefits as financial coaching? At this point, it's hard to say. On the one hand, Theodos et al. 2015 studied a lighter touch intervention that included a workshop and on average one financial coaching session over a three month period found and found weaker effects, although this could be due in part to the lower compliance rate or the population that was studied. On the other, the BYCBI was only a slightly more intensive program with just one in-person coaching session at the beginning and most subsequent six-month check-ins occurring over the phone or via email.

Validity of BYCBI Effect Estimates

Several factors suggest that our results are likely lower bound estimates among this population. The most obvious is that due to the experimental design of the evaluation, we deviated from the Working Credit model that typically begins with a mandatory workshop followed by the offer for financial coaching. This approach typically results in a take-up rate of over 90 percent for the financial coaching—similar to what we saw among compliers who had at least attended the workshop. It is likely that if youth workforce development programs made the workshop a mandatory part of training, the compliance rate would be much closer to 90 percent.

Diminishing marginal returns among the treatment group attending more coaching sessions and/or any "John Henry" effects among control group members who seek to "catch up" will mitigate positive findings. However, the additional coaching after the initial in-person meeting was often conducted either on the phone or via email and included the individual's credit report, which would be continually updated and tracked against their goals which is certainly valuable information, even on the margin. And although our randomization was stratified within

organizational groups, leaving open the possibility of cross-contamination, we did not see any indication of that in our focus group discussions.

Still, some external validity concerns suggest that these estimates may be difficult to replicate in other settings. These include having trained Working Credit staff to provide coaching to all individuals. In addition, the participants were relatively young, new to the labor force, and often living alone for the first time. Finally, while individuals could not select into treatment, they did choose to apply to the program such that there may be some selection on unobservable characteristics, such as wanting a better financial future, thereby making these individuals "better compliers" than the average young adult in greater Boston. As a result, our findings are most usefully applied to other groups of young workers, such as new public sector employees and those in workforce development, apprenticeship, or union programs.

CONCLUSION

Access to credit can provide individuals with the liquidity necessary to maintain financial stability during an economic setback and to take advantage of opportunities that affect their long-term financial well-being. Despite the mixed results of earlier financial education programs, policymakers are increasingly seeking to employ financial coaching as a tool to improve the financial well-being of low- and moderate-income groups. Such concerns are reflected in a renewed focus on the financial capability of youth engaged in workforce development programs as required by the Workforce Innovation and Opportunity Act of 2014.

Using an experimental design, we estimate the causal impact of a financial coaching program on low-income young adults currently working or enrolled in a workforce development program. The goal of the BYCBI was to help individuals build credit by providing both a one-hour workshop as well as financial coaching over the course of one year. Overall, our results

demonstrate that the program affected participants in many of the ways that it was designed to. The self-reported survey data show that the treatment group increased their financial literacy, gained greater financial self-efficacy, and reduced their use of alternative financial services. The credit report data confirm that these behavioral changes improved credit scores by upwards of 70 points and raised the likelihood of having a "good" credit rating by 10 percentage points.

Moreover, we find that financial coaching can have a meaningful impact on the financial circumstances of low-income young adults apart from simply increasing credit scores. By improving access to credit, individuals in the treatment group faced fewer financial barriers to establishing a household (e.g. costly utility deposits) and fewer negative financial shocks (e.g. eviction). In addition, they enjoyed greater access to credit as well as more favorable rates on car loans—outcomes that are quite impactful for this cash-strapped population.

We close by offering some policy relevant insights for future program design. First, our analysis shows heterogeneous impacts by age and race, suggesting how cities with limited resources may want to target these programs. Second, we find that much of the impact of financial coaching is driven by improvements in financial self-efficacy, which may have been the missing ingredient in prior financial education programs. Finally, we show how the path toward better credit evolves over time and across different dimensions—even after the program ends—signifying the importance of studying program outcomes using multiple measures over the longer-term. This could be particularly important as states and localities seek to experiment with incorporating financial education into youth workforce development programs as part of the new WIOA requirements with an eye toward improving both financial and labor market outcomes.

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TABLE 1. Baseline Demographic Characteristics: Treatment v Control Group

	Treatment Group		Control Group	
	(1)		(2)	
Number of individuals:	150		150	
Type of Organization				
Typical	37.3%	(0.040)	34.7%	(0.039)
Near-Typical	15.3%	(0.030)	16.7%	(0.031)
Atypical	47.3%	(0.041)	48.7%	(0.041)
Age				
Mean	23.64	(0.252)	23.75	(0.224)
18-24	60.7%	(0.040)	58.0%	(0.040)
25-29	39.3%	(0.040)	42.0%	(0.040)
Gender				
Female	58.7%	(0.040)	63.3%	(0.039)
Race				
African American/Black	48.7%	(0.041)	50.0%	(0.041)
American Indian / Native Alaskan	1.3%	(0.009)	1.3%	(0.009)
Asian/Hawaiin/Pacific Islander*	8.3%	(0.018)	4.7%	(0.017)
Caucasian / White	16.0%	(0.030)	21.3%	(0.034)
Two or more races	10.7%	(0.025)	8.7%	(0.023)
Other	15.3%	(0.034)	14.3%	(0.031)
Ethnicity				
Hispanic	24.7%	(0.035)	26.0%	(0.036)
Veteran status				
Veteran	0.0%	(0.000)	1.3%	(0.009)
Marital status:				
Married	3.3%	(0.015)	6.7%	(0.020)
Household size				
Number	2.92	(0.115)	2.98	(0.109)
Children				
Has any children	17.3%	(0.031)	14.0%	(0.028)
Education				
Less than a high school diploma	8.0%	(0.022)	9.3%	(0.024)
High school diploma or GED	28.0%	(0.037)	22.0%	(0.034)
Some college*	22.7%	(0.034)	32.0%	(0.039)
Associate's degree	3.3%	(0.015)	2.0%	(0.011)
Bachelor's degree	30.0%	(0.038)	25.3%	(0.036)
Advanced or professional degree	4.7%	(0.017)	5.3%	(0.018)
Not reported	2.7%	(0.013)	2.7%	(0.007)
Employment tenure				
Less than one year	64.7%	(0.039)	60.7%	(0.040)
One to two years	16.7%	(0.031)	17.3%	(0.031)
Two to five years	12.7%	(0.027)	14.0%	(0.028)
More than five years	2.0%	(0.011)	2.7%	(0.013)
Not reported	4.0%	(0.016)	5.3%	(0.018)
Health insurance				
Private plan, through employer	29.3%	(0.037)	28.7%	(0.037)
Medicaid (MassHealth)	44.0%	(0.041)	36.7%	(0.039)
Other	19.3%	(0.032)	27.3%	(0.037)
None	4.7%	(0.017)	4.0%	(0.016)
Not reported	2.7%	(0.013)	3.3%	(0.015)
Homeowner status:				
Own	6.0%	(0.019)	7.3%	(0.021)
Household income				
Above $71,991	10.0%	(0.025)	10.7%	(0.025)
Can save $26 per month				
Yes	94.7%	(0.018)	95.3%	(0.017)

Note: Standard errors in parentheses. *p<0.10.
Source: Authors' calculations based on data supplied by the Office of Financial Empowerment

TABLE 2. Baseline Outcome Measures: Treatment v Control Group

	Control group		Treatment group	
	(1)		(2)	
Number	150		150	
Administrative Credit Report Measures				
Credit score (mean), excluding those with zero scores	666.03	(8.227)	661.2	(8.689)
Credit rating:				
None: credit score=0	32.7%	(0.038)	36.7%	(0.039)
Poor: credit score>=300 and <=600	13.3%	(0.028)	16.0%	(0.030)
Fair: credit score>=601 and <=660	11.3%	(0.026)	11.3%	(0.026)
Good: credit score >=661 and <=780	37.3%	(0.040)	33.3%	(0.039)
Excellent: credit score>=780	5.3%	(0.018)	2.7%	(0.013)
Factors affecting credit score				
At least one open line of credit but no more than four	29.3%	(0.037)	21.3%	(0.034)
Has a mix of revolving and installment lines of credit	26.0%	(0.036)	22.7%	(0.034)
Utilization ratio under 30 percent	61.1%	(0.050)	66.3%	(0.047)
Amount of available credit	$ 5,684.13	(1156.366)	$ 4,933.75	(949.934)
No lines of credit that are currently delinquent (30 days currently past due)	96.0%	(0.020)	92.6%	(0.027)
No current outstanding negatives (collections, chargeoffs, judgements)	67.3%	(0.047)	67.4%	(0.048)
Has a car loan	8.7%	(0.023)	8.0%	(0.022)
Interest rate on car loan (for those with a car loan)	10.0%	(0.022)	7.4%	(0.025)
Has a student loan	42.0%	(0.040)	40.0%	(0.040)
Amount of student loan debt (for those with a student loan)	$ 28,952.30	(3514.661)	$28,054.07	(3877.413)
No history of 30-day delinquent	58.4%	(0.049)	49.5%	(0.052)
History of sustained on-time payments	71.3%	(0.045)	71.6%	(0.047)
Self-Reported Survey Measures				
Financial situation (aspects not covered by credit report)				
In credit counseling or debt management plan or working with one	4.0%	(0.016)	3.3%	(0.015)
Cell phone company currently holding a deposit	12.0%	(0.027)	12.0%	(0.027)
Utility company currently holding a deposit	5.3%	(0.018)	6.0%	(0.019)
Wages garnished in the past year	7.3%	(0.021)	8.7%	(0.023)
Utilities been disconnected in the past year or in danger of disconnection	10.7%	(0.025)	8.0%	(0.022)
Car been repossessed in past year or in danger of reposession	3.3%	(0.015)	1.3%	(0.009)
Been evicted in past year or in process of eviction	4.0%	(0.016)	1.3%	(0.009)
Foreclosure started or in danger of foreclosure	0.7%	(0.007)	0.7%	(0.007)
Contacted by collection agencies contacting about unsettled claims	20.0%	(0.033)	19.3%	(0.032)
In bankruptcy or in process of bankruptcy	2.0%	(0.011)	0.0%	(0.000)
Plan to apply for a mortgage or car loan in next three months	8.7%	(0.023)	8.0%	(0.022)
Financial habits (frequency over the past three months on a scale of 0 to 1)				
Use of mainstream financial services	0.56	(0.022)	0.54	(0.022)
Use of alternative financial services	0.15	(0.012)	0.15	(0.012)
Financial literacy (based on 18 true/false questions)				
Mean score (percent right)	76.5%	(0.011)	74.9%	(0.011)
Share getting more than 75% correct	62.0%	(0.040)	58.0%	(0.040)
Financial self-efficacy (based on a Likert scale converted to a scale of 0 to 1)				
Confidence in financial knowledge	0.59	(0.012)	0.61	(0.610)
Confidence in financial skills	0.60	(0.013)	0.63	(0.016)
Concern about financial situation*	0.75	(0.014)	0.71	(0.017)
Overall self-efficacy score	0.57	(0.013)	0.59	(0.015)

Note: Standard errors in parentheses. See data appendix for construction of each outcome measure. *p<0.10.
Source: Authors' calculations based on data supplied by the Office of Financial Empowerment and Working Credit.

TABLE 3. Credit Report Outcomes from Administrative Data: Intent-to-Treat (ITT) Estimates

Coefficient on treatment dummy variable at:	Six Months		Twelve Months		Eighteen Months	
	(1)	(2)	(3)	(4)	(5)	(6)
Mean credit score (points)	43.251 **	46.828 **	5.503	7.978	5.5	7.978
	(21.664)	(20.952)	(25.029)	(24.909)	(25.029)	(24.909)
Credit rating:						
None: credit score=0	-0.059 *	-0.056 *	0.005	0.007	0.005	0.007
	(0.034)	(0.031)	(0.037)	(0.036)	(0.037)	(0.036)
Poor: credit score>=300 and <=600	-0.014	-0.002	-0.024	-0.013	-0.024	-0.013
	(0.030)	(0.025)	(0.037)	(0.032)	(0.037)	(0.032)
Fair: credit score>=601 and <=660	0.038	0.043	0.015	0.007	0.015	0.007
	(0.037)	(0.038)	(0.039)	(0.037)	(0.039)	(0.037)
Good: credit score >=661 and <=780	0.058	0.059	0.048	0.056	0.048	0.056
	(0.045)	(0.042)	(0.048)	(0.047)	(0.048)	(0.047)
Excellent: credit score>=780	-0.031	-0.062	-0.029	-0.048	-0.029	-0.048
	(0.043)	(0.041)	(0.025)	(0.030)	(0.025)	(0.030)
Underlying factors affecting credit score:						
At least one open line of credit but no more than four	0.166 ***	0.196 ***	0.166 ***	0.196 ***	0.166 ***	0.196 ***
	(0.044)	(0.043)	(0.044)	(0.043)	(0.044)	(0.043)
Has a mix of revolving and installment lines of credit	0.080 **	0.104 **	0.063	0.064	0.063 *	0.064 *
	(0.039)	(0.038)	(0.038)	(0.038)	(0.038)	(0.038)
Utilization ratio under 30 percent	0.083 *	0.074 *	0.056	0.052	0.056	0.052
	(0.044)	(0.041)	(0.047)	(0.044)	(0.047)	(0.044)
Amount of available credit	148.601	76.622	789.486	757.228	789.486	757.228
	(494.727)	(474.564)	(648.680)	(617.365)	(648.680)	(617.365)
No lines of credit that are currently delinquent	0.018	0.017	0.004	0.007	0.004	0.007
	(0.029)	(0.025)	(0.030)	(0.034)	(0.030)	(0.034)
No current outstanding negatives	0.011	0.008	0.063 *	0.069 **	0.063 *	0.069 **
	(0.029)	(0.026)	(0.036)	(0.035)	(0.036)	(0.035)
Has a car loan	-0.014	-0.006	0.053 *	0.071 **	NA	NA
	(0.023)	(0.022)	(0.032)	(0.032)		
Interest rate on car loan	-0.060 *	-0.068 *	-0.030 *	-0.046 **	NA	NA
	(0.036)	(0.036)	(0.018)	(0.018)		
Has a student loan	-0.043	-0.038	-0.059	-0.039	NA	NA
	(0.032)	(0.028)	(0.037)	(0.031)		
Amount of student loan debt	-3381.157	-3583.582	-1823.881	-1857.417	NA	NA
	(2586.792)	(2905.258)	(2313.387)	(2884.971)		
No history of 30-day delinquent on loans	0.150 ***	0.161 ***	0.031	0.048	NA	NA
	(0.048)	(0.044)	(0.050)	(0.047)		
History of sustained on-time payments on loans	0.078 **	0.094 **	-0.017	-0.004	NA	NA
	(0.037)	(0.036)	(0.040)	(0.037)		
Includes controls for baseline measures of outcomes	Yes	Yes	Yes	Yes	Yes	Yes
Includes controls for demographic characteristics	No	Yes	No	Yes	No	Yes
Number of observations	300	300	300	300	300	300

Note: Controls for demographic characteristics include age, gender, race, ethnicity, marital status, presence of children, household size, education, employment tenure, health insurance, household income, homeownership, ability to save $26 per month, type of organization that the individual was recruited from. Standard errors in parentheses. *p<0.10, **p<0.05, ***p<0.01.

Source: Authors' calculations based on data supplied by the Boston Mayor's Office of Financial Empowerment and Working Credit.

TABLE 4. Credit Report Outcomes from Administrative Data: Treatment-on-the-Treated (TOT) Estimates

Coefficient on predicted participation variable at:	Six Months				Twelve Months				Eighteen Months			
	(1)		(2)		(3)		(4)		(5)		(6)	
Mean credit score (points)	82.341	***	76.618	***	70.645	**	58.241	**	84.636	***	70.040	**
	(22.880)		(22.332)		(26.215)		(25.913)		(26.040)		(26.062)	
Credit rating:												
None: credit score=0	-0.113	***	-0.105	***	-0.080	**	-0.066	*	-0.101	**	-0.087	**
	(0.035)		(0.034)		(0.039)		(0.039)		(0.039)		(0.039)	
Poor: credit score>=300 and <=600	-0.021		-0.017		-0.109	**	-0.103	**	-0.058		-0.044	
	(0.032)		(0.033)		(0.039)		(0.040)		(0.042)		(0.043)	
Fair: credit score>=601 and <=660	0.011		0.003		0.032		0.044		0.013		0.027	
	(0.040)		(0.042)		(0.042)		(0.043)		(0.039)		(0.040)	
Good: credit score >=661 and <=780	0.150	***	0.135	**	0.156	***	0.142	**	0.136	**	0.105	**
	(0.047)		(0.048)		(0.051)		(0.052)		(0.053)		(0.054)	
Excellent: credit score>=780	-0.025		-0.025		-0.006		-0.022		0.005		-0.005	
	(0.023)		(0.024)		(0.026)		(0.027)		(0.022)		(0.023)	
Underlying factors affecting credit score:												
At least one open line of credit but no more than four	0.209	***	0.233	***	0.256	***	0.269	***	0.186	***	0.180	***
	(0.046)		(0.047)		(0.051)		(0.053)		(0.058)		(0.060)	
Has a mix of revolving and installment lines of credit	0.141	***	0.132	***	0.156	***	0.116	**	0.134	**	0.113	**
	(0.040)		(0.042)		(0.045)		(0.046)		(0.051)		(0.052)	
Utilization ratio under 30 percent	0.068	*	0.065	*	0.028		0.023		-0.052		-0.062	
	(0.036)		(0.038)		(0.050)		(0.051)		(0.052)		(0.053)	
Amount of available credit	825.673		550.794		1955.085	**	1317.110	*	2400.221	**	1539.718	*
	(531.383)		(540.299)		(702.675)		(688.801)		(958.848)		(909.932)	
No lines of credit that are currently delinquent	0.051	*	0.055	*	0.037		0.038		0.064	**	0.066	**
	(0.030)		(0.031)		(0.032)		(0.033)		(0.033)		(0.034)	
No current outstanding negatives	0.062	**	0.053	*	0.115	**	0.089	**	0.092	**	0.084	*
	(0.031)		(0.032)		(0.040)		(0.041)		(0.046)		(0.047)	
Has a car loan	0.043	*	0.047	*	0.066	*	0.068	*	NA		NA	
	(0.024)		(0.025)		(0.036)		(0.037)					
Interest rate on car loan	-0.064	**	-0.079	*	-0.043	**	-0.063	**	NA		NA	
	(0.027)		(0.047)		(0.020)		(0.017)					
Has a student loan	0.014		0.004		0.018		0.013		NA		NA	
	(0.033)		(0.034)		(0.040)		(0.040)					
Amount of student loan debt	-515.418		-1437.269		-689.273		-1400.982		NA		NA	
	(1571.031)		(1579.835)		(1508.751)		(1516.085)					
No history of 30-day delinquent on loans	0.198	***	0.188	***	0.168	***	0.157	***	NA		NA	
	(0.051)		(0.052)		(0.052)		(0.052)					
History of sustained on-time payments on loans	0.080	**	0.071	*	0.007		-0.013		NA		NA	
	(0.039)		(0.039)		(0.043)		(0.042)					
Includes controls for baseline measures of outcomes	Yes		Yes		Yes		Yes		Yes		Yes	
Includes controls for demographic characteristics	No		Yes		No		Yes		No		Yes	
Number of observations	300		300		300		300		300		300	

Note: Controls for demographic characteristics include age, gender, race, ethnicity, marital status, presence of children, household size, education, employment tenure, health insurance, household income, homeownership, ability to save $26 per month, type of organization that the individual was recruited from. Standard errors in parentheses.
*p<0.10, **p<0.05, ***p<0.01.
Source: Authors' calculations based on data supplied by the Boston Mayor's Office of Financial Empowerment and Working Credit.

TABLE 5. Heterogeneity in Credit Report Outcomes from Administrative Data: Treatment on the Treated (TOT) Estimates at 18 Months

Coefficient on treatment dummy	18-24 years	African-American	Female	Atypical Organization
	(1)	(2)	(3)	(4)
Mean credit score (points)	103.5 **	108.225 **	86.507 **	80.512 **
	(40.309)	(40.727)	(30.163)	(36.241)
Credit rating:				
None: credit score=0	-0.138 **	-0.147 **	-0.107	-0.094 *
	(0.061)	(0.063)	(0.046)	(0.055)
Poor: credit score>=300 and <=600	-0.067	-0.062	-0.028	-0.040
	(0.059)	(0.068)	(0.058)	(0.077)
Fair: credit score>=601 and <=660	0.055	0.072	0.009	0.019
	(0.057)	(0.057)	(0.051)	(0.062)
Good: credit score >=661 and <=780	0.160 **	0.157 **	0.088	0.122
	(0.075)	(0.077)	(0.068)	(0.079)
Excellent: credit score>=780	-0.022	-0.020	0.033	-0.010
	(0.025)	(0.023)	(0.024)	(0.026)
Coefficient on treatment dummy	25-29 years	Not African-American	Male	Typical Organization
Mean credit score (points)	26.417	55.011	79.996 *	120.084 **
	(31.862)	(35.390)	(46.976)	(50.652)
Credit rating:				
None: credit score=0	(0.025)	(0.061)	-0.120	-0.168 **
	(0.047)	(0.052)	(0.069)	(0.075)
Poor: credit score>=300 and <=600	0.011	-0.023	-0.028	-0.056
	(0.069)	(0.058)	(0.069)	(0.065)
Fair: credit score>=601 and <=660	(0.018)	0.023	0.063	0.059
	(0.063)	(0.059)	(0.066)	(0.072)
Good: credit score >=661 and <=780	0.030	0.049	0.134	0.150
	(0.081)	(0.079)	(0.092)	(0.104)
Excellent: credit score>=780	(0.007)	0.009	-0.056	-0.004
	(0.042)	(0.040)	(0.045)	(0.055)
Difference in Difference: Coefficient on treatment interacted	Age 18 to 24 years	African-American	Female	Atypical Organization
Change in mean credit score	137.166 **	119.679 **	-10.183	-3.989
	(49.224)	(50.087)	(54.610)	(53.533)
Includes controls for baseline measures of outcomes	Yes	Yes	Yes	Yes
Includes controls for demographic characteristics	Yes	Yes	Yes	Yes

Note: Controls for demographic characteristics include age, gender, race, ethnicity, marital status, presence of children, household size, education, employment tenure, health insurance, household income, homeownership, ability to save $26 per month, type of organization that the individual was recruited from. Standard errors in parentheses. *p<0.10, **p<0.05, ***p<0.01.

Source: Authors' calculations based on data supplied by the Boston Mayor's Office of Financial Empowerment and Working Credit.

TABLE 6. ITT and TOT Estimates of Self-Reported Financial Capability Outcomes

Coefficient on treatment dummy variable	ITT		TOT	
	(1)	(2)	(3)	(4)
Financial situation (dummy variable where yes=1, no=0)				
In credit counseling or debt management plan or working with one	0.088 **	0.119 **	0.092 **	0.102 **
	(0.045)	(0.051)	(0.044)	(0.046)
Cell phone company currently holding a deposit	-0.019	0.005	-0.026	-0.009
	(0.037)	(0.037)	(0.037)	(0.039)
Utility company currently holding a deposit	-0.059 *	-0.073 **	-0.070 **	-0.075 **
	(0.033)	(0.034)	(0.034)	(0.036)
Wages garnished in the past year	0.012	0.022	0.005	0.019
	(0.036)	(0.041)	(0.036)	(0.038)
Utilities been disconnected in the past year or in danger of disconnection	-0.024	-0.011	-0.065	-0.046
	(0.041)	(0.045)	(0.042)	(0.044)
Car been repossessed in past year or in danger of reposession	-0.005	0.001	-0.003	-0.002
	(0.019)	(0.019)	(0.017)	(0.018)
Been evicted in past year or in process of eviction	-0.032 *	-0.046 **	-0.037 *	-0.049 **
	(0.018)	(0.022)	(0.020)	(0.021)
Foreclosure started or in danger of foreclosure	-0.021	-0.025	-0.019	-0.022
	(0.015)	(0.018)	(0.015)	(0.016)
Contacted by collection agencies contacting about unsettled claims	-0.076	-0.095 *	-0.098 *	-0.110 **
	(0.051)	(0.050)	(0.052)	(0.055)
In bankruptcy or in process of bankruptcy	-0.010	-0.018	-0.007	-0.015
	(0.018)	(0.020)	(0.018)	(0.019)
Plan to apply for a mortgage or car loan in next three months	0.013	0.014	0.022	0.020
	(0.049)	(0.053)	(0.049)	(0.052)
Financial habits				
Mainstream financial services z-score	0.019	0.020	0.027	0.013
	(0.076)	(0.076)	(0.077)	(0.080)
Alternative financial services z-score	-0.328 **	-0.395 **	-0.443 ***	-0.419 ***
	(0.147)	(0.145)	(0.145)	(0.150)
Financial literacy				
Financial literacy z-score	0.315 **	0.329 **	0.306 **	0.285 **
	(0.131)	(0.136)	(0.132)	(0.136)
Dummy variable for getting more than 75% correct	0.117 **	0.125 **	0.154 **	0.176 **
	(0.057)	(0.058)	(0.063)	(0.061)
Financial self-efficacy				
Confidence in financial knowledge z-score	0.676 ***	0.640 ***	0.684 ***	0.639 ***
	(0.130)	(0.125)	(0.128)	(0.127)
Confidence in financial skills z-score	0.532 ***	0.558 ***	0.559 ***	0.566 ***
	(0.139)	(0.143)	(0.140)	(0.143)
Confidence in financial situation z-score	0.186	0.202	0.170	0.211
	(0.142)	(0.156)	(0.143)	(0.152)
Overall self-efficacy z-score	0.618 ***	0.630 ***	0.635 ***	0.641 ***
	(0.135)	(0.138)	(0.134)	(0.135)
Includes controls for baseline measures of outcomes	Yes	Yes	Yes	Yes
Includes controls for demographic characteristics	No	Yes	No	Yes
Number of observations	194	194	194	194

Note: Controls for demographic characteristics include age, gender, race, ethnicity, marital status, presence of children, household size, education, employment tenure, health insurance, household income, homeownership, ability to save $26 per month, type of organization that the individual was recruited from. Standard errors in parentheses. *p<0.10, **p<0.05, ***p<0.01.

Source: Authors' calculations based on data supplied by the Boston Mayor's Office of Financial Empowerment.

TABLE 7. Analysis of Potential Mediators for 12-Month BYCBI Outcomes

	(1)	(2)	(3)	(4)
Panel A. Dependent Variable: 12 Month Credit Score				
BYCBI treatment dummy variable	64.536 **	58.396 **	50.635 *	43.723
	(26.894)	(27.096)	(28.771)	(28.984)
Financial literacy score	-----	21.412	-----	22.105
		(14.094)		(14.064)
Self-efficacy score	-----	-----	28.432 *	28.275 *
			(15.260)	(15.204)
Panel B. Dependent Variable: 12 Month Alternative Financial Services Score				
BYCBI treatment dummy variable	-0.053 **	-0.052 **	-0.031 *	-0.030
	(0.019)	(0.019)	(0.020)	(0.020)
Financial literacy score	-----	-0.012	-----	-0.016
		(0.039)		(0.038)
Self-efficacy score	-----	-----	-0.031 **	-0.031 **
			(0.011)	(0.011)
Includes controls for baseline measures of outcomes	Yes	Yes	Yes	Yes
Includes controls for demographic characteristics	Yes	Yes	Yes	Yes
Number of observations	194	194	194	194

Note: Controls for demographic characteristics include age, gender, race, ethnicity, marital status, presence of children, household size, education, employment tenure, health insurance, household income, homeownership, ability to save $26 per month, type of organization that the individual was recruited from. Standard errors in parentheses. *p<0.10, **p<0.05, ***p<0.01.
Source: Authors' calculations based on data supplied by the Boston Mayor's Office of Financial Empowerment and Working Credit.

FIGURE 1. Program Timeline

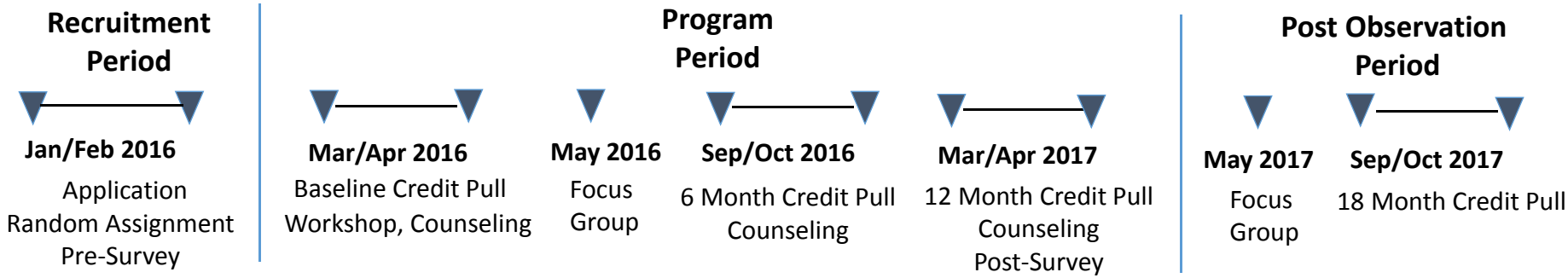
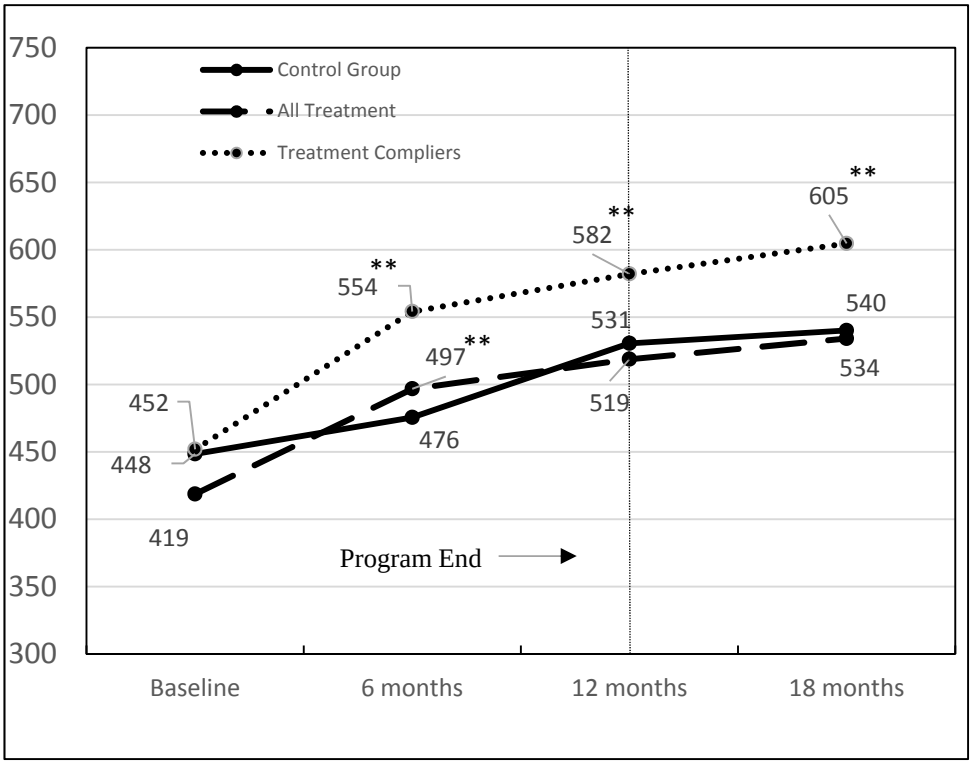
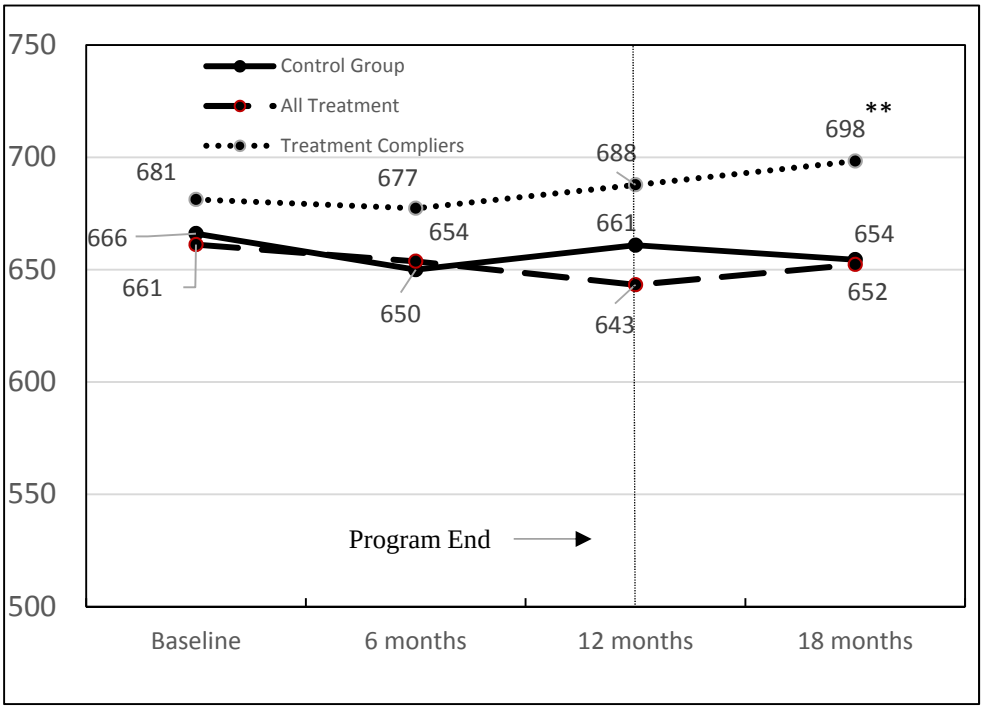


FIGURE 2. Credit Report Scores:
Comparison of Treatment Groups versus Control Group Over Time

A. Mean Credit Score (full sample)

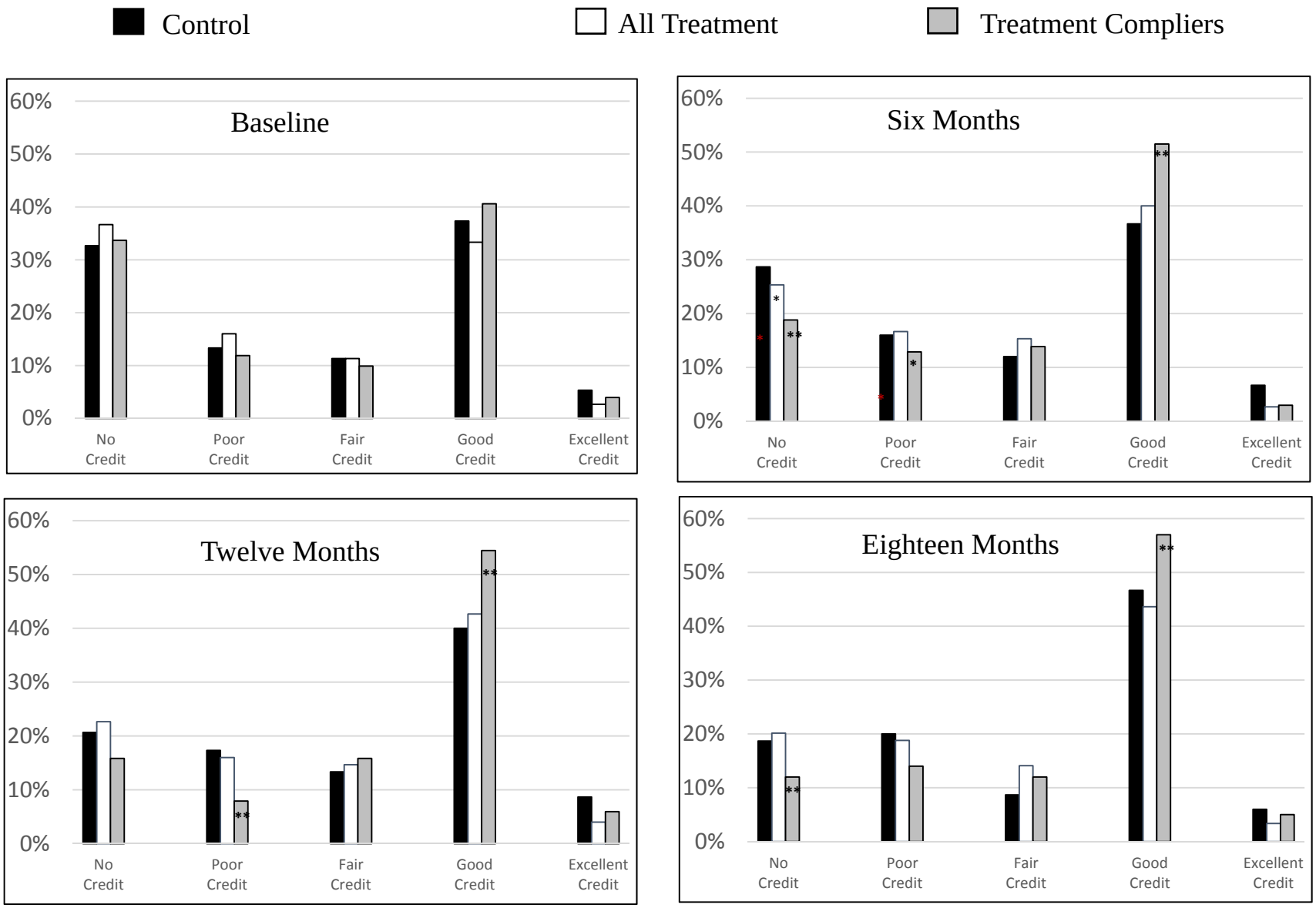


B. Mean Credit Score (excluding individuals initially with no credit)



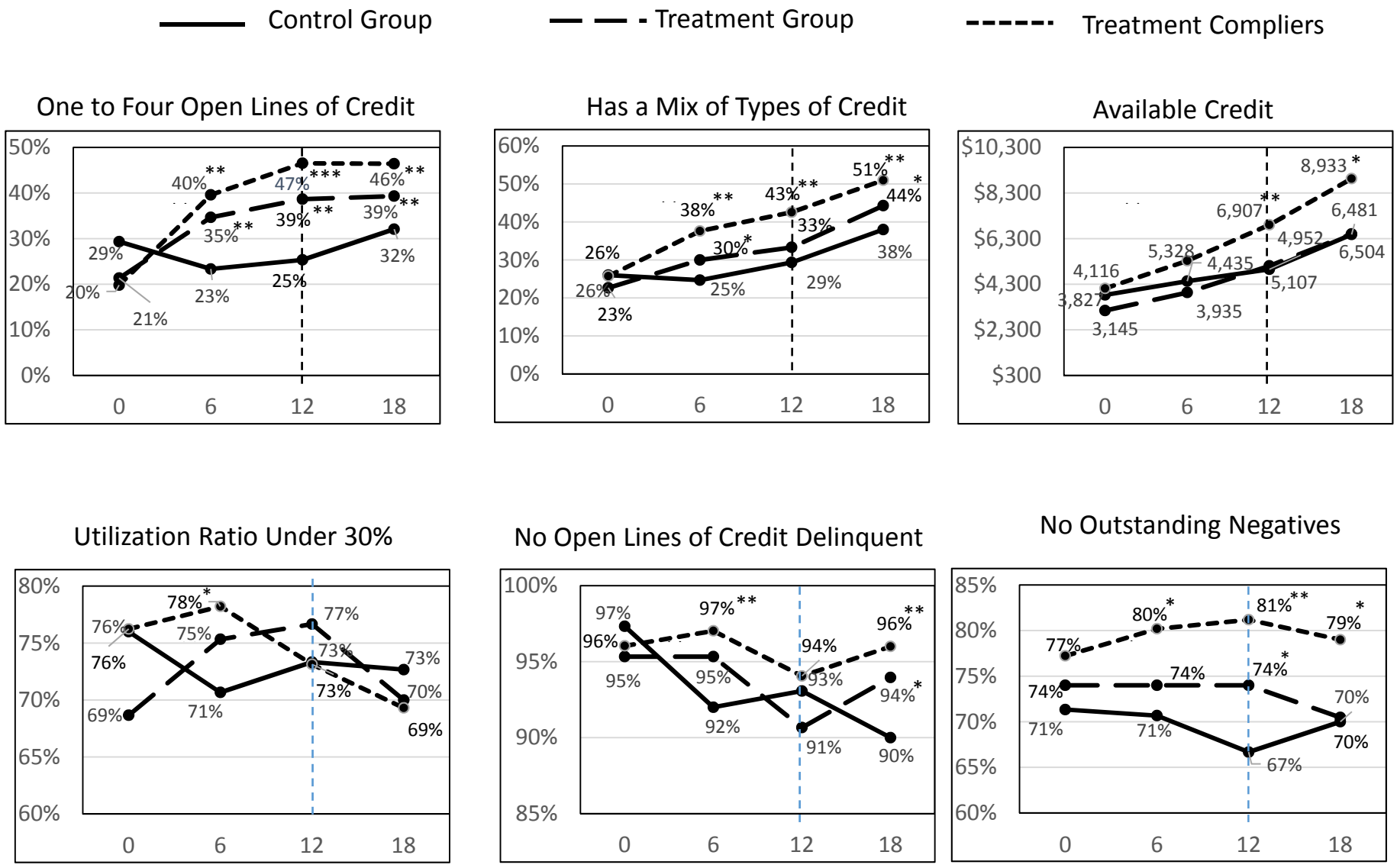
Note: Unadjusted means are reported for each group. *p<0.10 percent level, p<0.05**, and p<0.01***.
Source: Authors' calculations based on data supplied by Working Credit.

FIGURE 3. Credit Report Ratings: Comparison of Treatment versus Control Groups Over Time



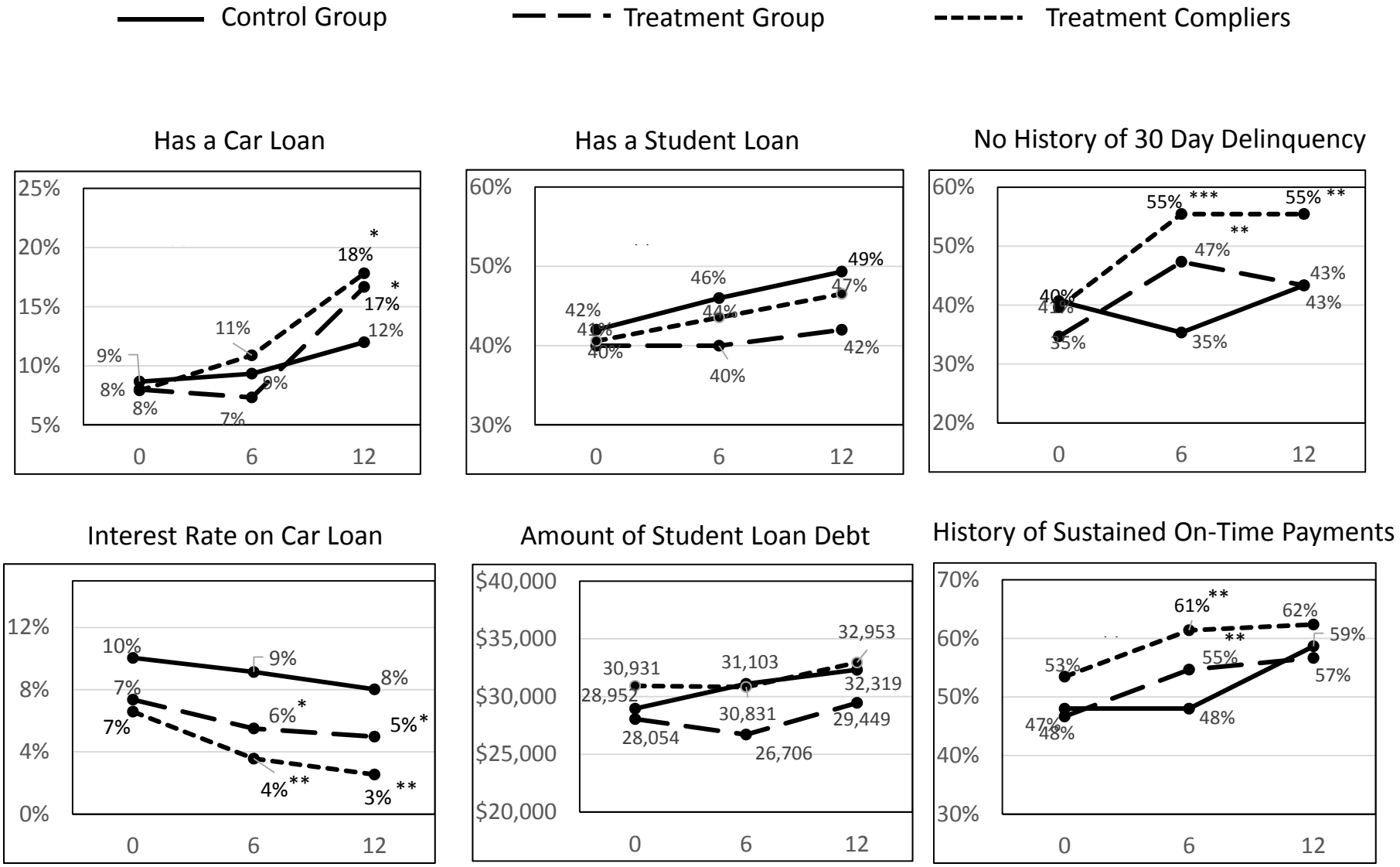
Note: Significance relative to the control group indicated at *p<0.10 percent level, p<0.05**, and p<0.01***.
Source: Authors' calculations based on data supplied by Working Credit

FIGURE 4. Credit Use: Comparison of Treatment versus Control Groups Over Time



Note: Significance relative to the control group indicated at *p<0.10 percent level, p<0.05**, and p<0.01***.
Source: Authors' calculations based on data supplied by Working Credit.

FIGURE 5. Loan History: Comparison of Treatment versus Control Groups Over Time



Note: Significance relative to the control group indicated at *p<0.10 percent level, p<0.05**, and p<0.01***.
Source: Authors' calculations based on data supplied by Working Credit

FIGURE 6. Comparison of Themes from Focus Group Discussions Ranked by Frequency

Panel A. May 2016 (Start of Program)

Treatment Group	Control Group
Made credit mistakes due to ignorance	Financially strapped
Feels regret over past credit mistakes	In a precarious financial position
Received credit in the past but did not understand it	Never learned about credit before
Learned concrete steps to improve credit score through the program	Never received guidance when making credit decisions
Uses a strategy for dealing with credit	Uses a strategy for dealing with credit
Schools or agencies should offer opportunity to learn about credit/ finances to younger kids	Schools or agencies should offer opportunity to learn about credit/ finances to younger kids

Panel B. May 2017 (End of Program)

Treatment Group	Control Group
Has strategy for dealing with credit	Shares information with group
Feels confident	Feels squeezed for money
Demonstrates understanding of credit and financial planning	Information inaccessible
Gained concrete knowledge from credit program	Confusion about what actions to take

Note: Themes ranked by frequency with the most frequent theme listed first.
Source: Authors' analysis based on data supplied by the Boston Mayor's Office of Financial Empowerment.

Appendix Materials

A. Construction of Administrative Credit Report Measures

All of the measures from the administrative credit report data were collected by Working Credit from TransUnion and shared with the authors under a sub-contract data use agreement as the evaluator for the program.

Credit Score and Rating

The credit score is as reported on the individuals' credit report using the FICO4 credit score based on reporting by TransUnion. Based on the individual's credit score, we determined their credit rating based on the following established standard ranges used by Working Credit when coaching participants:

Credit Score	Rating	Percent of People	Impact
300-600	Poor (Subprime)	17%	Credit applicants may be required to pay a fee or deposit, and applicants with this rating may not be approved for credit at all.
601-660	Fair (Nonprime)	20.2%	Applicants with scores in this range are considered to be subprime borrowers.
661-780	Good (Prime)	39.7%	Applicants with scores here are likely to receive better than average rates from lenders.
780 and above	Excellent (Superprime)	19.9%	Applicants with scores in this range are at the top of the list for the best rates from lenders.

Source: Credit Builders Alliance

Factors Affecting Credit Score

Working credit also collected measures related to the factors affecting an individual's credit score including the number and types of open lines of credit, whether the individual had a car loan and the interest rate on that loan, and whether the individual had a student loan and the amount of student loan debt. Working Credit also reported the utilization ratio, the amount of available credit, the number of lines of credit that are currently delinquent (30 days currently past due), the number of current outstanding negatives (collections, chargeoffs, judgements), and

whether the individual had a history of 30-day delinquency or a history of sustained on-time payments.

B. Construction of Self-Reported Survey Measures

Questions on the survey come from the "Keys to Your Financial Future Pre-Training Assessment" developed by the Annie E. Casey Foundation for their Opportunity Passport Program.[1] All summary measures that were constructed from the individual questions were converted to z-scores with a mean of zero and a standard deviation of one to be able to compare magnitudes across domains. See below for a listing of questions and responses for each component.

Financial Situation

To get a more complete picture of their financial situation, participants were asked about different events that had happened over the past year that are not typically covered by a credit report. This included if they were in a credit counseling or debt management program, if a cell phone or utility company were holding a deposit, if their wages had been garnished, if their utilities been disconnected, if their car had been repossessed, if they had been evicted, if they had been foreclosed upon, if they have been contacted by collection agencies contacting about unsettled claims, and if they were in bankruptcy or in process of bankruptcy.

Financial Habits

Participants were asked to indicate how often they engaged in particular financial habits over the past three months (e.g. 0 times, 1-3 times, 4 or more times).[2] From this set of questions we constructed two measures of financial habits scaled them so that they each fell between 0 and 1.

First, we constructed a mainstream financial habits measure by summing the answers to five questions related to using direct deposit, depositing money into a savings or checking account, paying a bill using online bill pay, and using a credit card.

Second, we constructed an alternative financial habits measure by summing the answers to five questions related to borrowing money from a friend, using a payday lender, using a pawn shop, and using a check cashing service.

Financial Literacy

Participants were asked to respond "true" or "false" to a series of 18 questions related to budgeting, saving, borrowing, and use of credit—including what is reported on a credit report and how that information is used.[3] From this set of questions we constructed a measure for each

[1] See http://www.aecf.org/work/child-welfare/jim-casey-youth-opportunities-initiative/the-keys-to-your-financial-future-curriculum/ for more information.
[2] See Part E of the survey entitled "Tell Us About Your Habits."
[3] See Part C of the survey entitled "Tell us About Your Views on Money and Finances."

individual equal to the percent right as well as a dummy variable indicating whether they achieved a score of at least 75 percent.

Self-Efficacy

Participants were asked to rate a series of questions related to their confidence and concerns using a Likert scale (1=Strongly Disagree, 2=Disagree, 3= Agree, and 4= Strongly Agree).[4] From this set of questions we constructed several measures of financial capability and scaled them so that they each fell between 0 and 1.

First, we created a confidence in financial knowledge score by summing the answers to four questions related to understanding how to build assets, use credit, read a credit report, and make a budget, and then divided by the total number of possible points (16).

Second, we created a confidence in financial skills score by summing the answers to four questions related to feeling confident about managing finances, feeling comfortable making financial decisions, feeling they have all the skills to plan for their financial future, and feeling that they have the skills needed to succeed, and then divided by the total number of possible points (16).

Third, we created a concern about financial situation score by summing the answers to three questions related to concern over student debt, concern over meeting expenses, and being satisfied with their saving, and then divided by the total number of possible points (12).

Finally, we created an overall self-efficacy score that can be thought of as a summary across the first three domains. Although there are several widely accepted psychological measures of general self-efficacy, no reliable and valid measure specific to financial behavior exists (Dietz, Carrozza, & Ritchey, 2003). We follow Lown (2011) and measure self-efficacy using a combination of the statements discussed above that measure an individual's confidence in their ability and knowledge to manage their finances as well as their satisfaction with their ability to save. Specifically, our self-efficacy measure is constructed by summing the answers to five questions related to feeling confident about managing finances, feeling they have the skills to succeed, feeling they have the resources to plan for the future, being satisfied with their saving, and knowing where to get help. We then divided by the total number of possible points (20).

[4] See Part D of the survey entitled "Tell Us About Your Concerns."

Baseline Responses to Financial Habits Questions

	Control Group	Treatment Group			Difference (Percentage Point)	
		All	Study Compliers	Study Non-compliers	All - Control	Study Compliers- Study Non Compliers
Number	150	150	101	49		
Percent Responding More than Four Times						
Mainstream Financial Services						
Used direct deposit.	62.7%	54.0%	57.4%	46.9%	-8.7	10.5 *
Deposited money into a savings or checking account.	58.0%	59.3%	57.4%	63.3%	1.3	-5.8
Paid a bill using online bill pay.	40.7%	38.9%	39.0%	38.8%	-1.7	0.2
Used a credit card.	32.7%	34.7%	40.6%	22.5%	2.0	18.1 *
Alternative Financial Services						
Used a payday lender.	0.7%	0.7%	0.0%	2.0%	0.0	-2.0
Used a pawn shop.	1.3%	1.3%	1.0%	2.0%	0.0	-1.1
Borrowed money from a friend.	3.3%	4.0%	3.0%	6.3%	0.7	-3.3
Used a check cashing service.	13.3%	13.3%	10.9%	18.4%	0.0	-7.5 *

Source: Authors' calculations based on data supplied by the Office of Financial Empowerment.

Baseline Responses to Financial Literacy Questions

	ANSWER KEY	Control Group	Treatment Group			Difference (Percentage Points)	
			All	Study Compliers	Study Non-compliers	All - Control	Study Compliers-Study Non Compliers
Number		150	150	101	49		
Percent Responding True in Each Group							
Vision and goals have nothing to do with managing your money.	FALSE	8.7%	12.7%	6.9%	24.5%	4.0	-17.6 **
Contingency planning is thinking about what could go wrong and making alternative plans.	TRUE	89.3%	82.7%	86.1%	75.5%	-6.6	10.6
An asset is something you own that always increases in value.	FALSE	65.1%	61.3%	63.4%	57.1%	-3.8	6.2
Saving is setting aside money now for use at some future time.	TRUE	96.0%	95.3%	99.0%	87.8%	-0.7	11.3 **
Having positive credit reports, high credit scores and affordable credit are productive assets	TRUE	96.0%	90.7%	92.1%	87.8%	-5.3	4.3
A credit report is a document that contains only some of your bill paying history.	TRUE	43.3%	41.3%	40.6%	42.9%	-2.0	-2.3
You have the right to get your credit reports from each of the credit reporting agencies each year.	TRUE	92.7%	88.0%	90.1%	83.7%	-4.7	6.4
Credit reports are completely accurate; you never need to check for mistakes.	FALSE	6.0%	14.7%	10.9%	22.5%	8.7 **	-11.6 *
A poor credit history can prevent you from getting insurance coverage, an apartment, or a job.	TRUE	83.3%	86.0%	88.1%	81.6%	2.7	6.5
If you are under 18 and have a credit report, you may have been the victim of identity theft.	TRUE	61.3%	64.0%	61.4%	69.4%	2.7	-8.0
Credit is money you owe.	FALSE	48.7%	46.7%	43.6%	53.1%	-2.0	-9.5
When you use credit, you are obligating future income.	TRUE	68.0%	64.0%	67.3%	57.1%	-4.0	10.2
Your credit score is calculated from your income, your assets, your age, and where you live.	FALSE	33.3%	32.0%	28.7%	38.8%	-1.3	-10.1
There is nothing you can do to change your credit score.	FALSE	3.3%	8.7%	6.9%	12.2%	5.3	-5.3
Using direct deposit for your paycheck can save you money and time.	TRUE	91.3%	88.7%	92.1%	81.6%	-2.7	10.5 *
A bank or credit union with FDIC or NCUA insurance means the money in your account is insured.	TRUE	69.3%	72.0%	77.2%	61.2%	2.7	16.0 **
If you bounce checks, you could be listed in a database that may keep you from opening accounts.	TRUE	74.7%	67.3%	69.3%	63.3%	-7.3	6.0
The best ways to find money to save in your budget is to cut spending or increase income.	TRUE	90.0%	90.0%	92.1%	85.7%	0.0	6.4

Source: Authors' calculations based on data supplied by the Office of Financial Empowerment.

Baseline Responses to Financial Self-Efficacy Questions

	Control Group	Treatment Group			Difference (Percentage Points)	
		All	Study Compliers	Study Non-compliers	All - Control	Study Compliers-Study Non Compliers
Number	150	150	101	49		
Percent Responding Agree or Strongly Agree in Each Group						
Knowledge						
I know how to build assets.	26.9%	33.3%	29.7%	40.8%	6.5	-11.1 *
I understand how credit works.	46.7%	50.0%	49.5%	51.0%	3.3	-1.5
I can read a credit report.	36.7%	46.0%	45.5%	46.9%	9.3	-1.4
I know how to make a budget.	55.3%	66.0%	66.3%	65.3%	10.7 *	1.0
Skills						
I feel confident about managing my money and personal finances.	55.3%	62.7%	64.4%	59.2%	7.3	5.2
I am comfortable making financial decisions.	58.0%	64.7%	63.4%	67.4%	6.7	-4.0
I have the skills to plan for my financial future.	38.7%	42.7%	39.6%	49.0%	4.0	-9.4
I feel I have all the resources I need to succeed with my goals.	29.3%	36.7%	33.7%	42.9%	7.3	-9.2
Concerns						
I worry about being able to pay monthly living expenses once I am on my own.	63.3%	54.0%	52.5%	57.1%	-9.3	-4.7
I feel concern about how much money I will owe after college.	67.3%	56.0%	57.4%	53.1%	-11.3 **	4.4
I am satisfied with the amount of money I am able to save.	29.3%	26.0%	24.8%	28.6%	-3.3	-3.8
Other						
I know where to get help with money matters.	36.0%	39.3%	32.7%	53.1%	3.3	-20.4 **

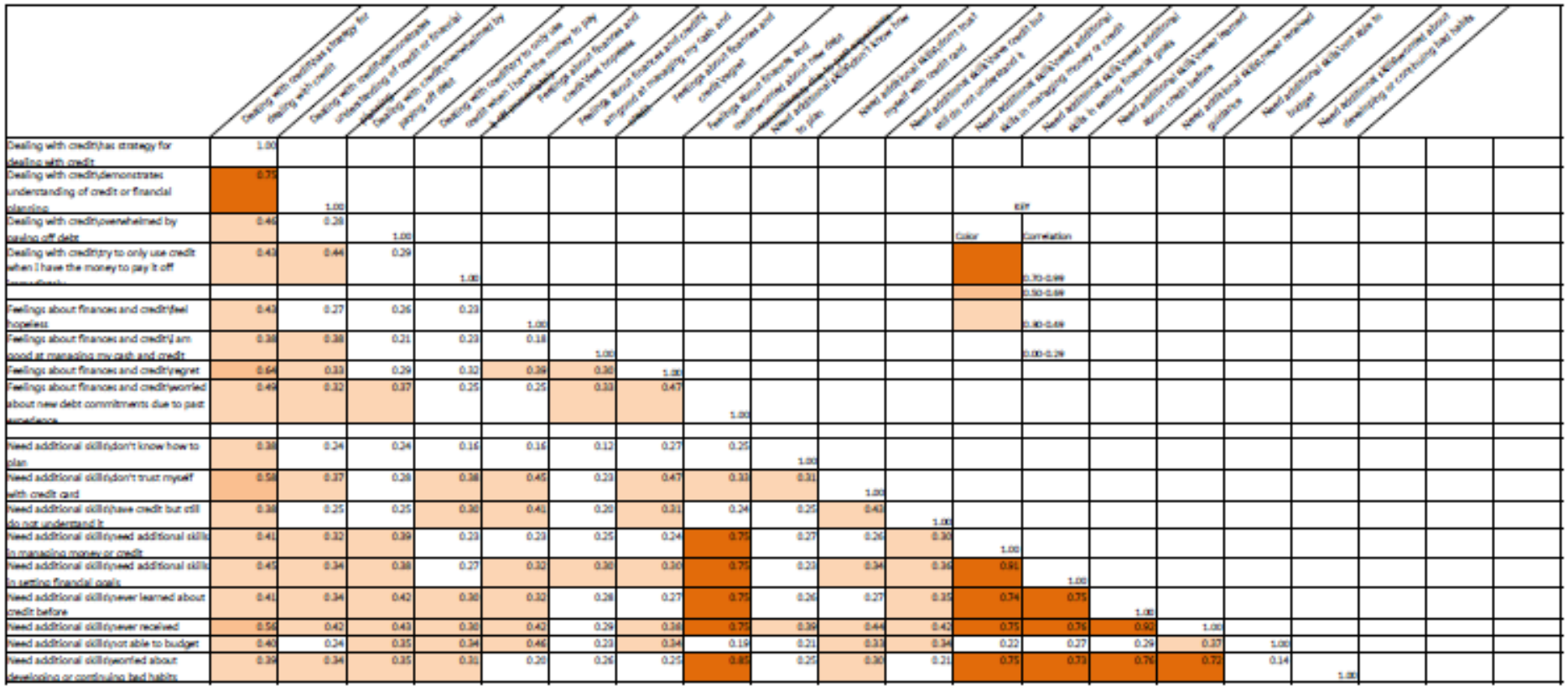
Source: Authors' calculations based on data supplied by the Office of Financial Empowerment.

C. Focus Group Analysis

Both sets of focus groups were transcribed and coded using NVivo software. Using standard methods, we initially coded the responses into major categories of information using open coding. These included obvious categories such as: Financial situation, Credit mistakes, Feelings about using credit, Strategies for using credit, Skills needed, Lack of knowledge, Impact on future plans.

From this initial open coding, we identified several open coding categories to focus on (e.g., "core" phenomenon) and then went back to the data and created categories around these core phenomena consisting of causal conditions (what factors caused the core phenomenon), strategies (actions taken in response to the core phenomenon), contextual and intervening conditions (broad and specific situational factors that influence the strategies), and consequences (outcomes from using the strategies). These categories were further refined and expanded in an iterative process as we conducted additional interviews to arrive at a final coding structure (see below).

Nodes Clustered by Word Similarity



Source: Authors' calculations based on data supplied by the Office of Financial Empowerment and Working Credit.

Table A1. Recruitment from Organizations: Number of Applicants

	Age of Population	Employment/ Program Duration	Regular / Strong Contact?	Number of Applicants	
				Original	Share of Total
	(1)	(2)	(3)	(4)	(5)
Typical Organizations					
BEST Corp Hospitality Training Center	21-28	Year round	Yes	10	3.1%
Boston Housing Authority	26-27	Year round	Yes	5	1.6%
BPHC	23-29	Year round	Yes	6	1.9%
Catholic Charities	24-27	Year round	Yes	5	1.6%
OFE Boston	21-29	Year round	Yes	15	4.7%
ROCA	23-30	Year round	Yes	14	4.4%
YearUp	19-27	Year round	Yes	59	18.6%
Near-Typical Organizations					
Boston Day & Evening Academy	24-27	School year	Yes	2	0.6%
CityYear	19-27	6 months	Yes	18	5.7%
LISC Americorps	23-29	6 months	Yes	6	1.9%
Hyde Park YCD	20-26	6 months	Yes	3	0.9%
Madison Park Housing Development	18-24	School year	Yes	20	6.3%
Not-Typical Organizations					
Boston Cares	22-27	No formal program	No	3	0.9%
Roxbury Community College	18-29	School year	No	60	18.9%
Roxbury YouthWorks	25-28	Year round	No	2	0.6%
Youth Employment & Engagement	19-29	6 months	No	29	9.1%
TOTAL					
Total Number of Applicants				315	100%
Eligible Organizations				114	36%
Near-Eligible Organizations				49	16%
Not-Eligible Organizations				152	48%

Note: Number of applicants = applicants recruited prior to random assignment. Applicants as share of total = Applicants (Treatments + Controls) for a given organization / Total Applicants across all organizations.

Source: Authors' calculations based on data supplied by the Office of Financial Empowerment.

Table A2. Baseline Demographic Characteristics: Compliers v Non-Compliers in the Treatment Group

	Treatment Group			
	Compliers (1)		Non-Compliers (2)	
Number of individuals	101		49	
Type of Organization				
Typical	41.6%	(0.049)	28.6%	(0.065)
Near-Typical	16.8%	(0.037)	12.2%	(0.047)
Atypical**	41.6%	(0.049)	59.2%	(0.071)
Age				
Mean**	24.02	(0.307)	22.86	(0.424)
18-24*	55.4%	(0.050)	71.4%	(0.065)
25-30*	44.6%	(0.050)	28.6%	(0.065)
Gender				
Female	59.4%	(0.049)	57.1%	(0.071)
Race				
African American/Black	46.5%	(0.050)	44.9%	(0.072)
American Indian / Native Alaskan	2.0%	(0.014)	0.0%	0.000
Asian/Hawaiin/Pacific Islander	11.9%	(0.032)	16.3%	(0.053)
Caucasian / White	8.8%	(0.039)	10.2%	(0.044)
Two or more races	10.9%	(0.031)	10.2%	(0.044)
Other	20.8%	(0.041)	18.4%	(0.060)
Ethnicity				
Hispanic	21.8%	(0.041)	30.6%	(0.067)
Veteran status				
Veteran	0.0%	(0.000)	0.0%	(0.000)
Marital status				
Married	5.0%	(0.022)	0.0%	(0.000)
Household size				
Number	2.97	(0.151)	2.82	(0.162)
Number of children				
Has any children**	12.9%	(0.033)	26.5%	(0.064)
Education				
Less than a high school diploma	5.9%	(0.024)	12.2%	(0.047)
High school diploma or GED	23.8%	(0.043)	36.7%	(0.070)
Some college	20.8%	(0.041)	26.5%	(0.064)
Associate's degree	3.0%	(0.017)	4.1%	(0.029)
Bachelor's degree***	38.6%	(0.049)	12.2%	(0.047)
Advanced or professional degree	6.9%	(0.025)	0.0%	0.000
Not reported	0.0%	0.000	8.2%	(0.040)
Employment tenure				
Less than one year**	70.3%	(0.046)	53.1%	(0.072)
One to two years	16.8%	(0.037)	16.3%	(0.053)
Two to five years	9.9%	(0.030)	18.4%	(0.056)
More than five years	1.0%	(0.010)	4.1%	(0.029)
Not reported*	2.0%	(0.014)	8.2%	(0.040)
Health insurance				
Private plan, through employer**	36.6%	(0.048)	14.3%	(0.051)
Medicaid (MassHealth)	41.6%	(0.049)	49.0%	(0.072)
Other	15.8%	(0.037)	26.5%	(0.064)
None	3.0%	(0.017)	8.2%	(0.040)
Not reported	3.0%	(0.017)	2.0%	(0.020)
Homeowner status				
Own	6.9%	(0.025)	4.1%	(0.029)
Household income				
Above $71,991	10.9%	(0.031)	8.2%	(0.040)
Can save $26 per month				
Yes*	97.0%	(0.017)	89.8%	(0.044)

Note: Compliers refer to those that have at least attended a workshop or one-on-one coaching session. Non-compliers have completed neither. ***Significance at the 1% level. **Significance at the 5% level. *Significance at the 10% level.

Source: Authors' calculations based on data supplied by the Office of Financial Empowerment.

Table A3. Baseline Demographic Characteristics: Treatment v Control Group Survey Responders

	Treatment Group		Control Group	
	(1)		(2)	
Number of individuals	96		98	
Type of Organization				
Typical	39.6%	(0.050)	35.7%	(0.049)
Near-Typical	15.6%	(0.037)	17.3%	(0.038)
Atypical	44.8%	(0.051)	46.9%	(0.051)
Age				
Mean	24.29	(0.319)	24.31	(0.260)
18-24	53.1%	(0.051)	51.0%	(0.051)
25-30	46.9%	(0.051)	49.0%	(0.051)
Gender				
Female	64.6%	(0.049)	71.4%	(0.046)
Race				
African American/Black	43.8%	(0.051)	45.9%	(0.051)
American Indian / Native Alaskan	2.1%	(0.015)	1.0%	(0.010)
Asian/Hawaiin/Pacific Islander	9.6%	(0.022)	5.1%	(0.064)
Caucasian / White	21.9%	(0.042)	27.6%	(0.045)
Two or more races	10.9%	(0.043)	13.4%	(0.017)
Other	12.5%	(0.034)	7.1%	(0.026)
Ethnicity				
Hispanic	25.0%	(0.044)	27.6%	(0.045)
Veteran status				
Veteran	0.0%	(0.000)	2.0%	(0.014)
Marital status				
Married	5.2%	(0.023)	6.1%	(0.024)
Household size				
Number	2.93	(0.137)	2.90	(0.155)
Children				
Has any children	14.3%	(0.036)	14.6%	(0.036)
Education				
Less than a high school diploma	1.0%	(0.010)	6.1%	(0.024)
High school diploma or GED	27.1%	(0.046)	13.3%	(0.034)
Some college	19.8%	(0.041)	36.7%	(0.049)
Associate's degree	3.1%	(0.018)	1.0%	(0.010)
Bachelor's degree	41.7%	(0.051)	32.7%	(0.048)
Advanced or professional degree	6.3%	(0.025)	8.2%	(0.028)
Not reported	0.0%	(0.000)	0.0%	(0.000)
Employment tenure				
Less than one year	67.7%	(0.048)	58.2%	(0.050)
One to two years	15.6%	(0.037)	17.3%	(0.038)
Two to five years	13.5%	(0.035)	15.3%	(0.037)
More than five years	1.0%	(0.010)	4.1%	(0.020)
Not reported	2.1%	(0.015)	5.1%	(0.022)
Health insurance				
Private plan, through employer	37.5%	(0.050)	38.8%	(0.049)
Medicaid (MassHealth)	40.6%	(0.050)	27.6%	(0.045)
Other*	15.6%	(0.037)	25.8%	(0.045)
None	3.1%	(0.018)	2.0%	(0.014)
Not reported	3.1%	(0.018)	4.1%	(0.020)
Homeowner status				
Own	3.1%	(0.018)	9.2%	(0.029)
Household income				
Above $71,991	11.5%	(0.033)	12.2%	(0.033)
Can save $26 per month				
Yes	96.9%	(0.018)	98.0%	(0.014)

Note: Standard errors in parentheses.

Source: Authors' calculations based on data supplied by the Office of Financial Empowerment.

Table A4. Estimates of BYCBI Impact on Credit Score at Six Months

	ITT	TOT
	(1)	(2)
Treatment dummy	46.828	76.6
	(20.952)	(22.332)
Credit score at baseline	0.644	0.646
	(0.050)	(0.038)
Age	-1.698	-1.807
	(3.351)	(3.412)
Male	-0.141	-1.110
	(23.341)	(23.086)
Black	-6.920	-4.934
	(30.924)	(28.662)
Hispanic	8.535	9.969
	(28.629)	(24.822)
Married	138.777	132.205
	(59.917)	(48.459)
Children	20.024	26.256
	(35.147)	(29.555)
Household size	-3.698	-4.650
	(8.069)	(7.842)
High school degree	105.937	99.084
	(34.111)	(37.009)
Some college	150.773	141.611
	(38.153)	(37.786)
Associate's degree	122.935	116.475
	(48.559)	(74.058)
Bachelor's degree	201.608	185.019
	-45.479	-45.986
Advanced degree	154.289	133.039
	(49.397)	(63.369)
Tenure with employer less than one year	-7.754	-14.121
	(21.382)	(21.726)
Employer provided healthcare	31.374	25.862
	(24.888)	(28.347)
Houshold income above median ($71,992)	25.049	30.438
	(25.257)	(37.806)
Own home	1.614	-0.727
	(41.755)	(42.309)
Able to save $26	56.362	45.893
	(34.556)	(47.442)
Recruited from "atypical" organization	34.923	31.172
	(22.952)	(21.988)
Constant	-14.287	8.688
	(75.582)	(93.150)
Number of observations	300	300
R-squared	0.686	300

Note: Standard errors in parentheses.

Source: Authors' calculations based on data supplied by the Boston Mayor's Office of Financial Empowerment and Working Credit.