



Northeastern University
*Dukakis Center for Urban
and Regional Policy*

An Evaluation of the **Boston Youth Credit Building Initiative**



Acknowledgments

Any report of this scope and magnitude requires the assistance of a variety of organizations and individuals. We gratefully acknowledge the time and effort put forward by the members of the organizations listed below who provided us with helpful guidance about the population, the recruitment process, and the program itself. We could not have accomplished this work without their insights and knowledge. We also wish to thank the City of Boston for developing this initiative and Working Credit NFP for requesting this research. We hope that this baseline report is a useful addition to the dialogue about the City's effort to help young adults build credit. Any errors in the analysis or conclusions are entirely our own.



Citi, the leading global bank, has approximately 200 million customer accounts and does business in more than 160 countries and jurisdictions. Citi provides consumers, corporations, governments and institutions with a broad range of financial products and services, including consumer banking and credit, corporate and investment banking, securities brokerage, transaction services, and wealth management. Additional information may be found at <http://citicommunitydevelopment.com>



The Mayor's Office of Workforce Development (OWD) is an innovative agency within the Boston Planning & Development Agency that seeks to ensure the full participation of all Boston residents in the city's economic vitality and future. OWD funds and oversees programs that promote workforce development through education, jobs training, apprenticeships, financial coaching, career pathways, literacy initiatives, and the like. Please visit owd.boston.gov to learn more about OWD's work.

Report Team



Northeastern University
*Dukakis Center for Urban
and Regional Policy*

As a “think and do” tank, the Dukakis Center’s collaborative research and problem-solving model applies powerful data analysis, multidisciplinary research and evaluation techniques, and a policy-driven perspective to address a wide range of issues facing cities, towns, and suburbs, with a particular emphasis on the greater Boston region. Northeastern University conducted the evaluation on behalf of Working Credit.

Contributors: Alicia Sasser Modestino, Rachel Sederberg, Liana Tuller



Working Credit is a nonprofit organization that brings credit building services and products to workers in the form of an employee benefit, including its innovative CW-3™ credit building product. Working Credit implemented the Boston Youth Credit Building Initiative by modifying their credit building model to serve OFE’s young adult worker population, many of whom currently participate in government-funded workforce development programs. Northeastern University conducted the evaluation on behalf of Working Credit.

Contributors: Ricki Lowitz, Kristin Schell, Niki Volz



The Office of Financial Empowerment (OFE) works to link Boston residents seeking financial security and wealth generation with access to capital, financial education, and financial services. OFE developed the concept of the Boston Youth Credit Building Initiative, which included a formal evaluation, and engaged Working Credit to implement the program. After Working Credit directed Northeastern University to design the evaluation, OFE recruited study participants. OFE is part of the Office of Workforce Development. OWD and the City of Boston provided a grant of \$110,000 to help fund this project as well as staff time to manage it.

Contributors: Constance Martin, Ying Fan, Meghan Phillips

Executive Summary

Since the Great Recession, federal and state governments have shown renewed interest in improving financial education for low- and middle-income populations. This issue is particularly salient in Boston, where stark wealth disparities exist across racial lines. According to a 2015 report by the Federal Reserve Bank of Boston, the median liquid assets of the City's white residents are approximately 35 times those of African American and Hispanic residents.

In 2016, the Mayor's Office of Financial Empowerment in Boston developed the Boston Youth Credit Building Initiative (BYCBI), a one-year program implemented by Working Credit NFP, to help low- and moderate-income young adults, ages 18-29, establish and/or improve their credit. Credit is a key component of wealth building, as poor or no credit typically results in higher interest rates on loans and can restrict both housing and employment opportunities. Young people can especially benefit from improved credit, because the advantages can compound over a lifetime.

The BYCBI aimed to improve young people's credit outcomes in three ways. First, participants were provided with an introductory, one-hour financial literacy workshop on credit. Second, they were encouraged to sign up for free one-on-one financial coaching, which included an individualized budget and a credit action plan. Finally, if deemed eligible, they were also offered the opportunity to sign up for CW-3™, a credit-building loan and savings product.

The financial coaching piece of the BYCBI makes it a unique subject of study. Existing studies on financial coaching have lacked the necessary experimental design, sample size, or take-up rate (percentage of program enrollees who actually participate) to draw rigorous conclusions. In this report, however, Northeastern University researchers address these gaps in the literature by employing a randomized control study of sufficient scope to detect the impacts of the BYCBI financial coaching model. Furthermore, several of the BYCBI's features—such as the program's duration, intensity, and sole focus on credit building—create ideal conditions for measuring impacts.

The study's sample size consisted of 300 program applicants—150 who were randomly chosen to participate in the program, and 150 who were not chosen and thus served as a control group. All of these applicants were either currently working or enrolled in a workforce development program at the time of the study. Of the 150 program enrollees, 67 percent actively participated.

The researchers gathered quantitative data from pre- and post-program surveys and from individuals' credit reports, which were pulled with their consent at the start of the program, at six months, at 12 months, and at 18 months. Focus groups held at the start and end of the program yielded qualitative information, as well. This wealth of data was used to compare outcomes among three groups: the control group (applicants who were not selected for the program), the treatment group (those who were randomly selected to participate in the program), and compliers (treatment group members who actively participated). The study also examined how different demographic groups were affected by the BYCBI, how these effects varied over time, and which factors played a contributing role.

The analysis of credit data shows that:

BYCBI participants were more likely to gain access to credit.

- Within the first six months of the program, the share of individuals in the treatment group with no credit score had fallen by 11 percentage points compared to a decline of only 4 percentage points for the control group.
- Consequently, at the six-month mark, 29 percent of the control group had no score compared to 25 percent of the treatment group and only 19 percent of the compliers. These effects persisted among the compliers through the end of the 18-month mark.
- Most of the relative improvement among the treatment group in obtaining access to credit was due to a greater share of credit “invisibles”—those who had no record at all before the start of the program—gaining access to credit for the first time.

BYCBI participants improved their credit scores.

- By the end of the 18-month observation window, the average credit score among individuals with a credit file prior to the start of the program was 26 points higher for the treatment group relative to the control group, raising the likelihood of achieving a “good” credit rating by 8 percentage points.
- These effects were even larger among those who complied with the program. The average credit score of compliers was 37 points higher than that of the control group, such that compliers were 13 percentage points more likely to have a “good” credit rating compared to the control group.
- Moreover, the improvement in credit scores was largely driven by those with thin credit files, the “unscorable,” getting into the game.

Younger participants (18-24) and African-Americans showed the greatest impacts.

- Among both groups separately, the program expanded access and significantly decreased the share of individuals with no credit score for both compliers and the treatment group as a whole.
- In addition, significant improvements in credit scores were observed among the younger participants, with the program improving their scores by 30.5 points.

BYCBI participants experienced significant changes in the underlying factors that typically affect one’s credit score.

- Among the treatment group, changed factors included having no lines of credit currently delinquent, no current outstanding negatives (collections), and a history of sustained on-time payments.
- Among the compliers, positive impacts were also found for having a mix of revolving and installment lines of credit and having no history of 30-day delinquency.

The BYCBI had meaningful impacts on individuals beyond improving their credit scores.

- By the end of the program, individuals in the treatment group had interest rates on car loans that were 3.5 percentage points less than those in the control group. For compliers, the gap was even greater—6.8 percentage points.
- Compliers were also able to significantly increase their available credit by \$2,881 on average compared to the control group.

The self-reported survey data give a more detailed glimpse into the workings of the BYCBI on enrollees. These survey results show that the treatment group increased their financial literacy, reduced their use of alternative financial services, and gained greater financial self-efficacy.

Improvements in self-efficacy—the belief in one’s ability to achieve specific goals—were found to drive both the change in financial behaviors and the improvement in credit scores. The focus group discussions further confirmed its significance, suggesting that this may be a key ingredient for financial education programs.

Policymakers can draw on these findings to design financial interventions that make optimal use of limited resources to target populations most in need. Even the study’s baseline data on applicants provide valuable insight. For example, the non-compliers in the study were twice as likely as compliers to have children, suggesting that childcare issues and scheduling constraints can pose a barrier to services.

And while the BYCBI represents a multi-faceted approach to credit building, the study’s baseline data suggest that even light-touch interventions can make a difference. For example, at the start of the program, individuals in both the treatment and control groups answered approximately 75 percent of financial literacy test questions correctly, indicating deficits in financial knowledge that can be improved. Furthermore, a third of individuals began the study with no credit at all, underscoring the need for successful programs to help young people establish credit early in life.

These findings are encouraging and offer important insights for cities and states seeking effective ways to incorporate financial education into youth workforce development programs to comply with the new Workforce Innovation and Opportunity Act (WIOA) requirements.

Contents

01	Introduction: The Importance of Building Credit
03	What Do We Already Know about Financial Education Programs?
05	Description of the Boston Youth Credit Building Initiative
07	Data Collection
07	Administrative Credit Report Data
08	Self-Reported Survey Data
08	Focus Group Data
09	Evaluation Design
09	Experimental Design: Recruitment and Random Assignment
14	Empirical Analysis
16	Program Impacts
16	Assessing Credit Report Outcomes Using Administrative Data
27	Assessing Financial Capability Outcomes from Survey Data
32	Gathering Additional Insights from Focus Group Discussions
34	Discussion and Lessons Learned from the BYCBI
34	Benchmarking and Interpreting the BYCBI Results
35	Cost Comparisons
35	Validity of BYCBI Effect Estimates
37	Conclusion
39	References
43	Appendix

Introduction: The Importance of Building Credit

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 \$44 million per year on financial education (Consumer Financial Protection Bureau, 2017).¹ Moreover, special emphasis has been placed on developing financial skills among youth, with the number of states requiring a personal financial education course in high school increasing from 7 to 17 over the past decade (Council for Economic Education, 2016). Financial literacy is now a required element for youth workforce development programs under the 2014 Workforce Innovation and Opportunity Act (WIOA).²

The importance of building credit is a key component of financial education, particularly in addressing the wealth inequality gap. Roughly 37 percent of U.S. households do not have enough liquid savings to cover basic expenses for three months if they experienced a sudden loss of stable income, such as a job loss or a medical emergency—and that figure is even higher for Latinos (61 percent) and African-Americans (57 percent) (Prosperity Now, 2014). In Boston, whites typically have median liquid assets of \$25,000 compared to only \$670 for African-Americans, and \$700 for Other Hispanics (Munoz, et al., 2015). Access to mainstream loan and credit products can provide financial stability during economic setbacks, as well as opportunities to build future wealth. Yet according to the CFPB, 45 percent of all U.S. adults in low-income neighborhoods have no credit score (Brevoort, Grimm, & Kambara, 2015).

The consequences of not having good credit are real and immediate. For example, when making a purchase, individuals with poor credit scores or no credit scores typically pay higher interest rates on loans. When borrowing in times of need, they have little choice but to borrow from high-priced payday

lenders. When setting up a household, they can be denied apartments in better buildings or required to provide deposits of several hundred dollars to set up utilities. When searching for jobs, they can be denied employment if the employer chooses to use a credit check when hiring (Traub, 2014).

Although anyone with access to mainstream credit and loan products can build a track record of good credit, individuals with no credit score—or poor credit scores—have few opportunities to do so. Individuals with no credit scores, such as young adults, are often required to have a co-signer—a formidable barrier for low-income individuals living in communities where few people have a good credit rating. Individuals with poor credit scores may qualify for a secured credit card, but this typically requires a cash collateral deposit of several hundred dollars, which becomes the credit line for that account. Moreover, building a good credit score also requires adhering to several important rules of thumb beyond simply paying on time or even paying off the balance each month. These rules, while simple, can be unintuitive and are not typically included in financial education curricula.

¹ CFPB. 2017. CFO update for the fourth quarter of fiscal year 2017.

https://s3.amazonaws.com/files.consumerfinance.gov/f/documents/201712_cfpb_CFO-Update-FY2017Q4.pdf

² For the WIOA Youth Title I program, financial literacy education is one of the fourteen program elements that are required to be made available in the local area. Financial literacy education must be made available to WIOA Title I youth participants, but not every participant is required to receive financial literacy education, as individual participants receive services based on their needs as identified in their assessment and individual service strategy.

In response, policymakers have increasingly turned to financial coaching programs 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, & Gorey, 2007). Compared to other financial education programs, financial coaching is an ongoing process that involves setting goals, establishing a concrete plan of action, and monitoring individual progress—with the goal of establishing good financial habits that lead to better long-term outcomes (Collins & O'Rourke, 2012). The key component of financial coaching is that participants receive information relevant to their situation at a time when they can apply it directly by changing their behavior—all while receiving ongoing feedback and further guidance from a trained coach (Fernandes, Lynch, & Netemeyer, 2014).

The Boston Youth Credit Building Initiative (BYCBI), developed by Mayor Martin J. Walsh's Office of Financial Empowerment (OFE) and implemented by Working Credit NFP, extends the financial coaching model to low- and moderate-income young adults, age 18-29, of which over one-third live at or below 200 percent of the poverty line. The goal of the program is to help individuals build strong credit scores; it includes a financial workshop, one-on-one coaching, and the opportunity to enroll in a secured loan and savings product. Funded by the Office of Financial Empowerment and Citi Community Development, the BYCBI builds directly on the City of Boston's collaborative efforts to develop strategies and programming to create individual, family, and community wealth building. OFE contracted with Working Credit NFP to provide the core of the credit building program.

To our knowledge the BYCBI is one of the first to implement such a program for young adults across a variety of contexts, including workforce development programs, and to evaluate the outcomes in a rigorous manner. As a result, Working Credit requested that Northeastern University produce research on the credit building program. Using a randomized control treatment design, Northeastern University evaluated the program by comparing the outcomes of individuals who were randomly chosen to participate in the program to the outcomes of a control group that applied to the program but were not selected to participate. Using linked individual-level data from administrative credit reports, survey responses, and focus group discussions, the evaluation assessed improvements in credit scores and ratings, as well as improvements in financial literacy, self-efficacy, and financial behaviors.

This report provides Northeastern University's final assessment of the key outcomes that were observed for both the treatment and control groups during the program, as well as six months after the program ended. Separate comparisons are shown for those in the treatment group who actively participated in the program ("study compliers"). The results show that the BYCBI improves access to credit, with participants being 10 percentage points more likely than the control group to have a credit score. By the end of the program, the average credit score of those in the treatment group who initially had a credit file was 26 points higher than that of the control group, raising the likelihood of achieving a "good" credit rating by 8 percentage points. These impacts were even larger among younger and African-American participants. Moreover, the program also had meaningful impacts that are of interest to policy makers hoping to improve the financial well-being of low- and moderate-income groups, such as reducing the interest rate paid on car loans by 3.6 percentage points for the treatment group compared to that of the control group.

The BYCBI also offers several policy-relevant lessons for future program design. First, the analysis shows that the program has greater impacts on younger participants and African-Americans, suggesting how cities with limited resources may want to target these programs. Second, much of the impact of the program appears to have been driven by improvements in financial self-efficacy, which may have been the missing ingredient in prior financial

education programs. Finally, the path toward better credit evolved over time and across different dimensions—even after the program ended—suggesting that the program affected participants’ behavior beyond the short-term. We hope that these lessons will be helpful to states and localities that seek to incorporate financial education into youth workforce development programs as part of the new WIOA requirements.

What Do We Already Know about Financial Education Programs?

While the general consensus is that financial education should have a positive effect, the findings from prior studies have been mixed—particularly for programs aimed at youth—making their cost-effectiveness uncertain at best (Lyons et al., 2006; McCormick, 2009; Hastings, Madrian, & Skimmyhorn, 2013; Brown et al., 2016; Walstad et al., 2017). For example, while some studies find that *financial literacy* can lead to positive knowledge, attitude, and behavior change (Boyce & Danes, 1998; Danes, 2005; Varcoe et al., 2005), others show no significant differences between the treatment and comparison groups (Gartner & Todd, 2005). Other studies have demonstrated that financial education in high school has a positive effect on financial knowledge and behavior among youth, as well as improved outcomes later in life (Bernheim, Garrett, & Maki, 2001; Danes, 2005; Varcoe et al., 2005). Yet others have shown that these programs do not have a significant effect on improving financial knowledge scores of high school students in the United States (Mandell, 2005)—which may be the result of having been introduced during periods of high economic growth (Cole, Paulson, & Shastry, 2016)—and that the costs likely outweigh the benefits (Willis, 2011).

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 have to repair credit or manage excessive debt later on in life (Dwyer, McCloud, & Hodson, 2011). Even better outcomes can possi-

bly 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.

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 & 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 treatment groups have made it difficult to generate conclusive evidence on the full range of impacts or to assess heterogeneity of outcomes among subgroups. The take-up rate is the percent of individuals in the treatment group who participate in the program when it is offered. 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 Ibarra, McKenzie, & 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, exhibited take-up rates of one-third to one-half. This study 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 report 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/credit building program. We use rich administrative data from individual credit reports to assess a variety of outcomes at six-month intervals, exploring 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.

Description of 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 four months prior to the start of the program, targeting low-income young adults, age 18-28, who were currently working or were in a transitional job through a government-funded 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 on Twitter. The goal of the program was to help individuals in this age group build strong credit scores by increasing their knowledge of credit building, supplying those who qualify with a combined credit building and saving product, 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 with make-up sessions held at OFE offices. The content focused on the information contained in a credit report, the way the credit reporting system works, the consequences of having no or poor credit, and methods for using different financial products to improve one's credit score. Workshop facilitators taught participants not only to make payments on time, but also to follow other specific rules of thumb, such as keeping one to three 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 coach, 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 coach also assessed the participant's eligibility for the CW-3™ product. If eligible, the coach 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 coach continued to support participants with credit coaching following the first appointment. At a minimum, the coach 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™ credit-building product. The CW-3™ product is a credit-building loan and savings product 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 a locked savings account until the loan is paid off. The individual makes 12 monthly payments of \$26 that are 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 an improved credit score, as well as \$300 in savings that can be used to pay down debt or to obtain a secured credit card and

continue the credit building process. 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. (The CW-3™ product was provided by Justine PETERSEN, a Community Development Financial Institution based in St. Louis, Missouri.) To be eligible to enroll in the CW-3™ product, the coach must confirm that (1) the individual has a budget that shows they can afford to save \$26 per month and (2) enrolling in the product would be the best way to increase the individual’s credit score versus other courses of action, such as paying down debt.

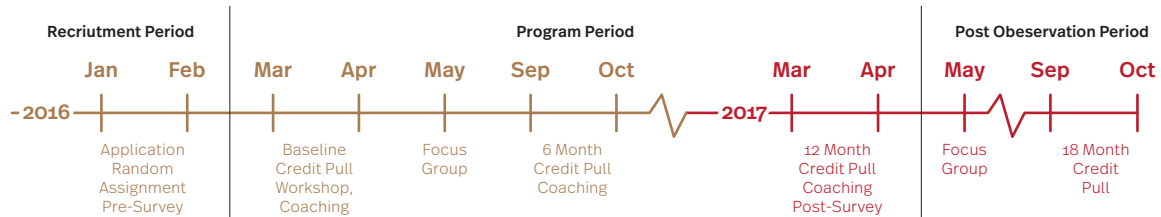
In this report we test whether a one-hour workshop and several coaching sessions are sufficient to help low-income young adults increase their credit scores. On the one hand, the intervention might be considered somewhat low-touch given the complexity of financial products and the magnitude of the financial decisions that this population faces, such as taking out a stu-

dent 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 18-28 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 Collection

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 below for a timeline showing the program's implementation and data collection.

Figure 1: Program Timeline



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 six and twelve months after the start of the program. This schedule was designed 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 eighteen 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 we do not capture the use of alternative financial services, such as check cashers, payday lenders, pawn shops, 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, the 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.³

³A history of sustained on-time payments is defined as evidence of 12 consecutive non-delinquent payments on a single account over the entire credit history. A history of any loan delinquencies is defined as having any accounts (open or closed) that were ever delinquent.

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 given 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 individuals' financial situations, as well as their financial habits, literacy, and self-efficacy. 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 to 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 is defined as one's belief in one's ability to succeed in specif-

ic situations or accomplish a task. We assessed self-efficacy using a measure based on questions about confidence in one's knowledge and skills, as well as about satisfaction with one's ability to save and manage debt.⁴ To compare impacts across our constructed measures of financial habits, literacy, and self-efficacy, we constructed standardized scores based on the responses to the underlying questions.⁵

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 was held in May 2016, shortly after the treatment group had participated in the workshop and the initial one-on-one coaching had been 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 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 focus group was composed solely of treatment group or control group members. The five to seven young adults in each focus group were selected at random from their respective groups. Individuals were offered a modest financial incentive (a \$50 gift card) to compensate them for their time. Focus group participants were fairly

⁴ Although there are several widely accepted psychological measures of general self-efficacy, no reliable and valid measure specific to financial behavior exists (Tokunaga, 1993; Engelberg, 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.

⁵ See the data appendix for a full listing of questions and responses for each underlying component.

representative of the full cohort in terms of observable characteristics, such as age, gender, race, and type of organization from which they were recruited. A comparison of their credit histories and baseline survey responses showed 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.

Evaluation Design

To evaluate the impact of the BYCBI, we compared the outcomes of randomly selected individuals in the treatment group to those of 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 employees within a firm as an employee benefit where participants have both a steady income for the duration of the program, as well as regular and strong attachment to their employer. These conditions help ensure a high take-up rate. However, such firms serve people of all ages and backgrounds, as opposed to 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 were 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, 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.⁶ Individuals also were required to provide written authorization to perform the baseline credit check as well as 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 was assigned to receive the financial workshop and the one-on-one coaching. They were also offered the CW-3™ product if it was deemed appropriate given their current financial situation and credit history (a total of 19 participants were enrolled in the CW-3™ product).
- **Control Group:** This group of 150 individuals received no intervention at all.

We also stratified our random assignment of individuals across the treatment and control groups by age (18-24 versus 25-28), race (African-American versus non-African-American), and gender (male versus female) to test for differences in treatment effects, which have been shown to be important (Kaiser & 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 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, & Kambara, 2015). Finally, a gender gap in financial literacy has been treated as a stylized fact in the literature (Lusardi & 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™ 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.”⁷

In terms of baseline pre-program measures of outcomes, the administrative data show no significant differences based on the credit report data, as would be expected before the start of

⁶ 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).

⁷ 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.

Table 1 | Baseline Demographic Characteristics: Treatment vs. Control Group

	Treatment Group (1)		Control Group (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/Hawaiian/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 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. *indicates statistical significance at the 10 percent level.

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

Table 2 | Baseline Outcome Measures: Treatment vs. Control Group

	Treatment Group (1) 150		Control Group (2) 150	
Number of Individuals				
Administrative Credit Report Measures				
Access to Credit (Full sample N=300)				
No credit score	32.7%	(0.038)	36.7%	(0.039)
No credit score, no credit file	23.3%	(0.035)	26.0%	(0.036)
No credit score, thin credit file	9.3%	(0.024)	10.7%	(0.025)
Credit Score (mean), excluding those with no credit file				
All individuals with credit score (N=196)	666.03	(8.227)	661.2	(8.689)
All individuals with credit file (N=226)	654.04	(7.338)	651.2	(7.623)
Credit Rating (all individuals with credit file N=226)				
Poor: credit score (300-600)	18.3%	(0.036)	22.5%	(0.040)
Fair: credit score (601-660)	20.9%	(0.038)	23.4%	(0.040)
Good: credit score (661-780)	53.9%	(0.047)	50.5%	(0.048)
Excellent: credit score (781+)	7.0%	(0.024)	3.6%	(0.018)
Factors Affecting Credit Score (all individuals with credit file N=226)				
At least one open line of credit but no more than three	28.3%	(0.046)	28.8%	(0.043)
Has a mix of revolving and installment lines of credit	33.9%	(0.044)	30.6%	(0.044)
Utilization ratio under 30 percent	68.7%	(0.043)	64.9%	(0.046)
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)	96.5%	(0.017)	93.7%	(0.023)
No current outstanding negatives (collections, chargeoffs, judgments)	62.6%	(0.045)	64.9%	(0.046)
Has a car loan	11.3%	(0.030)	10.8%	(0.030)
Interest rate on car loan (for those with a car loan)	10.5%	(0.021)	9.0%	(0.022)
Has a student loan	54.8%	(0.047)	54.1%	(0.048)
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 delinquency	53.0%	(0.047)	46.8%	(0.048)
History of sustained on-time payments	62.6%	(0.045)	63.1%	(0.046)
Self-Reported Survey Measures (Full sample N=300)				
Financial Situation				
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 past year or in danger of repossession	10.7%	(0.025)	8.0%	(0.022)
Car been repossessed in past year or in danger of repossession	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 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 (standardized to 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 (standardized to a scale of 0 to 1)				
Confidence in financial knowledge	0.59	(0.012)	0.61	(0.010)
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. *indicates statistical significance at the 10 percent level.

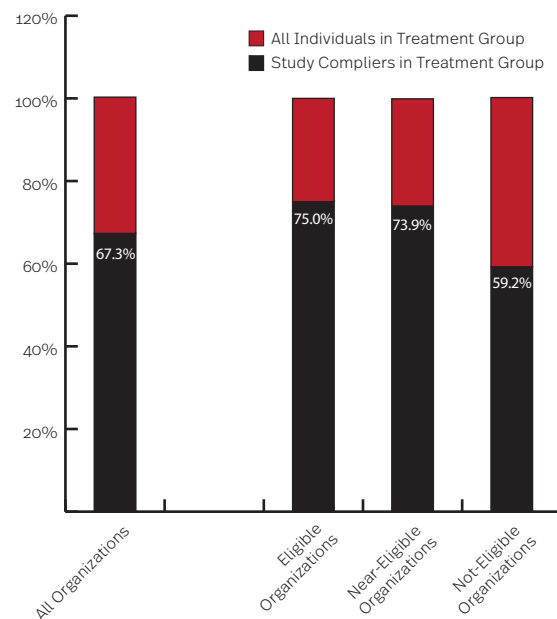
Source: Authors' calculations based on data supplied by the Office of Financial Empowerment and Working Credit.

the program based on random assignment (see the top panel of Table 2). About one-third of both the treatment and control groups had no credit score, the majority of whom (70 percent) fell into the category of “credit invisibles”—a term used by the CFPB to describe individuals without any credit record. The remaining individuals with no credit score are what the CFPB considers to be “unscorable,” meaning that they have a credit record, but it is a “thin” file that contains insufficient credit history to generate a score. Among those individuals with a credit score before the start of the program, the average score was roughly 660 with no significant difference between the treatment and control groups. We also follow industry guidelines (VantageScore, 2016) to use the data contained in the “thin” file to predict a score for the unscorable, which yields a slightly lower average score of about 650—again with no significant difference between the treatment and control groups. This method allows us to categorize most of the individuals in the sample (N=226) across credit ratings before the start of the program, with the majority of individuals falling into the “Fair” to “Good” range. There were also no significant differences among any of the other factors listed on the credit report that would be expected to affect one’s credit score.⁸ About 40 percent of the individuals in our sample had a student loan. Among those with a student loan, the average balance was \$28,000, confirming that young adults do indeed make important financial decisions at this point in their lives.

There were also no significant differences before the start of the program in terms of the self-reported survey data. Individuals in both the treatment and control groups reported similar financial situations in terms of having to pay a deposit to a cell phone or utility company and having their wages garnished, their utilities disconnected, or

their car repossessed. Similar percentages of both groups had experienced eviction and foreclosure, been contacted by a collection agency, or had been in bankruptcy. There were also no significant differences in terms of financial habits, with about half of both the treatment and control groups having used mainstream financial services (e.g., banking, credit cards, loans) and about 15 percent of each group having engaged in alternative financial services (e.g., using a pay-day lender, pawn shop, check-cashing service). Both groups got about 75 percent of the questions right on our test of financial literacy. There was also no difference in terms of our overall measure of self-efficacy nor in most of the underlying components, with the exception that those in the treatment group were slightly less concerned about their personal financial situations than those in the control group.

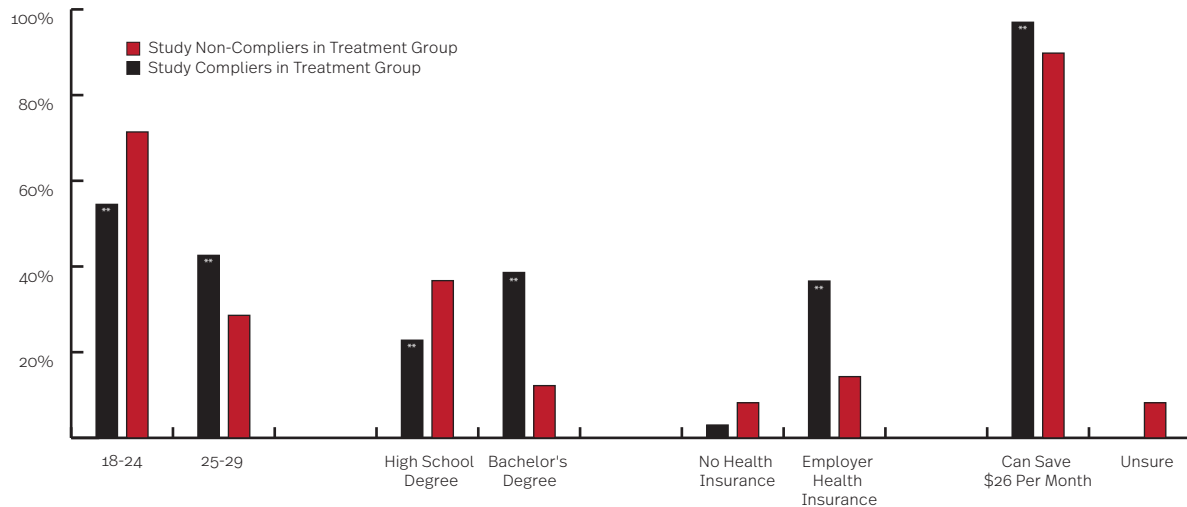
Figure 2 | Compliance Rate among Treatment Group by Type of Organization



Source: Authors’ calculations based on data supplied by the Office of Financial Empowerment during OFE’s recruitment efforts, which occurred prior to the start of Working Credit’s credit building program.

⁸ 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.

Figure 3 | Comparison of Compliers vs. Non-Compliers: Selected Demographic Characteristics



Note: **indicates statistically significant at the 5 percent level.

Source: Authors' calculations based on data supplied by the Office of Financial Empowerment during OFE's recruitment efforts, which occurred prior to the start of Working Credit's credit building program.

Despite having applied for the program, about one-third of the individuals assigned to the treatment group did not attend a workshop or a one-on-one coaching session. We call these individuals “study non-compliers” because despite applying and being accepted and assigned to a group to receive the workshop, 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). Not surprisingly, non-compliers in our study were more likely to have been recruited from an atypical organization that lacked strong, regular contact with participants (see Figure 2).

As one can imagine, it is typically lower-income and underserved populations that have “second thoughts” after applying (Rothwell & 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 Figure 3). Despite

having longer tenure with their employers, they also were less likely to have employer-provided health insurance and less likely to indicate that they would be able to save \$26 per month. In addition, non-compliers were twice as likely to have children, suggesting that perhaps scheduling constraints made it difficult to attend the workshop sessions, despite the availability of make-up sessions (see Table A2). Other studies have found that participants with more favorable financial situations and fewer family obligations were more likely to take up financial coaching services (Theodos et al., 2015).

Empirical Analysis

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 those who ultimately choose to participate. 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):

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

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_{it} is a stochastic error term. Nonetheless, because not all individuals who were offered the program ended up participating, the ITT will understate the effects of actually participating in the program for those individuals who chose to participate. Therefore, we also provide estimates of treatment-on-the-treated (TOT), which indicates the program's impact independent of the take-up rate.⁹

Finally, we explore the program's mechanisms by relating the credit report outcomes to the behavioral outcomes measured by our pre- and post-program surveys. 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 and enhanced financial self-efficacy (Collins & O'Rourke, 2012). 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-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.¹⁰

⁹ We perform this estimation through a two-stage least squares strategy, in which random assignment ($TREAT_i$) is an instrument for actual participation. Given that treatment effects are likely to vary across young adults, the TOT estimates a local average treatment effect—the effect of participation on those who comply with random assignment. See the appendix for further details on the empirical analysis.

¹⁰ 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 to 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 baseline outcome measures to minimize the bias. See the appendix for further details on the mediator analysis.

Program Impacts

We assess program impacts using both credit report and survey data in two ways. First, we compare outcomes for the entire treatment group relative to the control group, regardless of whether or not individuals in the treatment group actually participated (e.g., complied) with the program. We also report comparisons for the study compliers in the treatment group relative to the control group which provides an estimate of the program's impact independent of the take-up rate.

Assessing Credit Report Outcomes Using Administrative Data

In terms of access to credit, although there were no significant differences in the share of individuals with a credit score between the two groups at baseline before the program started, the treatment group showed significant improvements relative to the control group, largely driven by the compliers. Within the first six months, the share of individuals in the treatment group with no credit score had fallen by 11 percentage points compared to a decline of only 4 percentage points for the control group. This resulted in a significant difference between the two groups at the six-month mark with 29 percent of the control group having no score compared to 25 percent of the treatment group and only 19 percent of the compliers (See Panel A of Figure 4). Most of the relative improvement among the treatment group was due to a greater share of credit invisibles, who had no record at all before the start of the program, gaining access to credit. Among those individuals who did gain access to credit within the first six months, the initial credit scores were higher among the treatment and complier groups and remained above those of the control group over the next twelve months (see Panel B of Figure 4), although we cannot say that these differences are statistically significant due to the small sample size (N=74).

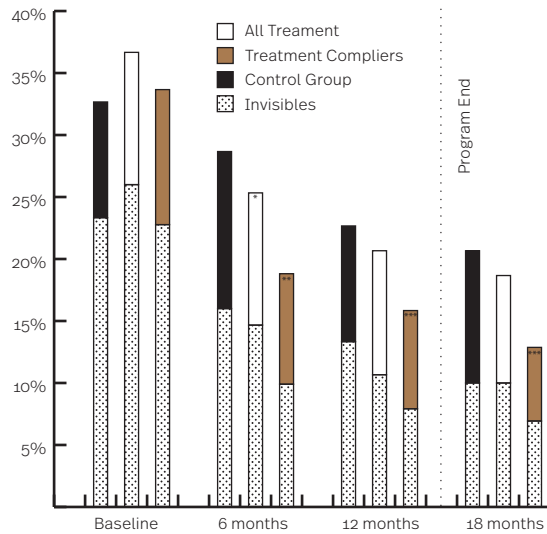
In terms of building credit, the treatment group showed significant improvements relative to the control group—again largely driven by the compliers. Figure 5 shows a simple comparison of mean credit scores at six-month intervals for the control group versus the treatment group, as well as a separate line for treatment compliers. Panel A shows that for the sample of individuals with a credit file (N=226), the mean credit score for the treatment group increased significantly by 18 points during the first six months of the program, largely led by a rapid improvement of 22 points among the treatment compliers. The compliers continued to show significant improvements through the six months after the program ended, resulting in a mean score of 687 by the 18-month mark. These gains were large enough to raise the mean score of the entire treatment group by 20 points relative to the control group, suggesting that the program effects are large enough to show improvements among the population of young low-income adults whom we intended to treat. Based on the trajectory of score improvements over time, it appears that the impact of the program is greatest during the first six months when participants receive the information from the workshop, as well as their first coaching session to establish an individualized plan.

Moreover, the improvement in credit scores is largely driven by those with thin credit files (the unscorable) getting back into the game. When we limit the sample to just those individuals with a credit score before the start of the program, the gains are much smaller and relative improvements are detected only among those who complied with the program (see Panel B of Figure 5). However, the mean credit score of compliers in the treatment group eventually outpaced the control group by 25 points at the 18-month mark. 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. It may also simply reflect the incremental nature of the improvements that accumulate over time.

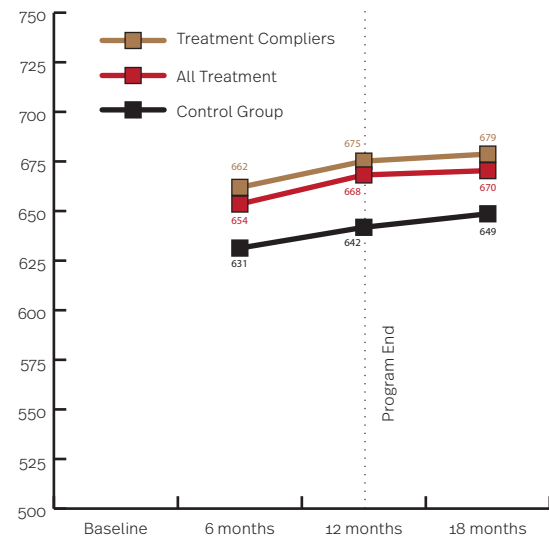
Are the improvements in credit scores among the treatment group large enough to boost their credit ratings? Figure 6 shows the share of individuals falling into each credit rating category over time (poor credit through excellent credit), for the control group versus the treatment group, as well as for pro-

Figure 4 | Change in Access to Credit Over Time: Comparison of Treatment and Control Groups

A. Percent with No Credit Score



B. Mean Credit Score for Individuals Gaining Access to Credit at Six Months

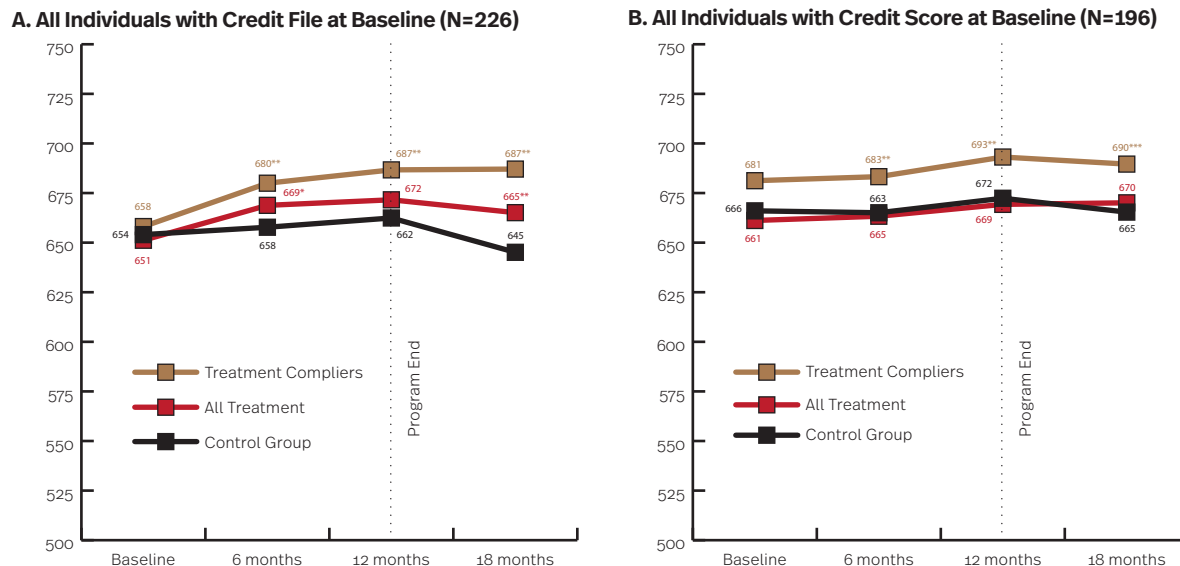


Note: Unadjusted means are reported for each group. Significance relative to the control group indicated at the 1 percent level***, 5 percent level**, and 10 percent level* respectively.

Source: Authors' calculations based on data supplied by Working Credit.

gram compliers. While at baseline there were no significant differences in the distribution of credit ratings across the treatment and control groups, sizeable improvements were observed among the treatment group during the first six months of the program. These improvements largely persisted through the 18-month mark. During the first six months of the program, the compliers were 4.7 percentage points less likely than the control group to have poor credit and 10.3 percentage points more likely to have good credit. Although those in the control group also advanced their credit ratings over time, by the 18-month mark 57.4 percent of the treatment group had a “good” credit rating compared to only 51.3 percent of the control group.

Figure 5 | Change in Credit Scores Over Time: Comparison of Treatment and Control Groups



Note: Unadjusted means are reported for each group. Significance relative to the control group indicated at the 1 percent level***, 5 percent level**, and 10 percent level* respectively.

Source: Authors' calculations based on data supplied by Working Credit.

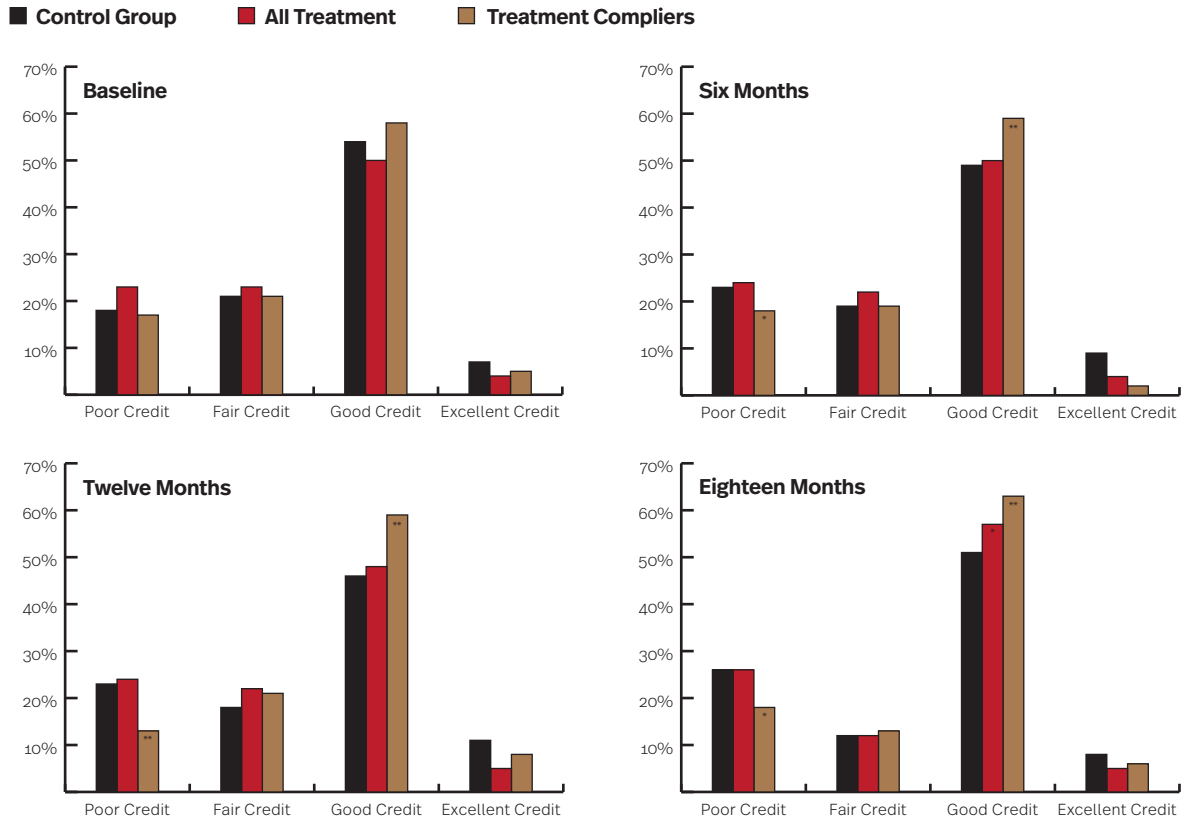
The observed improvements in credit scores and ratings over time for the treatment group are positively correlated with changes in the underlying factors that were discussed during the one-hour workshop and one-on-one coaching sessions. For example, Figure 7 indicates significant improvements over time in credit use among the treatment group versus the control group, such as using a mix of both installment and revolving credit and not having any delinquent lines of credit or any outstanding negatives—items that typically decrease an individual’s credit score by 30 to 100 points. However, improvements in maintaining one to three open lines of credit as well as a credit utilization ratio of less than 30 percent appear to have been temporary. Over time, though, treatment compliers were able to significantly increase their available credit by \$2,881 on average compared to the control group.

Similarly, Figure 8 shows improvements in loan use over time that are also positively correlated with higher credit scores. For example, by the 18-month mark, the compliers were 10 percent-

age points less likely to have a history of 30-day delinquency compared to the control group. Compliers were also more likely to have a history of making sustained on-time payments relative to the control group. Similarly, both the compliers and the overall treatment group were significantly more likely than the control group to have a history of sustained on-time payments. However, no significant differences were observed in whether individuals had a car loan or a student loan, nor were there significant differences in the amount of the student loan.

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. Figure 8 indicates that 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 18-month mark. Compliers in the treatment group had even more favorable rates than the

Figure 6 | Credit Report Ratings: Comparison of Treatment versus Control Group



Note: Significance relative to the control group indicated at the 1 percent level***, 5 percent level**, and 10 percent level* respectively.

Source: Authors' calculations based on data supplied by Working Credit.

control group, resulting in a 6.4 percentage point (67 percent) 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.

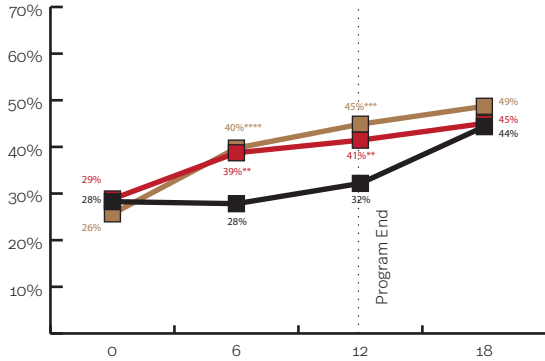
Controlling for baseline measures of outcomes and demographic characteristics using a regression framework largely confirms the descriptive results presented above. By the 18-month mark, the percentage of individuals having no credit score fell by 10 percentage points among the compliers relative to the control group (see Table 3). Moreover, the program's impact was not limited to individuals obtaining credit but also extended to improving their scores. Credit scores were 26.4 points higher among the treatment group than the control group and 37.6 points higher among the compliers versus the control group.¹¹ These relative improvements in credit scores translated into higher credit ratings with

¹¹ See Table A4 for a full listing of coefficients for all variables in the regression.

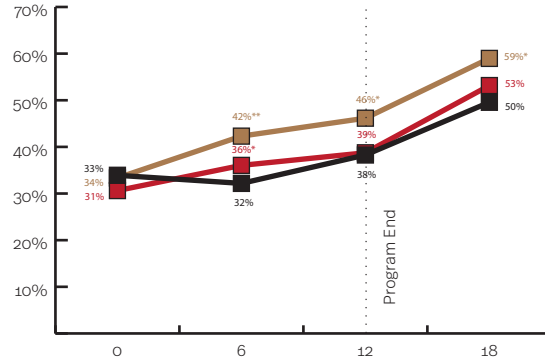
Figure 7 | Credit Use: Comparison of Treatment versus Control Groups over Time

■ Control Group ■ All Treatment ■ Treatment Compliers

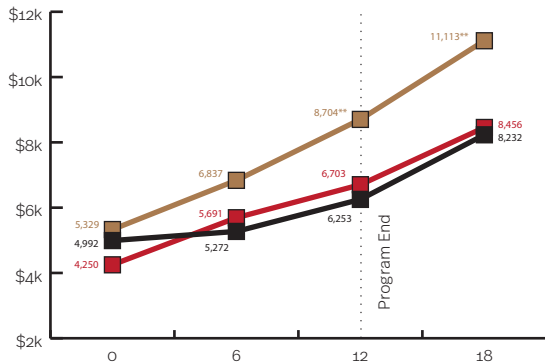
One to Three Open Lines of Credit



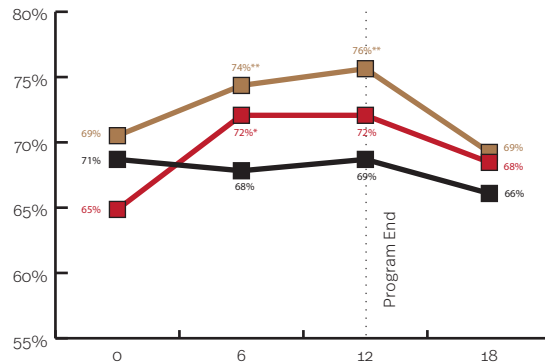
Has a Mix of Types of Credit



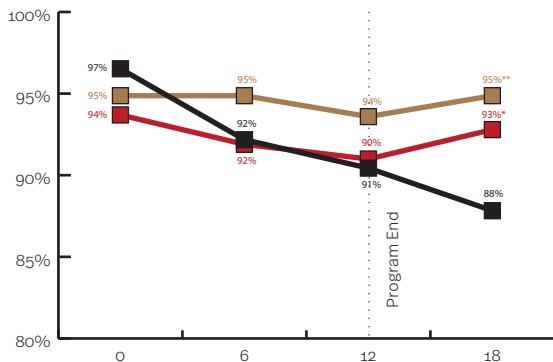
Available Credit



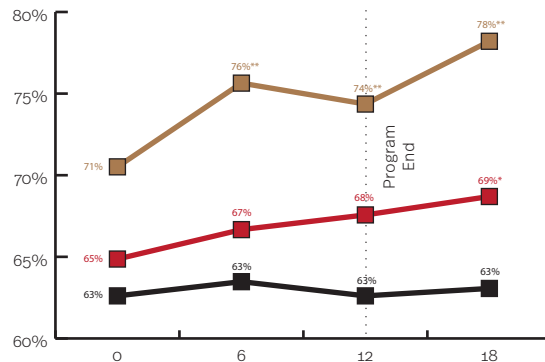
Utilization Ratio Under 30%



No Open Lines of Credit Delinquent



No Outstanding Negatives

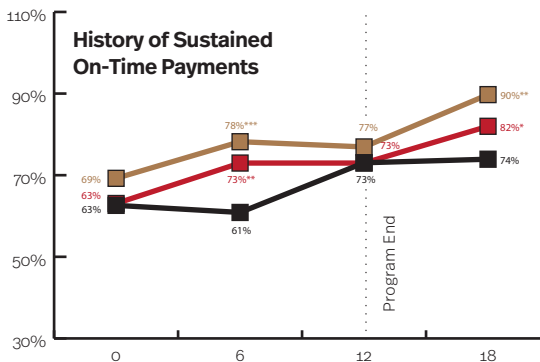
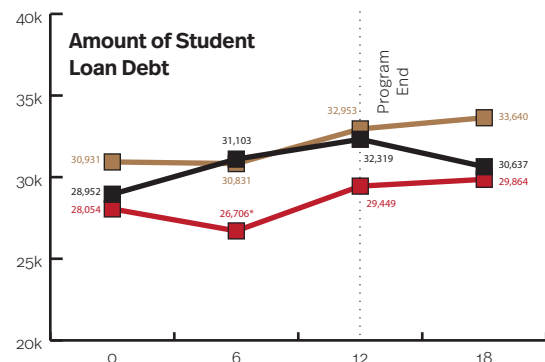
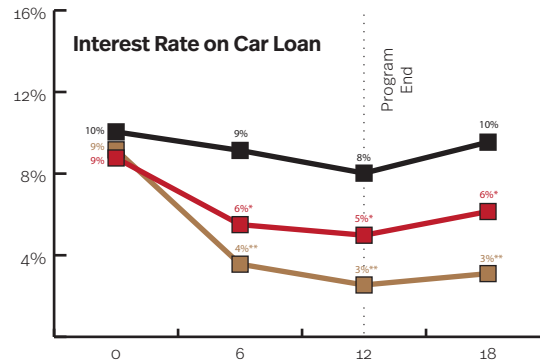
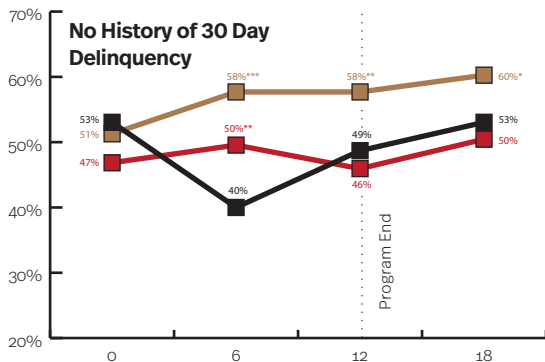
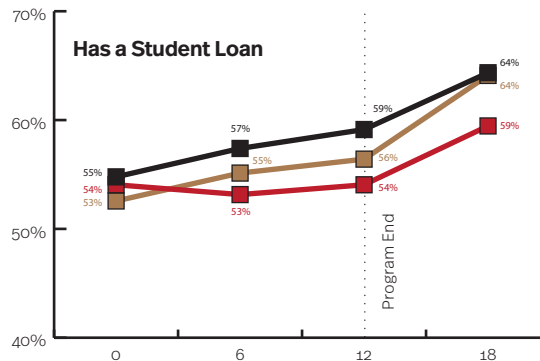
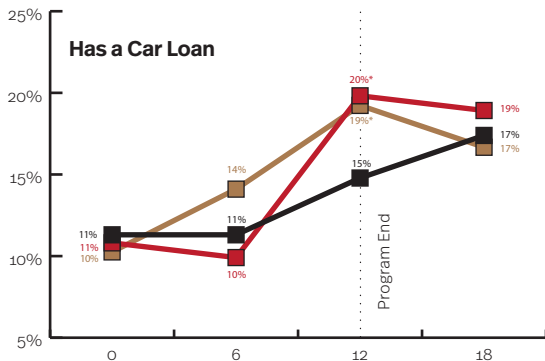


Note: Significance relative to the control group indicated at the 1 percent level***, 5 percent level**, and 10 percent level* respectively.

Source: Authors' calculations based on data supplied by Working Credit.

Figure 8 | Loan History: Comparison of Treatment versus Control Groups over Time

■ Control Group
 ■ All Treatment
 ■ Treatment Compliers



Note: Significance relative to the control group indicated at the 1 percent level***, 5 percent level**, and 10 percent level* respectively.
 Source: Authors' calculations based on data supplied by Working Credit.

the share having good credit being 8.1 percentage points greater among the treatment compared to the control group and 13.0 percentage points greater among the compliers versus the control group.

Significant improvements also were observed among the underlying factors affecting the credit score (see Table 4). Among the treatment group, these factors were having no lines of credit currently delinquent, having no current outstanding negatives, and having a history of sustained on-time payments. Among the compliers, positive impacts were also found for having a mix of revolving and installment lines of credit and having no history of 30-day delinquency. By the end of the program, individuals in the treatment group had interest rates on car loans that were 3.5 percentage points less than those in the control group. Among compliers, the gap was even greater—6.8 percentage points—even when controlling for baseline interest rates and demographic characteristics.

We also find some support suggesting that the program might yield greater benefits for some groups compared to others. 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-Ameri-

cans, 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 barriers that restrict access to financial services (Brevoort, Grimm, & Kambara 2015; Hamilton & Darity, 2017).

Table 3 | Impact of BYCBI on Access to Credit and Credit Scores at 18 Months: Regression Results

	Treatment versus Control Group (ITT)		Compliers versus Control Group (TOT)	
	(1)	(2)	(3)	(4)
Access to Credit: Full Sample (N=300)				
% with no credit	0.004	0.001	-0.102***	-0.101***
	(0.037)	(0.036)	(0.032)	(0.031)
Credit Score: All Individuals with a Credit File at Baseline (N=226)				
Mean credit score	24.226*	26.405**	39.343**	37.554**
	(13.022)	(12.380)	(13.702)	(13.191)
Poor credit score (300-600)	-0.021	-0.029	-0.087*	-0.090*
	(0.047)	(0.043)	(0.053)	(0.050)
Fair credit score (601-660)	0.020	0.032	-0.001	-0.028
	(0.055)	(0.052)	(0.050)	(0.048)
Good credit score (661-780)	0.078*	0.081*	0.121**	0.130**
	(0.045)	(0.042)	(0.060)	(0.058)
Excellent credit score (781+)	-0.014	-0.031	-0.009	0.005
	(0.028)	(0.033)	(0.031)	(0.029)
Includes controls for baseline measures of outcomes	Yes	Yes	Yes	Yes
Includes controls for demographic characteristics	No	Yes	No	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. ***indicates significance at the 1% level, **at the 5% level and *at the 10% level respectively.

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

Table 4 | Impact of BYCBI on Underlying Factors Affecting Credit Score at 18 Months: Regression Results

	Treatment versus Control Group (ITT)		Compliers versus Control Group (TOT)	
	(1)	(2)	(3)	(4)
At least one open line of credit but no more than three	0.034	0.037	0.097	0.121*
	(0.064)	(0.062)	(0.068)	(0.071)
Has a mix of revolving and installment lines of credit	0.043	0.053	0.109*	0.110*
	(0.058)	(0.055)	(0.061)	(0.063)
Utilization ratio under 30 percent	0.036	0.036	0.009	-0.010
	(0.058)	(0.055)	(0.062)	(0.064)
Amount of available credit	1167.471	913.697	2879.731**	2693.900**
	(1142.126)	(1050.742)	(1239.979)	(1175.266)
No lines of credit that are currently delinquent	0.064*	0.066*	0.081**	0.085**
	(0.038)	(0.036)	(0.041)	(0.042)
No current outstanding negatives	0.069*	0.068*	0.129**	0.142**
	0.039	0.035	(0.066)	(0.054)
Has a car loan	0.020	0.019	-0.023	-0.036
	(0.047)	(0.048)	(0.054)	(0.052)
Interest rate on car loan	-0.034*	-0.035*	-0.056**	-0.068***
	(0.020)	(0.019)	(0.023)	(0.018)
Has a student loan	-0.049	-0.028	0.053	0.068
	(0.045)	(0.040)	(0.048)	(0.049)
Amount of student loan debt	186.527	1277.014	1201.578	2745.385
	(2598.437)	(3487.591)	(2754.581)	(3180.533)
No history of 30-day delinquency on loans	0.010	0.032	0.118**	0.114**
	(0.055)	(0.051)	(0.057)	(0.058)
History of sustained on-time payments on loans	0.076*	0.106**	0.139**	0.117**
	(0.046)	(0.040)	(0.049)	(0.048)
Includes controls for baseline measures of outcomes	Yes	Yes	Yes	Yes
Includes controls for demographic characteristics	No	Yes	No	Yes
Number of observations	226	226	226	226

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.

***indicates significance at the 1% level, **at the 5% level and *at the 10% level respectively.

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**

	All individuals	18-24 years	Female	African-American	Atypical Organization
	(1)	(2)	(3)	(4)	(5)
Percent with No Credit Score: Full Sample (N=300)					
Treatment versus Control Group: ITT Estimates					
Treatment	0.001	0.023	0.028	0.034	0.042
	(0.036)	(0.060)	(0.044)	(0.040)	(0.039)
Treatment * group dummy	—	-0.105*	-0.047	-0.102*	-0.095*
		(0.055)	(0.051)	(0.055)	(0.054)
Compliers versus Control Group: TOT Estimates					
Treatment	-0.101***	-0.047	-0.062	-0.060*	-0.079**
	(0.031)	(0.045)	(0.044)	(0.034)	(0.042)
Treatment * group dummy	—	-0.093*	-0.068	-0.194***	-0.048
		(0.057)	(0.052)	(0.062)	(0.062)
Mean Credit Score: All Individuals with a Credit File at Baseline (N=226)					
Treatment versus Control Group: ITT Estimates					
Treatment	26.405**	9.517	21.791	18.355	24.302*
	(12.380)	(13.760)	(13.744)	(13.645)	(13.068)
Treatment * group dummy	—	25.226*	2.720	9.574	1.723
		(14.358)	(11.289)	(16.586)	(11.265)
Compliers versus Control Group: TOT Estimates					
Treatment	37.554**	6.556	26.247	23.109	31.497**
	(13.191)	(14.351)	(18.640)	(17.533)	(16.491)
Treatment * group dummy	—	30.493*	5.456	2.752	6.006
		(16.423)	(21.677)	(23.730)	(14.353)
Includes controls for baseline measures of outcomes	Yes	Yes	Yes	Yes	Yes
Includes controls for demographic characteristics	Yes	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.

***indicates significance at the 1% level, **at the 5% level and *at the 10% level.

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

Table 5 confirms that the BYCBI did indeed have a greater impact on both younger participants and African-Americans. Among both groups, the program expanded access and significantly decreased the share of individuals with no credit score for both compliers and the treatment group as a whole.¹² However, significant improvements in credit scores were observed only among the younger participants, with the program improving their scores by 30.5 points. In contrast, there was no significant difference in program impacts between males and females on either credit access or credit building. This is despite a well-documented gender gap in financial literacy (Lusardi & 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 than those recruited from organizations that fit the typical Working Credit model, 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 barriers

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

How many of the participants made use of the CW-3™ secure loan product to help them build credit? Recall that the product would only be offered to those participants who met the following criteria: (1) had fewer than three open revolving accounts or no installment account, (2) could afford to save \$26 per month, and (3) were not currently past due on any account. The data show that these criteria were met for all 53 participants who were offered the program, which is roughly half of the complier group. Of those who were offered the product, 60 percent decided to take it up. Table 6 compares the demographic characteristics of the complier group to characteristics of those who were offered the CW-3™ product and of those who chose to use it. Those who were offered the CW-3™ product were more likely to be from a typical organization, to identify as being of "other" race, to have a high school degree, and to be on Medicaid but were less likely to have children. Compared to those who were offered the CW-3™ product, those who chose to make use of it were more likely to be Hispanic or of "other" race and to have children. Those who were less likely to take-up the CW-3™ product when it was offered to them were more likely to be female, to have a bachelor's degree, and less likely to own a home. It is possible that individuals in the latter two groups did not want to take out another loan using the CW-3™ product because they already had student loans or were planning to apply for a mortgage. However, the gender difference is notable and might reflect the emergence of a gap in credit building among males versus females.

¹² 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, 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.

**Table 6 | Baseline Demographic Characteristics:
Compliers v CW-3™ Recipients in the Treatment Group**

	Treatment Group					
	Compliers (1)		Offered CW-3 (2)		Took up CW-3 (3)	
Number of Individuals	101		53		32	
Type of Organization						
Typical	41.6%	(0.049)	50.9%	(0.069)**	53.1%	(0.090)
Near-Typical	16.8%	(0.037)	13.2%	(0.047)	12.5%	(0.059)
Atypical	41.6%	(0.049)	35.8%	(0.067)	34.4%	(0.085)
Age						
Mean	24.02	(0.307)	23.151	(0.422)	22.97	(0.576)
18-24	55.4%	(0.050)	67.9%	(0.065)	71.9%	(0.081)
25-30	44.6%	(0.050)	32.1%	(0.065)	28.1%	(0.081)
Gender						
Female	59.4%	(0.049)	52.8%	(0.069)	37.5%	(0.087)**
Race						
African-American/Black	46.5%	(0.050)	43.4%	(0.069)	43.8%	(0.089)
American Indian/Native Alaskan	2.0%	(0.014)	1.9%	(0.019)	3.1%	(0.031)
Asian/Hawaiian/Pacific Islander	11.9%	(0.032)	13.2%	(0.047)	9.4%	(0.052)
Caucasian/White	8.8%	(0.039)	18.9%	(0.054)	15.6%	(0.065)
Two or more races	10.9%	(0.031)	11.3%	(0.044)	15.6%	(0.065)
Other	20.8%	(0.041)	30.2%	(0.064)**	40.6%	(0.088)**
Ethnicity						
Hispanic	21.8%	(0.041)	26.4%	(0.061)	34.4%	(0.085)*
Marital Status						
Married	5.0%	(0.022)	3.8%	(0.026)	3.1%	(0.031)
Household Size						
Number	2.97	(0.151)	2.981	(0.208)	2.94	(0.258)
Number of Children						
Has any children	12.9%	(0.033)	7.5%	(0.037)	12.5%	(0.059)
Education						
Less than a high school diploma	5.9%	(0.024)	7.5%	(0.037)	9.4%	(0.052)
High school diploma or GED	23.8%	(0.043)	35.8%	(0.067)**	40.6%	(0.088)
Some college	20.8%	(0.041)	32.1%	(0.065)	37.5%	(0.087)
Associate degree	3.0%	(0.017)	0.0%	0.000	0.0%	0.000
Bachelor's degree	38.6%	(0.049)	20.8%	(0.056)	9.4%	(0.052)**
Advanced or professional degree	6.9%	(0.025)	1.9%	(0.019)	0.0%	0.000
Not reported	0.0%	0.000	0.0%	0.000	0.0%	0.000
Employment Tenure						
Less than one year	70.3%	(0.046)	69.8%	(0.064)	65.6%	(0.085)
One to two years	16.8%	(0.037)	18.9%	(0.054)	25.0%	(0.078)
Two to five years	9.9%	(0.030)	9.4%	(0.041)	6.3%	(0.043)
More than five years	1.0%	(0.010)	0.0%	0.000	0.0%	0.000
Not reported*	2.0%	(0.014)	1.9%	(0.019)	3.1%	(0.031)
Health Insurance						
Private plan through employer	36.6%	(0.048)	24.5%	(0.060)	18.8%	(0.070)
Medicaid (MassHealth)	41.6%	(0.049)	50.9%	(0.069)*	59.4%	(0.088)
Other	15.8%	(0.037)	15.1%	(0.050)	15.6%	(0.065)
None	3.0%	(0.017)	3.8%	(0.026)	3.1%	(0.031)
Not reported	3.0%	(0.017)	5.7%	(0.032)	3.1%	(0.031)
Homeowner Status						
Own	6.9%	(0.025)	9.4%	(0.041)	3.1%	(0.031)**
Household Income						
Above \$71,991	10.9%	(0.031)	5.7%	(0.032)	3.1%	(0.031)
Can save \$26 per month						
Yes	97.0%	(0.017)	96.2%	(0.026)	100.0%	0.000*

Note: Compliers refer to those that have at least attended a workshop or one-on-one coaching session. Standard errors in parentheses. ***indicates significance at the 1% level, **at the 5% level and *at the 10% level.

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

How much of the program’s impact can be attributed to the use of the CW-3™ product versus just the workshop and financial counseling? Interestingly, Table 7 shows that among the compliers, just being offered the CW-3™ product can account for virtually all the gains in terms of access to credit and improvement in credit scores. This confirms that the product was well-targeted towards those who would benefit from it the most: largely invisibles with no credit file and unscorable with thin credit files. However, because the use of the product was neither randomly assigned, nor entirely at the discretion of the participant, we cannot conclusively determine the relative contribution of the product itself as separate from the characteristics of those to whom it was targeted.

Assessing Financial Capability Outcomes from Survey Data

We use the responses from the post-program survey to assess whether the program had improved financial capability by the end of the program for the treatment group relative to the control group. We measure this in several ways. First, we compare the self-reported financial situations to capture aspects not covered by the credit report. Second, we compare differences in financial habits that would indicate a change in behavior over the previous 12 months. Third, we compare differences in financial literacy and self-efficacy across the two groups—factors that have been shown to be correlated with improved financial outcomes—and link the improvements in these two measures to the observed increase in credit scores discussed in the previous section.

Table 7 | Regression Estimates of BYCBI Impact at 18 Months for Compliers Offered the CW-3 Product

	All individuals (1)	Offered CW-3 (2)	Took Up CW-3 (3)
Percent with No Credit Score: Full Sample (N=300)			
Compliers versus Control Group: TOT Estimates			
Treatment dummy	-0.101*	0.063	-0.032
	(0.031)	(0.042)	(0.046)
CW-3 dummy	—	-0.140**	-0.146**
		(0.050)	(0.072)
Mean Credit Score: All Individuals with a Credit File at Baseline (N=226)			
Compliers versus Control Group: TOT Estimates			
Treatment dummy	37.554**	-1.712	28.459
	(13.191)	(23.815)	(43.937)
CW-3 dummy	—	97.564**	68.257**
		(34.553)	(24.202)
Includes controls for baseline measures of outcomes	Yes	Yes	Yes
Includes controls for demographic characteristics	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. ***indicates significance at the 1% level, **at the 5% level and *at the 10% level.

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

Individuals in the treatment group reported being in better financial situations than those of the control group by the end of the program (see Table 8). This included being less likely to report having a utility company currently holding a deposit (-5.9 percentage points), being contacted by collection agencies about unsettled claims over the past three months (-7.8 percentage points), or being evicted or in the process of eviction over the past year (-4.1 percentage points). In addition, the treatment group was 8.5 percentage points more likely than the control group to report having a credit coaching or a debt management plan, likely the result of their one-on-one coaching. These results are robust to controlling for demographic characteristics and baseline outcomes using our regression framework discussed above (see Table 9).

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

Table 8 | Self-Reported Financial Situation: Comparison of Treatment and Control Groups at 12 Months

	Control Group	Treatment Group	Difference (Treatment-Control)
	98	96	-2
Percent answering yes			
In credit counseling or debt management plan or working with one	6.12%	14.58%	8.46**
	(0.024)	(0.036)	(0.043)
Cell phone company currently holding a deposit	8.16%	6.25%	-1.91
	(0.028)	(0.025)	(0.037)
Utility company currently holding a deposit	10.42%	4.50%	-5.91*
	(0.031)	(0.022)	(0.033)
Wages garnished in the past year	6.12%	7.29%	1.17
	(0.024)	(0.027)	(0.036)
Utilities been disconnected in the past year or in danger of disconnection	11.22%	8.33%	-2.89
	(0.032)	(0.028)	(0.043)
Car been repossessed in past year or in danger of repossession	2.04%	1.04%	-1.00
	(0.014)	(0.010)	(0.018)
Been evicted in past year or in process of eviction	4.08%	0.00%	-4.08**
	(0.020)	0.000	(0.020)
Foreclosure started or in danger of foreclosure	2.04%	0.00%	-2.04
	(0.014)	0.000	(0.015)
Contacted by collection agencies contacting about unsettled claims	24.49%	16.71%	-7.78*
	(0.044)	(0.039)	(0.046)
In bankruptcy or in process of bankruptcy	2.04%	1.04%	-1.00
	(0.014)	(0.010)	(0.018)
Plan to apply for a mortgage or car loan in next three months	12.24%	13.54%	1.30
	(0.033)	(0.035)	(0.048)

Note: ***indicates significance at the 1% level, **at the 5% level and *at the 10% level respectively.

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

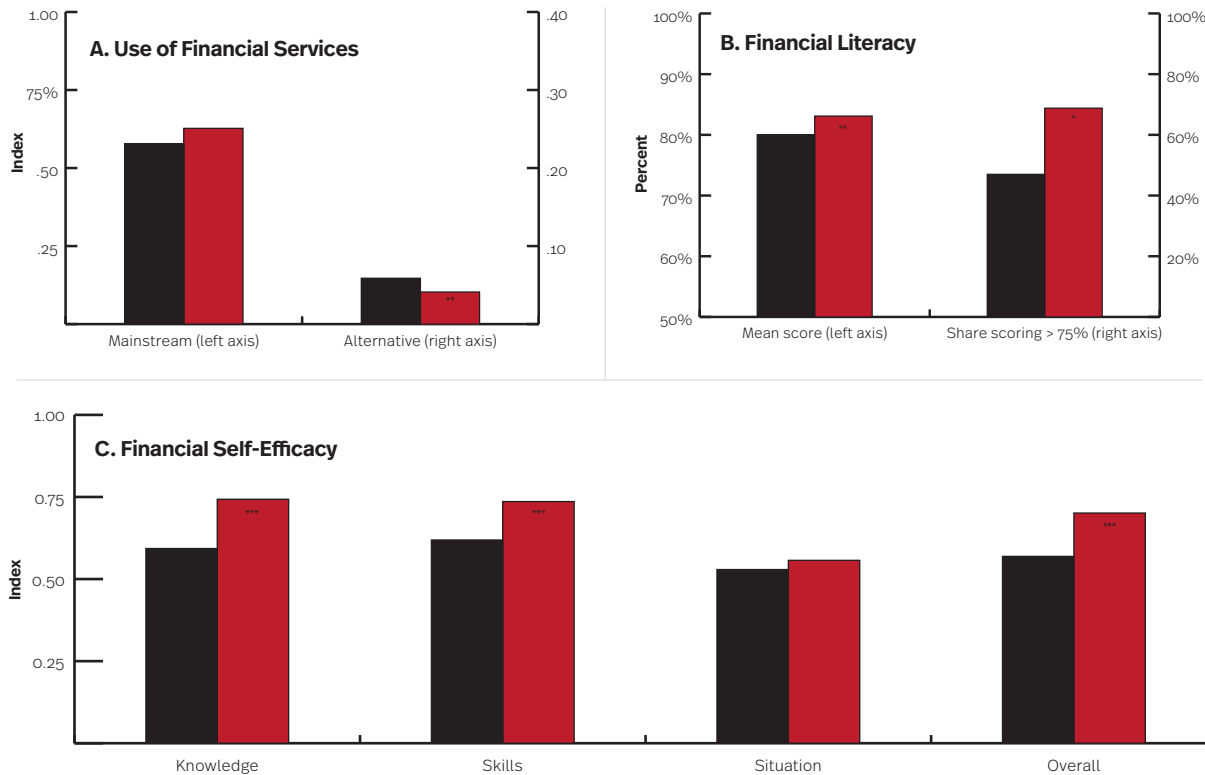
Table 9 | Regression Estimates of Self-Reported Financial Capability Outcomes

Coefficient on treatment dummy variable	ITT		TOT	
	(1)	(2)	(1)	(2)
Financial Situation (dummy variable where yes=1, no=0)				
In credit counseling or debt management plan or working with one	0.088** (0.045)	0.119** (0.051)	0.092** (0.044)	0.102** (0.046)
Cell phone company currently holding a deposit	-0.019 (0.037)	0.005 (0.037)	-0.026 (0.037)	-0.009 (0.039)
Utility company currently holding a deposit	-0.059* (0.033)	-0.073** (0.034)	-0.070** (0.034)	-0.075** (0.036)
Wages garnished in the past year	0.012 (0.036)	0.022 (0.041)	0.005 (0.036)	0.019 (0.038)
Utilities been disconnected in the past year or in danger of disconnection	-0.024 (0.041)	-0.011 (0.045)	-0.065 (0.042)	-0.046 (0.044)
Car been repossessed in past year or in danger of repossession	-0.005 (0.019)	0.001 (0.019)	-0.003 (0.017)	-0.002 (0.018)
Been evicted in past year or in process of eviction	-0.032* (0.018)	-0.046** (0.022)	-0.037* (0.020)	-0.049** (0.021)
Foreclosure started or in danger of foreclosure	-0.021 (0.015)	-0.025 (0.018)	-0.019 (0.015)	-0.022 (0.016)
Contacted by collection agencies about unsettled claims	-0.076 (0.051)	-0.095* (0.050)	-0.098* (0.052)	-0.110** (0.055)
In bankruptcy or in process of bankruptcy	-0.010 (0.018)	-0.018 (0.020)	-0.007 (0.018)	-0.015 (0.019)
Plan to apply for a mortgage or car loan in next three months	0.013 (0.049)	0.014 (0.053)	0.022 (0.049)	0.020 (0.052)
Financial Habits				
Mainstream financial services z-score	0.019 (0.076)	0.020 (0.076)	0.027 (0.077)	0.013 (0.080)
Alternative financial services z-score	-0.328** (0.147)	-0.395** (0.145)	-0.443** (0.145)	-0.419*** (0.150)
Financial Literacy				
Financial literacy z-score	0.315** (0.131)	0.329** (0.136)	0.306** (0.132)	0.285** (0.136)
Dummy variable for getting more than 75% correct	0.117** (0.057)	0.125** (0.058)	0.154** (0.063)	0.176** (0.061)
Financial Self-Efficacy				
Confidence in financial knowledge z-score	0.676*** (0.130)	0.640*** (0.125)	0.684*** (0.128)	0.639*** (0.127)
Confidence in financial skills z-score	0.532*** (0.139)	0.558*** (0.143)	0.559*** (0.140)	0.566*** (0.143)
Confidence in financial situation z-score	0.186 (0.142)	0.202 (0.156)	0.170 (0.143)	0.211 (0.152)
Overall self-efficacy z-score	0.618*** (0.135)	0.630*** (0.138)	0.635*** (0.134)	0.641*** (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. ***indicates significance at the 1% level, **at the 5% level and *at the 10% level respectively.

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

Figure 9 | Financial Behaviors, Literacy, and Self-Efficacy
Comparison of Treatment Groups versus Control Group Post-Program



Note: Unadjusted means are reported for each group. Significance relative to the control group indicated at the 1 percent level***, 5 percent level**, and 10 percent level*.

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

financial habits to improve long-term outcomes—rather than simply increasing knowledge of or providing access to financial products (Collins, Baker, & Gorey 2007). Indeed, we find that by the end of the program, the use of alternative financial services (e.g., 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 Panel A of Figure 9). 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. Panel B of Figure 9 shows that by the end of the program the mean financial literacy scores of the treatment group were higher than those of the control group, but the magnitude of the effect was small—about a four percent increase. In contrast, the impact on financial self-efficacy was twice as large in magnitude. Panel C of Figure 9 shows that the overall self-efficacy score index among the treatment group was 23 percent

Table 10 | Analysis of Potential Mediators for 12-Month BYCBI Outcomes

Panel A. Dependent Variable: 12-Month Credit Score	(1)	(2)	(3)	(4)
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. ***indicates significance at the 1% level, **at the 5% level and *at the 10% level respectively.

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

higher than that of the control group, with two of the three underlying components (knowledge and skills) also showing a positive significant difference.

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. 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 regression. 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. Panel A of Table 10 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 index 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 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.

Gathering Additional Insights from Focus Group Discussions

During the course of the program we held four focus group sessions—two at the beginning of the program and two at the end of the program—for individuals in both the treatment and the control groups. Although focus group participants were recruited at random, we again had issues with getting individuals to respond and accept our invitation, even with the incentive of a \$50 gift card. We subsequently invited additional focus group participants, being mindful to try and maintain balance across age, gender, racial, and organizational categories.

The importance of self-efficacy was a key theme that emerged from our focus group discussions both at the beginning and the end of the program. Panel A of Figure 10 compares the most frequent themes that occurred for the treatment versus the control groups during the first set of focus group discussions.¹³ In the treatment group, the discussion was dominated by issues of credit history, lessons learned in the credit workshop and coaching, and strategies for dealing with credit. 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, which appeared to stem from a greater locus of control. For example, whereas members of the treatment group knew specific things they had done that had damaged their credit, members of the 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 coaching, 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 their credit card debt. 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

¹³See the data appendix for a detailed discussion of how we coded the themes emerging from the focus groups.

card payments. A third talked about being forced to wait to buy a car because she will have to take on 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 10 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 regarding how credit works, strategies for credit and financial planning, knowledge gained from the credit coaching 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.

Figure 10 | 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.

Discussion and Lessons Learned from the BYCBI

In this section, we offer several insights regarding the BYCBI in terms of interpreting the results, comparing costs, and assessing validity.

Benchmarking and Interpreting the BYCBI Results

The BYCBI impacts on the credit report outcomes for the treatment group were large at the beginning of the program but persisted only among the compliers. When controlling for baseline measures of outcomes and demographic characteristics, the ITT estimates show that the credit scores among the treatment group were 46.8 points higher than the control group six months after the program began but this initial boost faded over time. 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. In addition, there was a 13.5 percentage point improvement in the share of individuals having good credit among those who complied with the program. Significant improvements also were observed among the underlying factors affecting the credit score, such as maintaining one to three open lines of credit, a mix of revolving and installment credit, no current outstanding negatives, and no history of 30-day delinquency on loans.

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 with 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 & O'Rourke, 2012; Moulton et al., 2013; NeighborWorks America, 2013; Center for Financial Security, 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).

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, significantly reducing their use of alternative financial services. Finally, it appears that the program has a greater impact on financial self-efficacy than on financial literacy and that the impact on the former is what is 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 services 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 primarily on improving credit scores, whereas the aims of other financial coaching programs were 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

Working Credit typically charges employers \$10 per employee per month to deliver the program in an employer setting. This cost may also be subsidized by the employer on behalf of the worker as an employee benefit, further reducing the cost to the individual. Recall that by the end of the program, individuals in the treatment group had interest rates on their car loans that were nearly half (3.6 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.

Yet is there a less costly alternative that could achieve the same benefits as financial coaching? At this point, it is 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 but found weaker effects, although this could be due in part to the lower compliance rate or the population that was studied. 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.

Other methods may be less expensive than coaching, such as using low-cost nudges or reminders that can change behavior. Cell phone apps and text message reminders have been shown to be effective in other settings (Bertrand et al., 2018). Yet it is not clear whether these behavioral nudges work well for all populations and whether the effects diminish over time. Indeed, it may be that both coaching and nudges are more effective when used in combination as a part of a more holistic approach.

Validity of BYCBI Effect Estimates

Several factors suggest that our results are likely lower bound estimates among this population. As with any intervention, diminishing marginal returns among the treatment group attending more coaching sessions and/or any effects among control group members who seek to “catch up” will mitigate the observed positive outcomes for the treatment relative to the control group over time. 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. This 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/credit building 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 a one-hour credit-building workshop, individualized financial coaching, and a credit building product over the course of one year. Overall, our results demonstrate that the program affected participants in many of the ways intended. 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 (15 percent) and raised the likelihood of having a “good” credit rating by 10 percentage points. Greater impacts were found for younger and African-American participants. Finally, our mediation analysis shows that these positive changes in behavior and credit score outcomes were primarily driven by enhanced self-efficacy, findings that are also confirmed by our focus groups.

Moreover, we find that credit building can have a meaningful impact on the financial circumstances of low-income young adults apart from simply increasing credit scores. By having improved 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 that must sometimes rely on food stamps to make ends meet.

Overall, the Boston Youth Credit Building Initiative has been relatively successful in producing better outcomes for the populations that were targeted. These results are highly encouraging and suggest that similar programs in Boston and in other cities have the potential to make a difference—perhaps even low-touch programs that offer less hands-on intervention. For example, the pre-survey data that was collected at baseline indicates some deficits in terms of knowledge about credit among low-income young adults. This finding indicates an immediate area that other programs might address through an educational workshop. Similarly, the baseline credit report data demonstrate that for about one-third of the participants, the biggest problem is having no credit history—an encouraging sign that intervening at this point in their lives can potentially prevent future missteps. While the BYCBI was funded by Citi Community Development, aspects of the program could be replicated with different levels of funding, perhaps including existing municipal resources.

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 credit building 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.

References

- Atkinson, A., McKay, S., Kempson, E., & Collard, S. (2006, March). Levels of financial capability in the UK: Results of a baseline survey. (Consumer Research Paper 47). London: Financial Services Authority.
- Bernheim, B. D., Garrett, D., & Maki, D. (2001). Education and saving: the long-term effects of high school financial curriculum mandates. *Journal of Public Economics*, 80(3), 435-465.
- Bertrand, M. (2018). Nudges are a lower bound of what can be accomplished with behavioral science. Retrieved from the MDRC website: www.mdrc.org/sites/default/files/Commentaries_Marianne_Bertrand.pdf
- Boyce, L., & Danes, S. (1998). Evaluation of the NEFE High School Financial Planning Program 1997-1998. Greenwood Village, CO: National Endowment for Financial Education.
- Brevoort, K. P., Grimm, P., & Kambara, M. (2015). Data point: Credit invisibles. Washington, DC: Consumer Finance Protection Bureau Office of Research.
- Brown, M., Grigsby, J., van der Klaauw, W., Wen, J., & Zafar, B. (2016). Financial education and the debt behavior of the young. *The Review of Financial Studies*, 29(9), 2490-2522.
- Caputo, R. K. (2012). Patterns and predictors of debt: A panel study, 1985-2008. *Journal Sociology & Social Welfare*, 39, 7.
- Center for Financial Security. (2015). Financial coaching: Review of existing research. (Issue Brief 2015-10.1).
- Cole, S., Paulson, A., & Shastry, G. (2016). High school curriculum and financial outcomes: The impact of mandated personal finance and mathematics courses. *Journal of Human Resources*, 51(3), 656-98.
- Collins, J. M., & O'Rourke, C. M. (2012). The application of coaching techniques to financial issues. *Journal of Financial Therapy*, 3(2), 3.
- Collins, J. M., Baker, C., and Gorey, R. (2007). Financial Coaching: A new approach for asset building? Retrieved from the Annie E. Casey Foundation website: www.aecf.org/m/resourcedoc/AECF-FinancialCoaching-2007-Full.pdf
- Consumer Financial Protection Bureau. (2017). The CFPB strategic plan, budget, and performance plan and report. Retrieved from the CFPB website: files.consumerfinance.gov/f/documents/201705_cfpb_report_strategic-plan-budget-and-performance-plan_FY2017.pdf
- Council for Economic Education. (2016). Survey of the States: Economic and Personal Finance in our Nation's Schools. Retrieved from www.surveyofthestates.com/#2016
- Danes, S. M. (2005). Evaluation of the NEFE High School Financial Planning Program 2003-2004. St. Paul, MN: University of Minnesota, Family Social Science Department.
- Dietz, B. E., Carrozza, M., & Ritchey, P. N. (2003). Does financial self-efficacy explain gender differences in retirement saving strategies? *Journal of Women and Aging*, 15(4), 83-96.
- Dwyer, R. E., McCloud, L., & Hodson, R. (2011). Youth debt, mastery, and self-esteem: Class-Stratified effects of indebtedness on self-concept. *Social Science Research*, 40(3), 727-741.
- Engelberg, E. (2007). The perception of self-efficacy in coping with economic risks among young adults: an application of psychological theory and research. *International Journal of Consumer Studies*, 31(1), 95-101.

- Fernandes, D., Lynch Jr., J. G., & Netemeyer, R. G. (2014). Financial literacy, financial education, and downstream financial behaviors. *Management Science*, 60(8), 1861-1883.
- Gartner, K., & Todd, R. (2005, April). Effectiveness of Online 'Early Intervention' Financial Education for Credit Cardholders. Presented at Federal Reserve System Community Affairs Research Conference, Promises & Pitfalls: As Consumer Finance Options Multiply, Who Is Being Served and at What Cost? Washington, DC.
- Geyer, J., Freiman, L., Lubell, J., & Villarreal, M. (2017). Evaluation of the Compass Family Self-Sufficiency (FSS) programs administered in partnership with public housing agencies in Lynn and Cambridge, Massachusetts. Retrieved from the Abt Associates website: www.abtassociates.com/compassFSS
- Hamilton, D., & Darity, W. A. (2017). The political economy of education, financial literacy, and the racial wealth gap. *Federal Reserve Bank of St. Louis Review*, (99)1, 59-76.
- Hastings, J. S., Madrian, B. C., & Skimmyhorn, W. L. (2013). Financial literacy, financial education, and economic outcomes. *Annual Review of Economics*, 5, 347-343.
- Kaiser, T., & Menkhoff, L. (2017). Does financial education impact financial literacy and financial behavior, and if so, when? (Working Paper No. 8161). Washington, D. C.: World Bank Group.
- Lara Ibarra, G., McKenzie, D., & Ruiz Ortega, C. (2017). Learning the impact of financial education when take-up is low. (Working Paper No. 8238). Washington, D. C.: World Bank Group.
- Lown, J. (2011). Development and validation of a financial self-efficacy scale. *Journal of Financial Counselling and Planning*, 22(2), 54-63.
- Lusardi, A., & Mitchell, O. S. (2014). The economic importance of financial literacy: Theory and evidence. *Journal of Economic Literature*, 52(1), 5-44.
- Lyons, A. C., Palmer, L., Jayaratne, K. S. U., & Scherpf, E. (2006). Are we making the grade? A national overview of financial education and program evaluation. *Journal of Consumer Affairs*, 40(2), 208-235.
- McCormick, M. (2009). The effectiveness of youth financial education: A review of the literature. *Journal of Financial Counselling and Planning*, 20(1).
- Moulton, S., Loibl, C., Samak, A., & Collins, J. M. (2013). Borrowing capacity and financial decisions of low-to-moderate income first-time homebuyers. *Journal of Consumer Affairs*, 47(3), 375-403.
- Moulton, S., Collins, J. M., Loibl, C., & Samek, A. (2015). Effects of monitoring on mortgage delinquency: Evidence from a randomized field study. *Journal of Policy Analysis and Management*, 34(1), 184-207.
- Munoz, A. P., Kim, M., Chang, M., Jackson, R. O., Hamilton, D., & Darity Jr., W. (2015.) The color of wealth in Boston. Retrieved from the Federal Reserve Bank of Boston website: www.bostonfed.org/publications/one-time-pubs/color-of-wealth.aspx.
- NeighborWorks America. (2013). Scaling financial coaching: Critical lessons and effective practices. Retrieved from the Citi Foundation website: www.citigroup.com/citi/foundation/pdf/news100713.pdf
- Norvilitis, J. M., Merwin, M. M., Osberg, T. M., Roehling, P. V., Young, P., & Kamas, M. M. (2006). Personality factors, money attitudes, financial knowledge, and credit-card debt in college students. *Journal of Applied Social Psychology*, 36(6), 1395-1413.
- Prosperity Now. (2014) Family assets count.

- Roder, A. (2016). First steps on the road to financial well-being: Final report from the evaluation of LISC's financial opportunity centers. Retrieved from the LISC website: www.lisc.org/media/filer_public/f7/f7/f7f7402d-690d-47f5-a7fa-537ab7b-793c4/16024-first-steps_r5-report-web.pdf
- Rothwell, D. W., and Han, C. K. (2010). Exploring the relationship between assets and family stress among low-income families. *Family Relations*, 59(4), 396-407.
- Sherraden, M.S. (2013). Building blocks of financial capability. In J. Birkenmaier, J. Curley and M. Sherraden (Eds.), *Financial capability and asset development – Research, education, policy, and practice* (pp. 3-43). New York, NY: Oxford University Press.
- Taylor, M. (2011). Measuring financial capability and its determinants using survey data. *Social Indicators Research*, 102(2), 297-314.
- Theodos, B., Simms, M., Treskon, M., Stacy, C., Brash, R., Emam, D.,...Collazos, J. (2015). An evaluation of the impacts and implementation approaches of financial coaching programs. Retrieved from the Urban Institute website: www.urban.org/sites/default/files/publication/71806/2000448-An-Evaluation-of-the-Impacts-and-Implementation-Approaches-of-Financial-Coaching-Programs.pdf.
- Tokunaga, H. (1993). The use and abuse of consumer credit: Application of psychological theory and research. *Journal of Economic Psychology*, 14(2), 285-316.
- Traub, A. (2014). Discredited: How employment credit checks keep qualified workers out of a job. Retrieved from the Demos website: www.demos.org/research/discredited-how-employment-credit-checks-keep-qualified-workers-out-job.
- VantageScore. (2016). Exclusionary credit score modeling limits credit access. Retrieved from the VantageScore website: www.vantagescore.com/images/resources/ExclusionaryModelingLimits-CreditAccess.pdf
- Varcoe, K., Martin, A., Devitto, Z. and Go, C. (2005). Using a financial education curriculum for teens. *Journal of Financial Coaching and Planning*, 16(1), 63-71.
- Walstad, W., Urban, C., Asarta, C. J., Breitbart, E., Bosshardt, W., Heath, J.,...Xiao, J. J. (2017). Perspectives on evaluation in financial education: Landscape, issues, and studies. *The Journal of Economic Education*, 48(2), 93-112.
- Willis, L. E. (2011). The financial education fallacy. *American Economic Review*, 101(3), 429-34.

Appendix

Table A1 | Recruitment from Organizations: Number of Applicants

	Age of Population	Employment/ Program Duration	Regular/ Strong Contact?	Number of Applicants	
	(1)	(2)	(3)	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%
Year Up	19-27	Year-round	Yes	59	18.6%
Near-Typical Organizations					
Boston Day & Evening Academy	24-27	School year	Yes	2	0.6%
City Year	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) 101		Non-Compliers (2) 49	
Number of Individuals				
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/Hawaiian/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)
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 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. Standard errors in parentheses. *p<0.10, **p<0.05, ***p<0.01.

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

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

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)
25-29	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/Hawaiian/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 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. *p<0.10, **p<0.05, ***p<0.01.

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

**Table A4 | Estimates of BYCBI Impact on Credit Score:
All Individuals with a Credit File - Eighteen Months**

	ITT	TOT
	(1)	(2)
Treatment dummy	26.405** (12.380)	37.6*** (13.191)
Credit score at baseline	0.889*** (0.045)	0.802*** (0.093)
Age	-2.412** (1.220)	-2.485 (1.997)
Male	-11.189 (15.371)	-10.755 (14.328)
Black	-12.364 (23.590)	-11.387 (16.863)
Hispanic	-8.357 (28.629)	-9.692 (24.822)
Married	27.897* (16.604)	25.227 (27.759)
Children	-7.239 (20.636)	-6.023 (18.128)
Household size	-7.313 (20.636)	-7.609 (4.735)
High school degree	-36.584 (24.946)	-40.403 (27.743)
Some college	-1.383 (17.403)	-7.815 (26.597)
Associate degree	15.735 (29.397)	13.080 (42.202)
Bachelor's degree	29.961 (19.279)	23.655 (29.937)
Advanced degree	41.391* (21.845)	33.052 (37.040)
Tenure with employer less than one year	0.604 (12.434)	-0.856 (13.402)
Employer-provided healthcare	-7.546 (12.578)	-8.784 (16.336)
Household income above median (\$71,992)	4.247 (13.791)	6.042 (20.888)
Own home	16.397 (21.304)	15.829 (42.309)
Able to save \$26	0.055 (22.953)	-3.024 (34.459)
Recruited from "atypical" organization	1.442 (11.208)	2.963 (13.528)
Constant	181.969 (62.857)	206.723 (90.731)
Number of observations	226	226
R-squared	0.428	0.428

Note: Standard errors in parentheses. ***indicates significance at the 1% level, **at the 5% level and *at the 10% level respectively.
Source: Authors' calculations based on data supplied by the Boston Mayor's Office of Financial Empowerment.

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 an individual's 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	% of People	Impact
300-600	Poor (Subprime)	17.0%	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+	Excellent (Superprime)	19.9%	Applicants with scores in this range are at the top of the list for the best rates from lenders.

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 were currently delinquent (30 days currently past due), the number of current out-

standing negatives (collections, chargeoffs, judgments), 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.¹⁴ 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 listing of questions and responses for each component later in this appendix.

Financial Situation

To get a more complete picture of their financial situation, the survey asked participants about different events that had happened over the past year that are not typically covered by a credit report. These 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 regarding 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). From this set of questions we constructed two measures of financial habits and scaled them so that they each fell between 0 and 1.

¹⁴ See <http://www.aecf.org/work/child-welfare/jim-casey-youth-opportunities-initiative/the-keys-to-your-financial-future-curriculum/> for more information.

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. From this set of questions we constructed a measure for each 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). 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, how to use credit, how to read a credit report, and how to 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 satisfaction 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).

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

	Dealing with credit\has strategy for dealing with credit	Dealing with credit\demonstrates understanding of credit or financial planning	Dealing with credit\overwhelmed by paying off debt	Dealing with credit\try to only use credit when I have the money to pay it off immediately	Nodes\feelings about finances and credit\feel hopeless	Feelings about finances and credit\I am good at managing my cash and credit	Feelings about finances and credit\regret	Feelings about finances and credit\worried about new debt commitments due to past experience	Need additional skills\don't know how to plan	Need additional skills\don't trust myself with credit card	Need additional skills\have credit but still do not understand it	Need additional skills\need additional skills in managing money or credit	Need additional skills\need additional skills in setting financial goals	Need additional skills\never learned about credit before	Need additional skills\never received guidance	Need additional skills\not able to budget	Need additional skills\worried about developing or continuing bad habits
Dealing with credit\has strategy for dealing with credit	1.00																
Dealing with credit\demonstrates understanding of credit or financial planning	0.75	1.00										Correlation					
Dealing with credit\overwhelmed by paying off debt	0.46	0.28	1.00									0.70-0.99					
Dealing with credit\try to only use credit when I have the money to pay it off immediately	0.43	0.44	0.29	1.00								0.50-0.69					
Feelings about finances and credit\feel hopeless	0.43	0.27	0.26	0.23	1.00							0.30-0.49					
Feelings about finances and credit\I am good at managing my cash and credit	0.38	0.38	0.21	0.23	0.18	1.00						0.00-0.29					
Feelings about finances and credit\regret	0.64	0.33	0.29	0.32	0.39	0.30	1.00										
Feelings about finances and credit\worried about new debt commitments due to past experience	0.49	0.32	0.37	0.25	0.25	0.33	0.47	1.00									
Need additional skills\don't know how to plan	0.38	0.24	0.24	0.16	0.16	0.12	0.27	0.25	1.00								
Need additional skills\don't trust myself with credit card	0.58	0.37	0.28	0.38	0.45	0.23	0.47	0.33	0.31	1.00							
Need additional skills\have credit but still do not understand it	0.38	0.25	0.25	0.30	0.41	0.20	0.31	0.24	0.25	0.43	1.00						
Need additional skills\need additional skills in managing money or credit	0.41	0.32	0.39	0.23	0.23	0.25	0.24	0.75	0.27	0.26	0.30	1.00					
Need additional skills\need additional skills in setting financial goals	0.45	0.34	0.38	0.27	0.32	0.30	0.30	0.75	0.23	0.34	0.36	0.91	1.00				
Need additional skills\never learned about credit before	0.41	0.34	0.42	0.30	0.32	0.28	0.27	0.75	0.26	0.27	0.35	0.74	0.75	1.00			
Need additional skills\never received guidance	0.56	0.42	0.43	0.30	0.42	0.29	0.38	0.75	0.39	0.44	0.42	0.75	0.76	0.92	1.00		
Need additional skills\not able to budget	0.40	0.24	0.35	0.34	0.46	0.23	0.34	0.19	0.21	0.33	0.34	0.22	0.27	0.29	0.37	1.00	
Need additional skills\worried about developing or continuing bad habits	0.39	0.34	0.35	0.31	0.20	0.26	0.25	0.85	0.25	0.30	0.21	0.75	0.73	0.76	0.72	0.14	1.00

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

