University of Cyprus
Department of Economics

Working Paper 09-2016

From Unemployment to Self-Employment: The Role of Entrepreneurship Training

Marios Michaelides and Scott Davis

Department of Economics, University of Cyprus, P.O. Box 20537, 1678 Nicosia, Cyprus
Tel.: +357-22893700, Fax: +357-22895028, Web site: http://www.ucy.ac.cy/econ/en

From Unemployment to Self-Employment: The Role of Entrepreneurship Training†

Marios Michaelides (University of Cyprus)

Scott Davis (IMPAQ International)

November 2017

Abstract

We present experimental evidence on the effects of five identical entrepreneurship training programs targeting unemployed workers, three operating before and two operating during the Great Recession. The programs operating during the recession helped participants with low human capital and no self-employment experience to start a business and become self-employed instead of finding salary jobs. The programs operating prior to the recession helped participants with self-employment experience to start a business and become self-employed; in some cases, these effects came at the expense of salary employment, while in other cases they led to improved overall employment rates. None of these programs were effective in improving participants' earnings through self-employment. These findings provide limited support to the view that entrepreneurship training can be effective in combating unemployment and improving the earnings of unemployed workers, particularly during economic downturns, but highlight ways in which program efficacy might be improved.

JEL Classifications: J6, H4.

Keywords: Great Recession, self-employment, small business, training, unemployment, program evaluation.

† This paper was based on data collected by IMPAQ International, LLC (IMPAQ) as part of research studies funded by the U.S. Department of Labor, Employment and Training Administration (DOL/ETA). The views expressed in this paper are those of the authors and should not be attributed to DOL/ETA, nor does mention of trade names, commercial products, or organizations imply endorsement of the same by the U.S. government.

Authors' contact information: Marios Michaelides (mariosm@ucy.ac.cy), Scott Davis (sdavis@impaqint.com).

Introduction

Many unemployed workers view self-employment as an attractive reemployment option, especially those who face the prospect of long-term unemployment (Constant and Zimmerman, 2004; Glocker and Steiner, 2007; von Greiff, 2009). Lack of labor market options notwithstanding, unemployed workers face lower opportunity costs and thus may be willing to invest the time and undertake the risk associated with starting a business (Bates and Servon, 2000; Rissman, 2003; Grilo and Thurika, 2005; Glocker and Steiner, 2007). Entrepreneurship may be more attractive during recessions, when there is an expanded pool of unemployed workers who cannot find salary jobs, including high-skill workers who would not have employability issues under normal circumstances (Baumol, 2002; Koellinger and Thurik, 2012; Michaelides and Mueser, 2013). Recessions also bring reduced start-up costs which, combined with fewer available job options, may encourage more unemployed workers than usual to start a business (Rissman and Sullivan, 2004; Mandelman and Montes-Rojas, 2009; Campos *et al.*, 2011).

Pursuing entrepreneurship is not an easy task – low human capital, lack of entrepreneurship skills, and financing constraints often explain why many start-up efforts are unsuccessful and many new businesses fail soon after their creation (Hout and Rosen, 2000; Blanchflower *et al.*, 2003; Cavaluzzo and Walken, 2005; Fairlie and Robb, 2007). These issues may be exacerbated during recessions, when there are limited business opportunities and financial institutions are more reluctant to invest in start-ups (Kirschoff, 1993; Shane, 2003; Parker, 2009). In the early 1990s, U.S. policymakers recognized that, while some unemployed workers were interested in starting a business instead of finding salary jobs, public employment offices did not offer services to help them start their own business (Benus *et al.*, 1995; Wandner, 2008). To fill this gap, over the course of the past 25 years, policymakers have supported programs offering a combination of

entrepreneurship training and financial support to unemployed workers (Benus *et al.*, 1995; Kosanovich, *et al.*, 2002). Since the start of the Great Recession, particular emphasis was placed on providing training with no financial support to unemployed workers who had employability issues due to the recession and who considered self-employment as their only reemployment option in a weak labor market (Davis *et al.*, 2011; Wandner and Eberts, 2014).

This paper examines whether government-sponsored entrepreneurship training is an effective reemployment policy, with a particular focus on how program effects may vary based on prevailing economic conditions. Our analyses consider the effects of experimental-design demonstration programs funded by the U.S. Department of Labor (DOL): (1) Project GATE (Growing America through Entrepreneurship), which operated from September 2003 to July 2005 in Maine, Minnesota, and Pennsylvania; and (2) GATE II, which operated during the Great Recession, from January 2009 to December 2010, in North Carolina and Virginia. In addition to the fact that Project GATE and GATE II programs operated in periods characterized by markedly different economic conditions, there are two features that make them an attractive case study.

First, the three Project GATE and two GATE II programs had an identical design, which was similar to the design of most entrepreneurship training programs sponsored by the U.S. government since the start of the Great Recession. The programs offered participants two main services: (1) training workshops to educate them on the different aspects of starting and operating a new business and (2) business counseling to help them develop and execute viable business plans. The programs did not provide any financial support to participants. This design distinguishes them from most programs that operated in the 1990s and early 2000s, which combined training with financial support and did not have the resources to provide rigorous training to participants (Benus *et al.*, 1995; Kosanovich *et al.*, 2002; Wandner, 2008). Second, all five programs used random

assignment to determine which applicants would be offered training (treatment group) and which applicants would be excluded from the program (control group). The programs' experimental design, combined with the fact that they collected information on applicants' characteristics at program entry and labor market outcomes following entry, allows us to isolate their causal effects.

Using program data, we analyze three related issues. First, a natural question is the extent to which the availability of government-sponsored entrepreneurship training caused more unemployed workers than usual to receive training at different stages of the business cycle. In the absence of government programs, individuals interested in self-employment could avail themselves of other existing training options available to the public. To examine whether the Project GATE and GATE II programs increased training take-up and whether effects on take-up varied based on overall economic conditions, we estimate treatment-control differences in training receipt and compare them across programs.

Second, we examine whether offering free entrepreneurship training to unemployed workers is an effective reemployment policy during a recession and under normal economic conditions. We measure applicants' labor market outcomes based on their responses to follow-up surveys – conducted at month 18 after random assignment for the three Project GATE programs, and at months 32 and 24 for the North Carolina and Virginia programs, respectively. Using survey responses, we measure – at the time of the survey – whether the applicant was self-employed (overall, in own business, or as an independent contractor) or employed in a salary job, as well as the individual's monthly self-employment and salary earnings. Regression models are used to estimate each program's intent-to-treat effects on these outcomes, controlling for observed individual characteristics.

Third, we attempt to identify the types of unemployed workers who benefited the most from

entrepreneurship training during and prior to the recession. Previous work has shown that nascent entrepreneurs with high levels of human capital, entrepreneurship skills, and financing access are more likely to succeed, but there are limited theoretical and empirical predictions whether the value of training may vary based on individual attributes. To address this question, we estimate program effects for participant subgroups based on characteristics that measure human capital, entrepreneurship skills, and financing access. These analyses help us to identify the types of unemployed workers who benefited the most from the two programs and to understand the potential mechanisms that led to program effects prior and during the recession.

In the remainder of this paper, Section 1 provides an overview of entrepreneurship training programs in the United States and the existing evidence on their effectiveness. Section 2 describes the Project GATE and GATE II programs, providing information on the recruitment and application process, training offered to participants, and characteristics of program applicants. Section 3 presents the methods used to assess program effectiveness and the findings of our analyses. Section 4 summarizes the findings and discusses their policy implications.

1. Background

1.1. Entrepreneurship Training in the United States

In the early 1990s, policymakers in the United States recognized that although self-employment was a viable reemployment option for many unemployed workers, public employment offices did not offer any services to help them start their own businesses. To assess the feasibility of providing entrepreneurship training through public employment offices, DOL implemented the Washington Self-Employment and Enterprise Development Project and the Massachusetts Enterprise Project. These experimental-design demonstration programs provided

training and monetary assistance to unemployed workers who were collecting UI benefits and were interested in starting a business instead of finding salary employment (Benus *et al.*, 1995).

Based on the results of these demonstrations, U.S. Congress authorized states to create self-employment assistance (SEA) programs for a five-year trial period under the North America Free Trade Agreement (NAFTA) Implementation Act of 1993. SEA programs included two components: (1) a financial stipend to allow participants to devote their time to entrepreneurship activities instead of searching for a job, and (2) training and technical assistance to support their business start-up efforts.[1] The policy objective was to help UI recipients with employability issues to start their own businesses, expedite their reemployment, and alleviate the burden they imposed on the UI program (Kosanovich *et al.*, 2002). In 1998, the U.S. Congress permanently approved SEA programs and authorized states to use their Workforce Investment Act (WIA) grant funds to support and expand these programs.[2]

These efforts, however, did not have the desired results and SEA programs ultimately fell short of accomplishing their objectives. A main reason why is that states did not have sufficient funding to administer the programs or to train their staff to provide entrepreneurship training and technical support (Kosanovich *et al.*, 2002; Wandner, 2008). As a result, only nine states adopted SEA programs – Delaware, Louisiana, Maine, Maryland, Minnesota, New Jersey, New York Oregon, and Pennsylvania. Because of resource limitations, the majority of SEA participants in these states did not receive any training or were referred to community programs, resulting in low training take-up rates (Kosanovich *et al.*, 2002). Furthermore, a congressional mandate restricted the programs' reach – services were offered only to UI recipients with employability issues, who accounted for fewer than 5% of the UI population (Wandner, 2008).

[1] Participants were also exempt from the requirement to search for a job while active in the program.
[2] Workforce Investment Act of 1998, Public Law 104-220 (https://www.doleta.gov/usworkforce/wia/wialaw.pdf).

Policymakers recognized these limitations and shifted their support to programs that would: (1) have sufficient resources to offer a wide range of services; and (2) be available to all unemployed workers, regardless of whether they were collecting UI benefits. In 2003, DOL implemented the Project GATE demonstration programs, which were more ambitious than the SEA programs operating at the time. Project GATE offered participants training workshops covering topics related to the business start-up process, and business counseling to help them develop and implement viable business plans (Bellotti *et al.*, 2006). To maximize take-up rates, training was provided through public employment offices. In contrast to SEA programs operating at the time and the early 1990s demonstrations, Project GATE provided no financial support to participants. Project GATE operated from September 2003 to July 2005 at public employment offices in Maine, Pennsylvania, and Minnesota, accepting applications from both unemployed workers and other individuals (Benus *et al.*, 2010). While the three Project GATE programs were in operation, DOL issued directives to all state workforce agencies to encourage them to use their WIA funds to support entrepreneurship training activities at public employment offices.[3]

Efforts to promote entrepreneurship training for the unemployed were intensified during the Great Recession. In 2008, DOL awarded grants to the workforce agencies of Alabama, North Carolina, Virginia, and Minnesota to implement GATE II. GATE II grantees were required to operate programs that replicated the Project GATE design, which was thought to be the most cost-effective model of delivering training (Davis *et al.*, 2011; Davis *et al.*, 2017). In 2012, DOL provided Workforce Innovation Fund (WIF) grants to consortiums of workforce investment boards in Florida and Virginia to implement entrepreneurship training programs modeled after Project GATE. During this time, DOL continued to encourage states to use WIA funds for

[3] U.S. Department of Labor Training and Employment Guidance Letter No. 16-04, February 2005. (https://wdr.doleta.gov/directives/corr_doc.cfm?DOCN=1684)

entrepreneurship training activities.[4] Support for entrepreneurship training was further reinforced by the Workforce Innovation and Opportunity Act of 2014, which authorized states to include entrepreneurship training in the set of services offered to dislocated and disadvantaged workers.[5]

1.2. Evidence Base

What research has been done on the effects of entrepreneurship training has largely examined programs that operated in periods of relatively low unemployment. A government study found that the early-1990s demonstration programs in Massachusetts and Washington helped participants become self-employed, leading to positive effects on total employment rates (Benus *et al.*, 1995). Earnings results were ambiguous. The Washington program led to higher self-employment earnings, but these were offset by lower salary earnings, while the Massachusetts program had no effects on earnings. Although any effects on overall employment were small and short-lived, the study concluded that the training and financial assistance offered by the program promoted the rapid reemployment of unemployed workers through self-employment.

The most recent evidence was produced by studies of Project GATE programs (Michaelides and Benus, 2012; Fairlie *et al.*, 2015). Pooling data from the three Project GATE state programs, these studies showed that participants had higher self-employment and total employment rates relative to those in the control group in the six-month period following entry into the program. These effects were mainly driven by unemployed participants and the program had limited effects for participants who were employed or self-employed at the time they enrolled in the program. These results confirmed findings of an earlier government study (Benus *et al.*, 2010), which

[4] U.S. Department of Labor Training and Employment Guidance Letter No. 12-10, November 2010 (https://wdr.doleta.gov/directives/corr_doc.cfm?DOCN=2957).
[5] Workforce Innovation and Opportunity Act of 2014, Public Law 113-128 (https://www.gpo.gov/fdsys/pkg/PLAW-113publ128/pdf/PLAW-113publ128.pdf).

convinced policymakers that there is little basis to offer training to employed or self-employed workers, and that they should focus instead on unemployed workers. However, while the program's effects on self-employment were sustained after the initial six-month period, any effects on total employment dissipated. Combined with the result that there were no effects on participants' earnings, these findings showed that the program's main effect was to help unemployed workers to become self-employed earlier than they would in the program's absence.

Policymakers supported entrepreneurship training programs during the Great Recession based on the rationale that training would expedite participants' business start-up efforts and reduce the amount of time they remained unemployed during a period with limited job options. Ultimately, these programs were viewed as a potentially valuable reemployment policy for unemployed workers who preferred self-employment over salary employment. There are reasons to believe that the value of training could be affected by prevailing economic conditions. Demand for training may be higher during recessions, when individual opportunity costs and business start-up costs tend to be low and there are relatively more unemployed workers with the skills and experience needed to succeed in self-employment. At the same time, recessions are characterized by limited business opportunities and scarce start-up financing options, making it more difficult for workers interested in entrepreneurship to identify and implement a viable business plan, even if they receive appropriate assistance.

The current literature provides no empirical evidence on the efficacy of entrepreneurship training programs during the Great Recession. There are also no formal theoretical models of how the value of training might be associated with the business cycle. This is a conspicuous gap in our understanding, particularly since given the support these programs have received since the start of the Great Recession, leaving many unanswered questions about the relative efficacy of training at

different stages of the business cycle. Is demand for training higher in a weak labor market, when there may be more unemployed workers interested in self-employment? Is training more effective in helping unemployed workers to start a business in good economic times, when business opportunities and start-up financing options are abundant? Or, is training more essential in a weak economy, when it is even more challenging for aspiring business owners to identify viable business opportunities and secure start-up financing?

Existing work also provides little guidance on the types of unemployed workers that may benefit the most from such programs during a recession or under normal circumstances. Is training effective in helping those who lack entrepreneurship know-how and start-up financing, to develop a feasible business plan and secure financing to implement it? Or is it more valuable in supporting the start-up efforts of individuals with strong entrepreneurship background and credit access, who are – by default – more likely to succeed? How are these program mechanisms affected by prevailing economic conditions? This study uses the Project GATE and GATE II paradigms in an attempt to address these questions.

2. The Project GATE and GATE II Programs

2.1 Program Description

In the early 2000s, DOL supported the Project GATE programs to test the value of offering entrepreneurship training through public employment offices. DOL selected three states to implement the program – Maine, Minnesota, and Pennsylvania. These states were selected because they had SEA-enabling legislation allowing them to support entrepreneurship training activities (Wandner, 2010). The Pennsylvania program operated in Philadelphia and Pittsburgh, the Minnesota program operated in Minneapolis/St. Paul and Duluth, and the Maine program

operated statewide.

Program recruitment in each of the three states followed a straightforward sequence. Interested individuals could register for the program at designated public employment offices, by calling a toll-free number, or through the program's website. After registration, individuals who were at least 18 years old were invited to an orientation meeting to obtain information about the program. During the meeting, they were informed that those wishing to participate were required to: (1) complete an application form, providing personal information; (2) sign an informed consent statement indicating that they understood that not all applicants would receive training and that random assignment would be used to determine participation; and (3) respond to follow-up surveys to provide information on their post-training outcomes. This process ensured that the program received applications from individuals who were motivated to participate, and that sufficient data would be available to analyze the program's effects (Benus *et al.*, 2010).

Individuals who completed the application form and signed the informed consent statement (termed *applicants*) were randomly assigned to either the treatment or the control group. Those assigned to the treatment were offered two types of services: (1) an array of training workshops on the various aspects of starting and operating a business; and (2) individual business counseling to help them develop business plans, learn how to deal with various administrative and legal issues, and apply for financing. Those assigned to the control did not have access to program services but could, on their own initiative, receive similar services in the community.

Training workshops offered through the program were meant to help participants to become more familiar with all aspects of starting and running a business, such as to develop a business plan, apply for start-up capital, produce marketing materials, develop and maintain customer relationships, manage finances, and hire qualified staff. Business counseling was meant to help

participants determine the feasibility of their business ideas, encourage them to pursue innovative ideas instead of marginal entrepreneurship activities, and assist them to develop viable business plans. Business counselors also provided participants with information on available credit options, technical support to determine their eligibility for Federal start-up financing programs, and assistance with credit applications.

To ensure that training met high quality standards, each state program used a competitive process to select training providers with proven track records in providing small-business counseling. Through this process, five Small Business Development Centers (SBDCs)[6] and nine nonprofit community-based organizations were selected to support the training delivery process (Bellotti *et al.*, 2006). These organizations provided experienced business counselors who, together with designated program staff at public employment offices, provided workshop training and business counseling to participants.

In 2008, DOL awarded the GATE II grants to Alabama, North Carolina, Virginia, and Minnesota workforce agencies to replicate the Project GATE model (Davis *et al.*, 2011). North Carolina, Alabama, and Minnesota operated GATE II at public employment offices statewide, while the Virginia program operated at public employment offices in Northern Virginia and Richmond. The four states were expected to accept applications from all unemployed workers who were at least 18 years old. However, the economic circumstances brought on by the Great Recession led some grantee states to reconsider their intake process. Virginia and Minnesota opted to accept applications only from older unemployed workers (at least 45 years old). These workers were targeted because they were thought to have employability issues due to the recession but also the skills and experience necessary to start their own businesses (Davis *et al.*, 2011). Moreover,

[6] SBDCs are administered by the Small Business Administration (SBA), providing technical assistance services to aspiring entrepreneurs and small businesses. See: https://www.sba.gov/offices/headquarters/osbdc/about-us.

only North Carolina and Virginia used random assignment to determine which applicants would be offered training, and conducted follow-up surveys to collect information on applicant outcomes (Davis *et al.*, 2017). Alabama and Minnesota did not use random assignment and instead offered training to all applicants, nor did they collect follow-up outcomes information. For this reason, our GATE II analyses consider only the North Carolina and Virginia programs.

North Carolina and Virginia replicated Project GATE's recruitment and services delivery process. Individuals who registered for GATE II were invited to an orientation meeting to receive program information. Those who remained interested in the program were required to complete the application form and sign the informed consent statement. Then, random assignment was used to determine which applicants would be assigned to the treatment or to the control group. Similar to Project GATE, those in the GATE II treatment group were offered workshops and business counseling, while those in the control group were denied access to program services. To support service delivery, each state selected SBDCs and community colleges with experienced staff in providing entrepreneurship training and technical support.

Project GATE recruitment began in September 2003 and continued through July 2005, while GATE II recruited applicants from January 2009 through December 2010. There were important differences in labor market conditions across the three Project GATE states when program recruitment begun (see Appendix A). Pennsylvania had relatively high unemployment and relatively low self-employment rates, but self-employed workers had higher earnings than those in the other two states. Relatively more workers in Maine were self-employed, but they had relatively lower earnings than self-employed workers in the other two states. When GATE II recruitment begun, North Carolina had higher unemployment than Virginia and the entire U.S., but relatively higher proportions of workers were self-employed relative to Virginia. Although

Virginia's unemployment rate in 2009 was the highest in the state for over 20 years, it was similar to the 2003 rate in Pennsylvania and less than 1.4 percentage points higher than the 2003 rates in Minnesota and Maine.

2.2 Applicant Characteristics

All five programs collected applicant information through an application form, which was completed prior to random assignment. Applicant characteristics are summarized in Table 1.[7] Table 1 shows that Project GATE accepted applications from 722 unemployed workers in Pennsylvania, 869 in Minnesota, and 226 in Maine. GATE II had 1,175 unemployed applicants in North Carolina and 435 in Virginia.

There were notable differences in applicant characteristics across programs. Among Project GATE programs, Pennsylvania attracted much higher proportions of female, nonwhite, and younger applicants. While the demographic characteristics of Minnesota and Maine applicants were mostly similar, a much higher proportion of Minnesota applicants had a college degree. Comparing the characteristics of applicants to the characteristics of the unemployed population in each state (Appendix B), shows that male, nonwhite, and 35-54 year-old unemployed workers were overrepresented among applicants. The programs also attracted a disproportionately high number of unemployed workers with some college education or with a college degree. The majority of applicants had no self-employment experience and no business plan. Moreover, many applicants had bad or no credit histories and household incomes less than $50,000, suggesting that they were likely to have limited access to start-up financing. Note that many more Minnesota applicants had good credit histories and at least $50,000 in household income, suggesting that they

[7] Appendix B presents the make-up of the unemployed population in each state when program recruitment began. The Virginia figures are for workers who were at least 45 years old, which was the target population of the program.

were less likely to face credit constraints than applicants in the other two states.

Differences across GATE II programs are more pronounced, which is expected given that Virginia recruited only older unemployed workers. North Carolina applicants were younger and less educated, while both programs attracted relatively high proportions of women and nonwhites. A large proportion of Virginia applicants had prior self-employment experience and good credit histories, and many more applicants in Virginia than in North Carolina had at least $50,000 household income. North Carolina applicants were somewhat similar to Pennsylvania applicants with respect to gender and race, but compared to applicants in all Project GATE states they were older, were less educated, and had lower household incomes. Virginia applicants were older than Project GATE applicants and more of them had a college education and good credit. Compared to the characteristics of unemployed workers in the state, we find that, in both GATE II states, unemployed workers with a college degree were overrepresented among applicants.

Overall, these figures suggest that certain types of unemployed workers – namely nonwhites, prime working age, educated, and middle-income – were more likely to apply for the two programs. But the data do not provide evidence of systematic differences in the types of unemployed workers who applied for training before and during the recession. It appears that variation in the characteristics of program applicants across states is mostly tied to state differences in the composition of the unemployed population when program recruitment was underway.

2.3 Random Assignment and Follow-up Surveys

Table 2 shows that all states except North Carolina randomly assigned about half the applicants to the treatment and the remaining to the control; North Carolina assigned three of every four applicants to the treatment group. To assess whether random assignment was done correctly, we

estimated regression models in which the dependent variable is an indicator equal to 1 if the individual was assigned to the treatment and zero otherwise. Control variables in the regression include the variables listed in Table 1 and a constant term. Regression results – presented in Appendix C – show that of the 96 estimated parameters only 7 were statistically significant at the 10% level or lower. These results show that the random assignment process was successful in creating balanced treatment and control groups, with some differences attributable to chance.

All programs administered follow-up surveys. The surveys asked applicants whether they had received entrepreneurship training and the types of training they received. The surveys also asked applicants about their labor market outcomes at the time of the survey, including whether they were self-employed, employed in a salary job, and their earnings. The survey was identical across programs, but the timing of its implementation was not. Project GATE programs administered surveys at approximately 6, 18, and 60 months after random assignment. The GATE II programs each administered one survey, at approximately 24 months in Virginia and at 32 months in North Carolina. For comparability, our analyses rely on the 18-month survey for the Project GATE programs and the single survey in each of the GATE II programs.

To maximize response, surveys were conducted by phone and respondents were offered a $15 incentive payment. As a result, high response rates were achieved, with nearly three-quarters of all Project GATE applicants responding to the 18-month survey – 467 (65%) in Pennsylvania, 675 (78%) in Minnesota, and 176 (78%) in Maine. Response rates were similarly high in North Carolina and Virginia, with 825 (70%) and 174 (77%) respondents, respectively.

The fact that, across the five programs, between 22% and 35% of applicants did not respond to the survey raises two concerns: (1) the characteristics and outcomes of survey respondents may not represent those of the entire applicant population; and (2) the treatment-control balance in

characteristics may not have been maintained among respondents, which can potentially lead to biased estimates of program effects. Indeed, there are a few differences in characteristics between all program applicants (Table 1) and survey respondents (Appendix D), indicating that survey attrition was associated with observable characteristics. However, differences are small enough that survey respondents are generally similar to program applicants, mitigating the first concern. Regression models that estimate treatment assignment as a function of individual characteristics – estimated using data only from survey respondents – show that there were very few substantively important treatment-control differences in characteristics (Appendix E). Collectively, these comparisons indicate that any potential bias in treatment-control differences in outcomes because of survey attrition is minimal. To further ensure that estimated program effects are not affected by survey attrition, program effects are estimated below using regression models that control for available characteristics.

3. Program Effects

The first question we address is whether the presence of a government-sponsored training option caused more unemployed workers than usual to receive training. Using survey responses, we identify which treatment group members received training from the program and which control group members received similar training from the community. Treatment-control comparisons in training take-up rates for each state program are used to measure the programs' effects on training take-up.

Second, we examine whether the programs helped participants to start their own businesses, become reemployed, and improve their earnings. As discussed in more detail below, our analyses focus on several measures of individual labor market outcomes, measured at the time of the survey. To estimate program effects with improved statistical power, regression models are used that

control for available characteristics:

$$Y_i = a \cdot T_i + X_i \cdot \beta + u \qquad [1]$$

The dependent variable (Y_i) is the outcome for applicant *i*, and control variables include: an indicator that equals 1 if applicant *i* was assigned to the treatment group and 0 otherwise (T_i); individual characteristics as reported in Table 1 (X_i); and a zero-mean disturbance term (u). The parameter *a* measures the program's *intent-to-treat (ITT)* effect.

Regressions are estimated separately for each program. This is an important deviation from prior research, which pooled data from all three states to estimate the effects of Project GATE (Michaelides and Benus, 2012; Fairlie *et al.*, 2015; and Michaelides, 2017). The results presented here show important variation in program results across states, which was not captured by previous work. To further assure that estimated effects are representative of the entire applicant population, we also estimated each model using weights equal to the inverse of the predicted likelihood of responding to the survey.[8] Note that differences between survey respondents and all applicants are generally small, and thus estimated effects are not substantively different between models that do not use survey non-response weights and models with weights. For simplicity, we report the results with no weights.

Finally, we assess whether program effects varied based on individual characteristics. For our analyses, we modify equation 1 to include interactions between the treatment indicator and selected characteristics measuring human capital, business background, and access to credit. Separate models are used to estimate effects on subgroups based on each characteristic reported in Table 1 (e.g., self-employment experience vs. no experience; college degree vs. no college degree).

[8] These weights are designed to adjust for survey non-response for treatment and control cases based on observable characteristics, making the estimation sample representative of all program applicants. For a discussion of the methodology used to construct these weights, see Benus *et al.* (2009) and Davis *et al.* (2012); for a discussion of the use of these weights in the program evaluation literature, see McConnell *et al.* (2006) and Trenholm *et al.* (2007).

Based on these analyses, we report results for participant subgroups based on self-employment experience, college education, age, and credit access, for which we find evidence of differential program effects. Although small sample sizes make it difficult in some cases to detect whether differences across groups are statistically significant, we believe the results are helpful in shedding light on the underlying mechanisms responsible for program success.

3.1 Effects on Training Take-up Rates

Table 3 presents training take-up rates for the treatment and control groups. The first column reports whether individuals received at least one training type (workshops and/or counseling), and the four remaining columns report whether individuals participated in workshops only, in counseling only, in both, or in neither. The majority of Project GATE treatment cases received at least one type of training, with higher take-up rates in Minnesota (87.4%) and Maine (84.8%) than in Pennsylvania (75.9%). There was notable variation across states in the types of training received by treatment cases, with relatively low take-up of business counseling in Pennsylvania and of workshop training in Maine. Minnesota treatment cases were relatively more likely to receive both workshop training and counseling.

Many Project GATE control group members obtained training from community providers, with lower take-up rates in Pennsylvania than in Minnesota and Maine. These figures indicate that the training offered by Project GATE was available in the community and that many applicants intended to use those options even if not assigned to the program. Workshop take-up – either stand-alone or in combination with counseling – was particularly high in all states, but counseling take-up was much lower in Pennsylvania and Minnesota than in Maine.

The majority of GATE II treatment group members participated in at least one type of training,

but North Carolina had much lower take-up rates of both services than Virginia. Program compliance was generally lower in the GATE II states than in the Project GATE states, except that Virginia and Pennsylvania take-up rates were similar. Similar to Project GATE, many GATE II control group members received at least one type of training. Workshop take-up was particularly high, higher even than in Project GATE programs, but counseling participation was very low, reflecting perhaps lack of workshop and counseling options in the community.

To measure whether the availability of Project GATE and GATE II improved training take-up, we compare the take-up rates between treatment and control cases in each program.[9] As seen in Table 3, training take-up was appreciably higher for the treatment than for the control group in all five programs. Overall, Project GATE increased the likelihood of receiving at least one type of training by 43.2 percentage points in Pennsylvania, 40.7 percentage points in Minnesota, and 26.0 percentage points in Maine. Similarly, GATE II led to a 23.5 and a 37.3 percentage-point increase in training take-up in North Carolina and Virginia, respectively.

A review of the programs' effects on individual training types show that all programs substantially increased the likelihood that participants would participate in both workshops and counseling, except Maine. The Maine results are partly because relatively more control cases than in other states received both training types from the community, indicating perhaps higher availability of outside training options. This may also explain why take-up of both training types was lower among Maine treatment members than in most other programs – it is possible that many more applicants in Maine had the opportunity to receive training from the community prior to applying for Project GATE. Note also that, in all states except Pennsylvania, effects on workshop

[9] The treatment-control difference in training take-up measures the proportion of applicants who received training because they were assigned in the program group, but who would not have received training otherwise (termed *always-takers* in the literature). The proportion of always-takers among applicants measures the program's effect on training take-up.

only participation were uniformly small, or even negative in Minnesota and Virginia.

Finally, it is possible that variation in training take-up rates across states is partly attributable to state differences in applicant characteristics. To investigate this possibility, we estimated the likelihood of training take-up (overall, by each type, and both types) based on both treatment assignment and observed characteristics. For illustration, Appendix F presents the results of the likelihood of participating in at least one type of training (results for other training take-up outcomes are available upon request). The results provide limited evidence that training receipt was affected in a consistent way across states based on gender, race, age, or business background. In most states, applicants with at least some college education, self-employment experience, and high household income were more likely than average to receive training. This partially explains the relatively low training participation in Pennsylvania and North Carolina, the two programs that attracted fewer applicants with these characteristics.

3.2 Effects on Labor Market Outcomes

Survey responses are used to measure the employment situation of program applicants at the time of the survey, including whether they were self-employed, employed in a salary job, or employed in any capacity (self-employed or employed in a salary job). For respondents who reported they were self-employed, we measure whether they were self-employed in their own businesses or as independent contractors (i.e., self-employed but did not own a business). Information on self-reported earnings is used to measure self-employment, salary, and total monthly earnings at the time of the survey. Based on the timing of the surveys, these outcomes are measured at 18 months for Project GATE programs, at month 24 for the Virginia GATE II, and at month 32 for the North Carolina GATE II.

Table 4 summarizes employment and earnings measures. There was wide variation across states in the outcomes of control cases. Minnesota and Maine had the highest self-employment rates, with about 38% and 41% of control cases reporting they were self-employed, respectively. Nearly two-thirds of these were self-employed in their own business while the rest were self-employed as independent contractors. Control group members in GATE II programs were much less likely than those in Project GATE programs to be self-employed in their own business, indicating that – in the absence of training – it was harder to start a business during the recession. Fewer control members in Minnesota and Maine were employed in a salary job relative to those in Pennsylvania and in GATE II programs. This may be because more control group members in those two states became self-employed, and thus fewer of them considered salary employment. Virginia had higher salary employment rates than North Carolina and two of the three Project GATE states. This suggests that, since employment rates were similar between younger and older North Carolina control members, it was relatively easier for Virginia applicants to find salary employment during the recession. Table 4 also shows wide state variation in monthly average earnings among control cases, reflecting state differences in labor market conditions and the employment situation of control cases.

Estimated effects on employment and earnings are presented in Table 5. The Pennsylvania program had a positive but statistically insignificant effect on self-employment, which was driven by a significantly positive effect on independent self-employment. The program also had a negative but insignificant effect on salary employment, so that the program's effect on total employment was close to zero. The program did not yield any effects on self-employment earnings, and had positive but statistically insignificant effects on salary and total earnings.

Project GATE in Minnesota increased self-employment by 7.8 percentage points, an effect that

is driven entirely by a large positive effect on self-employment in an own business. We estimate a comparable negative effect on salary employment, suggesting that many of the treatment cases that became self-employed because of the program, would have ended up in salary jobs in the program's absence. Curiously, there was no effect on self-employment earnings, while effects on salary and total earnings were negative and lacked statistical significance. One possible explanation is that treatment cases that became self-employed because of the program, who in the program's absence would be employed in salary jobs, achieved lower earnings from self-employment than they would have achieved in salary employment.

The Maine results are quite different. The program had a negative effect on self-employment, which is entirely attributable to a large and statistically significant reduction in independent self-employment. The program's effects on salary and total employment were large and positive but lacked statistical significance. Results show, however, that the Maine program increased salary earnings by $852 (61%) and total earnings by $1,104 (72%). These findings show that the program did not help participants to start a business and become self-employed. It appears, rather, that the program may have pushed some participants – who would have likely ended up in independent self-employment in the program's absence – to pursue salary employment instead.

Turning to GATE II, the North Carolina program increased self-employment by 8.3 percentage points, a 40% increase over the control group mean. This is about equally attributable to an increase in self-employment in own business and in independent self-employment. The program's effect on salary employment was negative but lacked statistical significance, offsetting the positive effect on self-employment. This suggests that many participants who became self-employed because of the program would have found salary jobs in the program's absence. The small positive effects on earnings – although not statistically significant – suggest that those who became self-employed as

a result of the program were likely low-earners. In Virginia, the program had small effects overall, indicating that the program did little to help older unemployed workers to secure employment during the recession. The effects on earnings are negative, suggesting that engagement in the program may have hurt participants' earnings.

3.3 Subgroup Analyses

To investigate whether program effects varied based on individual characteristics, we modify the regression specification to include interaction terms between the treatment indicator and the characteristics reported in Table 1. We estimated several models, each estimating differential effects based on a single characteristic, or in some cases based on pairs of characteristics. The discussion below focuses on four characteristics for which we found evidence of differential program effects: (1) whether the participants had self-employment experience; (2) whether the participant had a college degree; (3) whether the participant had good credit history; and (4) whether the participant was at least 45 years old. Tables 6 and 7 report estimated effects from four separate models, each estimating effects by each one of the four characteristics.

Results in Table 6 show that the Pennsylvania Project GATE's effects varied based on whether participants had self-employment experience. The program had significantly positive effects on self-employment in own business (14.7 percentage points) and total self-employment (19.4 percentage points) for participants with self-employment experience, but close-to-zero effects for participants with no experience. The positive effect on self-employment for experienced participants was accompanied by a negative effect on salary employment, so that the program's effect on total employment was positive (8.3 percentage points) but lacked statistically significant. There is limited evidence that program effects varied based on participants' education, age, and credit access. Further analyses that estimate program effects based on pairwise interactions of these

characteristics show that program effects for experienced participants did not vary based on their college education, credit access, or age. These findings show that the main effect of the Pennsylvania program was to help participants with self-employment experience to start a business and become self-employed rather than to pursue a salary job.

The Minnesota results show that the program increased self-employment in own business by 19.6 percentage points for participants with self-employment experience, as compared with 7.6 percentage points for those with no experience. This effect for experienced participants was accompanied by negative and statistically insignificant effects on independent self-employment and salary employment. Overall, the program increased total employment by 11.1 percentage points for experienced participants but did not affect total employment for inexperienced participants. The program also had higher effects on self-employment in an own business for participants with good credit (15.4 percentage points) than for participants with bad credit (minus 1.2 percentage points). This positive effect for good-credit participants was accompanied by a negative effect on salary employment, so that the program did not have a substantive effect on total employment. Further analyses show that the program's effect on self-employment in an own business was significantly higher for experienced participants who either had a college education or good credit access.[10] In both cases, these effects led to a substantial increase in total employment.[11] These results suggest that the Minnesota program's primary effect was to help participants with high levels of entrepreneurship skills – particularly those with high human capital or good credit – to start their own businesses and improve their overall employment rates.

[10] The program increased self-employment in an own business by 30.8 percentage points for experienced, college-educated participants, compared with up to 8.7 percentage points for other participant groups (experience, no college; no experience, college; and no experience, no college). Similarly, the program increased self-employment in an own business by 27.0 percentage points for experienced, good-credit participants, compared with up to 8.3 percentage points for other groups (experience, bad credit; no experience, good credit; and no experience, bad credit).

[11] The program increased total employment by 20.8 and 12.7 percentage points for experienced, college-educated and experienced, good-credit participants, compared with up to 5.7 percentage points for other groups.

The Maine results suggest that the program had different effects based on observed characteristics, although statistical power is somewhat limited. Estimated effects on salary employment were particularly large for participants with no self-employment experience (22.3 percentage points), a college degree (27.7 points), and good credit (25.3 points). As a result, these groups experienced significant gains in their salary earnings. The program also had positive effects on self-employment in an own business for certain groups, a finding that was not evident in the aggregate analyses. Specifically, the program increased self-employment in an own business for participants with self-employment experience (18.6 points), no college degree (11.4 points), and bad credit (23.1 points). These effects were accompanied by comparable negative effects on independent self-employment, indicating that the program helped these participants to become self-employed in their own business instead of becoming self-employed as independent contractors. Separate analyses based on pairwise interactions of these characteristics lack statistical power, but suggest that: (1) the program's effects on salary employment and earnings were higher for inexperienced participants with good credit;[12] and (2) the program's positive effects on self-employment in an own business were higher for experienced participants with no college degree.[13]

The GATE II effects by individual characteristics are presented in Table 7. The North Carolina program had a significantly positive effect on self-employment in an own business for younger participants (8.3 percentage points) but essentially no effect for older participants (1.8 percentage points). This effect was largely offset by reductions in salary employment, implying that the program helped younger participants to become self-employed instead of finding salary jobs. The

[12] The program had statistically significant effects on salary employment (36.3 percentage points) and earnings ($2,422) for inexperienced, good-credit participants, as compared with statistically insignificant effects for other participants (up to 3.2 percentage points for salary employment and up to $1,099 for salary earnings).

[13] The program increased self-employment in own business by 32.0 percentage points for experienced participants with no college degree (statistically significant at the 1% level) as compared with up to 1.6 percentage points for other participant groups.

program also had statistically positive effects on independent self-employment (6.4 percentage points) and total self-employment (10.0 percentage points) for participants with no college education and close-to-zero effects on these outcomes for participants with a college degree. Again, these effects were largely offset by reductions in salary employment, and thus there were no gains in overall employment. There is limited evidence that program effects varied based on participants' self-employment experience and credit access. Further analyses of program effects based on pairwise interactions of characteristics lack statistical power in most cases, but seem to largely confirm these findings.

The Virginia results are interesting because they reveal underlying effects that were not identified by the aggregate analyses. As seen in Table 9, the program increased total self-employment for participants with no self-employment experience by 12.9 percentage points, but had a negative and insignificant effect (minus 10.2 percentage points) for participants with self-employment experience. There is some evidence that program effects varied based on other characteristics, but statistical power is limited. Further analyses of effects based on pairwise interactions of these characteristics confirm that whatever positive effects the program had on self-employment predominantly occurred for participants with no self-employment experience. Similar to North Carolina, these effects were offset by reductions in salary employment, so that there were no effects on total employment. The same analyses suggest that the program's negative effects on earnings largely affected participants with no college degree.

4. Conclusions

This paper presents experimental evidence on the effects of government-sponsored entrepreneurship training during and prior to the Great Recession. The programs studied here were

selected because: (1) they were implemented during two periods characterized by markedly different economic conditions, allowing us to assess program efficacy prior and during the Great Recession; (2) they shared the same structure, which was similar with that of most entrepreneurship training programs supported by the U.S. government since the start of the recession; and (3) they randomly selected applicants for participation, ensuring that the programs' causal impacts can be estimated with high accuracy.

Our results provide several key findings on the relative effectiveness of entrepreneurship training at different stages of the business cycle. Analyses of training take-up rates show that all programs achieved high compliance, with the majority of those in the treatment receiving workshop training, business counseling, or both. Although program compliance was generally lower during the recession, our results indicate that interest in training was high regardless of prevailing economic conditions. We also find that many control group members received similar training elsewhere, indicating that government-sponsored training may partially crowd out available community options. Nevertheless, all programs significantly increased training take-up, with the effects in four of the five programs occurring mostly because they increased the proportion of unemployed workers who received both workshop training and business counseling. These findings lead us to conclude that, while government programs are likely to displace training options that are already available in the community, they are effective in increasing training take-up, regardless of overall economic conditions. It appears that these programs are likely to encourage more unemployed workers than usual to participate if they offer combinations of training services that cannot be found under the same roof in the community.

Analyses of the effects of programs prior to the recession provide mixed results. The Pennsylvania program increased self-employment by helping participants to become self-

employed in their own business. Effects were largely realized for participants with self-employment experience and were offset by negative effects on salary employment. These findings indicate that the program's main effect was to help experienced participants who would have found jobs in the program's absence to start their own business and become self-employed instead. There is no evidence that the program had any positive effects on participants' earnings, indicating that those who became self-employed because of the program did not achieve higher earnings than they would have if they had found salary jobs.

The Minnesota program was also very effective in helping participants to start a business and become self-employed. Effects were higher for participants with self-employment experience, and higher still for experienced participants with a college degree or with good credit. These effects were accompanied by negative but relatively smaller effects on independent self-employment, and thus the program had significant positive effects on total employment. These results indicate that the Minnesota program's main effect was to help experienced participants – particularly those with high human capital or good access to financing – to start a business and improve their total employment rates. Effects on self-employment earnings were negligible, pointing to the possibility that some of the individuals who became self-employed because of the program would have achieved higher earnings in the program's absence.

The results of the Maine program provide a different story. The program reduced self-employment, a result driven entirely by a significant reduction in independent self-employment, and had large positive effects on salary and total employment. These results suggest that the Maine program pushed participants to obtain salary jobs instead of pursuing independent self-employment. In fact, the Maine program is the only one that produced positive effects on salary and total earnings. Further analyses suggest two underlying program mechanisms. The primary

driver of the program's effects on salary employment and earnings was to push participants with no self-employment experience (particularly those with good credit) to find salary jobs instead of pursing self-employment. A secondary effect is that the program helped experienced participants (particularly those with no college degree) to become self-employed in their own business instead of becoming self-employed as independent contractors.

While it is not feasible to assess why the results in Maine differed from those in Pennsylvania and Minnesota, we can speculate that this is related to the level of services received by participants. If program effects occur because they provide a combination of training services that are not easily accessible in the community, then we would expect program effects to be lower in areas where such services are in fact available. In Maine, control members were much more likely to receive the full range of program training from community providers than control members in the other two programs. At the same time, treatment members in Maine had similar or lower take-up rates than those in Pennsylvania and Minnesota. These patterns indicate that Maine applicants may have had more access to community training options than applicants in the other two states. Thus, a potential explanation why the Maine program was less effective in improving self-employment outcomes is because applicants had received similar services prior to or around the time when the program operated.

Overall, the Project GATE findings indicate that entrepreneurship training can help unemployed workers to start a business and become self-employed during periods of moderate unemployment. These effects appear more likely to occur for unemployed workers with prior involvement in self-employment. This suggests that training can help those with entrepreneurship know-how to navigate through the business start-up process (e.g., develop a viable business plan and secure financing) and increase their chances for success. In many cases, effects on self-

employment did not lead to improvements in overall employment rates, possibly because those who became self-employed because of the program would have found salary jobs or would have become self-employed as independent contractors in the program's absence. There is evidence, however, that these programs may help unemployed workers – particularly those who combine entrepreneurship experience with high human capital skills or high credit access – to improve their employment prospects through self-employment. Positive effects on employment are also observed in Maine but from an unexpected source – by pushing participants who lack entrepreneurship experience to find salary jobs instead of pursuing self-employment. Finally, the programs examined here did not improve participants' self-employment earnings, implying that some of the participants who became self-employed because of the programs would have found salary jobs that paid higher earnings in the program's absence.

Analyses of the effects of the GATE II programs provide benchmark evidence about the potential effects of entrepreneurship training during an economic downturn. Results show that the North Carolina program helped participants to become self-employed – either in their own business or as independent contractors – instead of becoming employed in salary jobs. It appears that these effects occurred because the program helped younger participants to start their own business and participants with no college education to become self-employed as independent contractors. These effects were accompanied by reductions in salary employment and essentially zero effects on total employment. There is no evidence that the program improved participants' earnings, suggesting that those who benefited from the program would have achieved similar earnings if they had found salary jobs.

Aggregate analyses provide limited evidence that the Virginia program had any positive effects for older unemployed participants. However, analyses of program effects based on individual

characteristics reveal that the program helped participants with no self-employment experience to start their own business, but had limited effects for everyone else. These effects were offset by a reduction in salary employment, so that there were no effects on total employment. These findings suggest that the program helped older unemployed participants with no prior involvement in self-employment to become self-employed instead of finding a salary job. The program did not improve participants' earnings and, in fact, there is evidence that some participants experienced an earnings reduction because of their engagement in program activities.

Overall, the GATE II findings suggest that the primary effect of entrepreneurship training during economic downturns is to help some unemployed workers – who were likely to obtain salary jobs in the programs' absence – to become self-employed. There is mixed evidence about which types of workers are likely to benefit from training during a recession. The North Carolina results suggest that program effects are likely to be higher for younger participants or for participants with no college education. This implies that the program helped participants to overcome limited labor market experience and human capital skills and become self-employed instead of pursuing salary employment. But the fact that the program did not improve individual earnings suggests that these participants – many of whom likely had low returns from salary employment – did not achieve higher earnings by becoming self-employed. The Virginia results suggest that the program is mostly effective in helping older workers with no self-employment experience to overcome lack of entrepreneurship know-how and become self-employed instead of finding salary jobs. Again, lack of effects on earnings suggests that becoming self-employed instead of finding a salary job did not help these participants to improve their earnings.

In conclusion, these findings provide weak evidence that entrepreneurship training programs can be an effective reemployment policy during economic downturns. Although such programs

can be effective in encouraging unemployed workers who are interested in self-employment to receive relevant training and even help those with limited labor market and entrepreneurship skills to become self-employed, they are unlikely to lead to substantive improvements in participants' employment and earnings. Results appear more promising when programs are implemented in good economic times. On one hand, we find that such programs may promote the exposure of unemployed workers to training, and help those with entrepreneurship experience to start their own business and become self-employed. On the other hand, there is mixed evidence about the programs' efficacy to improve employment – in some cases, effects on self-employment are likely to occur at the expense of salary employment, but in other cases they may lead to improved employment rates. Moreover, there is no evidence that these programs can help participants to improve their earnings through self-employment in the context of a strong economy.

These findings call into question whether entrepreneurship training is an effective policy of combating unemployment and improving the earnings of unemployed workers, particularly during economic downturns. At the same time, it may be feasible to improve the efficacy of such programs. For one, policymakers should carefully design these programs to cater to the needs of the communities they serve, providing services that are unavailable in the community and referring participants to outside options, when available. This would maximize training take-up and, potentially, lead to improved results. Second, policymakers should consider ways to identify and target unemployed workers who are more likely to succeed if they participate in the program. For example, based on our findings, it would appear that targeting training to unemployed workers with self-employment experience when the economy is strong or to unemployed workers with limited human capital and entrepreneurship skills during a recession may produce higher value than making training available to everyone.

References

Aaronson D., Rissman E.R., and Sullivan D.G. (2004). Assessing the Jobless Recovery. Economic Perspectives, Federal Reserve Bank of Chicago, 28, 2-20.

Alba-Ramirez A. (1994). Self-Employment in the Midst of Unemployment: The Case of Spain and the United States. Applied Economics, 26(3), 189-204.

Bates T. (1985). Entrepreneur Human Capital Endowments and Minority Business Viability. Journal of Human Resources, 20(5), 540-554.

Bates T. (1997). Race, Self-Employment, and Upward Mobility: An Illusive American Dream. Johns Hopkins University Press, Baltimore, MD.

Bates T., and Servon L. (2000). Viewing Self-Employment as a Response to Lack of Suitable Opportunities for Wage Work. National Journal of Sociology, 12(2), 23-55.

Bellotti J., McConnell S., and Benus J. (2007). Growing America Through Entrepreneurship: Interim Report. U.S. Department of Labor, Employment and Training Administration Occasional Paper 2007-06.

Benus J., Johnson T., Wood M., Grover N., and Shen T. (1995). Self-Employment Programs: A New Reemployment Strategy. Final Report on the UI Self-Employment Demonstration. U.S. Department of Labor, Unemployment Insurance Occasional Paper 95-4.

Benus J., Shen T., Zhang S., Chan M., and Hansen B. (2010). Growing America Through Entrepreneurship: Final Evaluation of Project GATE. U.S. Department of Labor, Employment and Training Administration Occasional Paper 2010-08.

Biehl A.M., Gurley-Calvez T., and Hill B. (2014). Self-employment of Older Americans: Do Recessions Matter? Small Business Economics, 42(2), 297-309.

Blanchflower D.G., Oswald A., and Stutzer A. (2001). Latent Entrepreneurship Across Nations.

European Economics Review, 45(4-6), 680-691.

Blanchflower D.G., Levine P.B., and Zimmerman D.J. (2003). Discrimination in the Small Business Credit Market. Review of Economics and Statistics, 85(4), 930-943.

Campos C., Dent A., Fry R., and Reid A. (2011). Impact of the Recession. Regional Trends, 43, 1-69.

Cavalluzzo K., and Wolken J. (2005). Small Business Loan Turndowns, Personal Wealth, and Discrimination. Journal of Business, 78(6), 2153-2178.

Constant A. F., and Zimmermann K. F. (2004). Self-employment Dynamics across the Business Cycle: Migrants versus Natives. IZA Discussion Paper No. 1386.

Davis A., Berkowitz J., Rose J., and Poe-Yamagata E. (2011). Evaluation of the Growing America Through Entrepreneurship (GATE) II Grants: Implementation Study. U.S. Department of Labor, Washington, DC.

Davis A., Michaelides M., and Poe-Yamagata E. (2017). Evaluation of the GATE II Grants: Is Self-Employment Training Effective for Rural and Older Dislocated Workers? U.S. Department of Labor, Employment and Training Administration Occasional Paper 2017-09.

Dennis W.J. (1996). Self-employment: When Nothing Else is Available? Journal of Labor Research, 17(4), 645-661.

Evans D.S., and Leighton L.S. (1990). Small Business Formation by Unemployed and Employed Workers. Small Business Economics, 2(4), 319-330.

Fairlie R.W. (1999). The Absence of the African-American Owned Business: An Analysis of the Dynamics of Self-Employment. Journal of Labor Economics, 17(1), 80-108.

Fairlie R.W., and Krashinsky H.A. (2012). Liquidity Constraints, Household Wealth, and Entrepreneurship Revisited. Review of Income and Wealth, 58(2), 279-306.

Fairlie R.W., and Meyer B.D. (1996). Ethnic and Racial Self-Employment Differences and Possible Explanations. Journal of Human Resources, 31(4), 757-793.

Fairlie R.W., and Robb A. (2007a). Families, Human Capital, and Small Business: Evidence from the Characteristics of Business Owners Survey. Industrial and Labor Relations Review, 60(2), 225-245.

Fairlie R.W., and Robb A.M. (2007b). Why Are Black-Owned Businesses Less Successful than White-Owned Businesses? The Role of Families, Inheritances, and Business Human Capital. Journal of Labor Economics, 25(2), 289-323.

Glocker D., and Steiner V. (2007). Self-Employment: A Way to End Unemployment? Empirical Evidence from German Pseudo-Panel Data. IZA Discussion Paper No. 2561.

Grilo I., and Thurik R.A. (2005). Latent and Actual Entrepreneurship in Europe and the U.S.: Some Recent Developments. International Entrepreneurship and Management Journal, 1(4), 441-459.

Hipple S.F. (2010). Self-employment in the United States. Monthly Labor Review, 133(9), 17-32.

Hout M., and Rosen H.S. (2000). Self-Employment, Family Background, and Race. Journal of Human Resources, 35(4), 670-692.

Keister L.A. (2000). Wealth in America: Trends in Wealth Inequality. Cambridge University Press, Cambridge, UK.

Koellinger P.D., and Thurik R.A. (2010). Entrepreneurship and the Business Cycle. Review of Economics and Statistics, 94(4), 1143-1156.

Kosanovich W.T., Fleck H., Yost B., Armon W., and Siliezar S. (2002). Comprehensive Assessment of Self-Employment Assistance Programs. U.S. Department of Labor, Employment and Training Administration Occasional Paper 2002-01.

Loscocco K.A., and Robinson J. (1991). Barriers to women's small-business success in the United

States. Gender & Society, 5(4), 511-532.

Mandelman F.S. and Montes-Rojas G.V. (2009). Is Self-employment and Micro-entrepreneurship a Desired Outcome? World Development, 37(12), 1914-1925.

McConnell S., Stuart E., Fortson K., Decker P., Perez-Johnson I., Harris B., and Salzman J. (2006). Managing Customers' Training Choices: Findings from the Individual Training Account Experiment. Mathematica Policy Research, Washington, DC.

McKenzie D.J. (2004). Aggregate Shocks and Urban Labor Market Responses: Evidence from Argentina's Financial Crisis. Economic Development and Cultural Change, 52(4), 719-758.

Meager N. (1992). Does Unemployment Lead to Self-Employment? Small Business Economics, 4(2), 87-103.

Michaelides M., and Benus J. (2012). Are Self-Employment Training Programs Effective? Evidence from Project GATE. Labour Economics, 19(5), 695-705.

Reynolds P.D., Carter N.M., Gartner W.B., and Greene P.G. (2004). The Prevalence of Nascent Entrepreneurs in the United States: Evidence from the Panel Study of Entrepreneurial Dynamics. Small Business Economics, 23, 263-284.

Rissman E.R. (2003). Self-Employment as an Alternative to Unemployment. Working Paper No. 2003-34. Federal Reserve Bank of Chicago.

Shane S. (2011). The Great Recession's Effect on Entrepreneurship. Economic Commentary 2011-04. Federal Reserve Bank of Cleveland, Cleveland, Ohio.

Smith D.T. (2004). Developing Self-Employment Among African Americans: An Examination of Human Capital Resources. Development and Society, 33(1), 81-92.

Sonfield M.C., and Lussier R.N. (2009). Gender in Family Business Ownership and Management: A Six-country Analysis. International Journal of Gender and Entrepreneurship, 1(2), 96-117.

Trenholm C., Devaney B., Fortson K., Quay L., Wheeler J., and Clark M. (2007). Impacts of Four Title V, Section 510 Abstinence Education Programs. Mathematica Policy Research No. 8549-110, Princeton, NJ.

Von Greiff J. (2009). Displacement and Self-employment Entry. Labour Economics, 16(5), 556-565.

Wandner S.A. (2008). Employment Programs for Recipients of Unemployment Insurance. Monthly Labor Review, 131(10), 17-27.

Table 1: Characteristics of Program Applicants

	Project GATE			GATE II	
	Pennsylvania	Minnesota	Maine	North Carolina	Virginia
All Applicants	722	869	226	1,175	435
Male	.546	.627	.628	.557	.506
Female	.454	.373	.372	.442	.494
White	.414	.777	.889	.600	.513
Nonwhite	.586	.223	.111	.400	.487
Married	.341	.514	.443	.517	.503
Disabled	.061	.073	.115	.057	.032
18-25 Years Old	.039	.017	.018	.001	--
25-34 Years Old	.226	.165	.173	.146	--
35-44 Years Old	.313	.345	.305	.275	--
45-54 Years Old	.314	.354	.381	.317	.503
55+ Years Old	.108	.119	.124	.237	.497
No High School Diploma	.042	.022	.062	.066	.009
High School Diploma	.298	.167	.301	.359	.103
Some College	.381	.358	.336	.243	.297
College Degree	.280	.454	.301	.212	.591
Self-Employment Experience	.226	.257	.332	.313	.441
Family Business	.639	.768	.748	.491	--
Relevant Work Experience	.796	.829	.810	.373	.885
Business Plan	.235	.181	.181	.116	.053
Bad/No Credit History	.573	.331	.429	.440	.205
Family Financial Support	.418	.480	.473	.455	.559
Household Income					
Less than $25,000	.425	.229	.407	.488	.308
$25,000 – $49,999	.352	.327	.367	.310	.308
$50,000 – $74,999	.134	.216	.146	.129	.140
$75,000+	.089	.228	.080	.072	.244

Notes: Reported are proportions of all applicants.

Table 2: Random Assignment of Program Applicants

	All Applicants	Treatment Group	Control Group
Project GATE			
Pennsylvania	722 (100%)	352 (49%)	370 (51%)
Minnesota	869 (100%)	430 (49%)	439 (51%)
Maine	226 (100%)	106 (47%)	120 (53%)
GATE II			
North Carolina	1,175 (100%)	881 (75%)	294 (25%)
Virginia	435 (100%)	218 (50%)	217 (50%)

Notes: Reported is the number of applicants with proportion of all applicants in parenthesis.

Table 3: Training Take-Up Rates

	Any Training	Workshops, No Counseling	No Workshops, Counseling	Workshops, Counseling	No Training
Project GATE					
Pennsylvania					
Treatment	.759	.336	.083	.340	.241
Control	.327	.226	.035	.066	.673
Difference	*.432 [.042]***	*.110 [.041]****	*.048 [.022]***	*.274 [.035]****	*-.432 [.042]****
Minnesota					
Treatment	.874	.261	.160	.452	.126
Control	.467	.260	.066	.141	.533
Difference	*.407 [.032]****	*-.001 [.034]*	*.094 [.024]****	*.311 [.033]****	*-.407 [.032]****
Maine					
Treatment	.848	.215	.291	.342	.152
Control	.588	.165	.134	.289	.412
Difference	*.260 [.067]****	*.050 [.059]*	*.157 [.060]****	*.053 [.071]*	*-.260 [.067]****
GATE II					
North Carolina					
Treatment	.643	.211	.103	.318	.357
Control	.408	.260	.046	.102	.592
Difference	*.235 [.040]****	*.049 [.034]*	*.057 [.023]***	*.216 [.035]****	*-.235 [.040]****
Virginia					
Treatment	.781	.135	.101	.534	.219
Control	.408	.291	.038	.076	.592
Difference	*.373 [.050]****	*-.156 [.044]****	*.063 [.028]***	*.458 [.045]****	*-.373 [.050]****

Notes: Reported are sample proportions for each treatment and control group and the treatment-control difference with standard errors in brackets. ***, **, * = statistically significant at the 1%, 5%, 10% level.

Table 4: Employment and Monthly Earnings

	Project GATE						GATE II			
	Pennsylvania		Minnesota		Maine		North Carolina		Virginia	
	Treatment	Control	Treatment	Control	Treatment	Control	Treatment	Control	Treatment	Control
Self-Employment	.307	.235	.463	.379	.342	.412	.286	.209	.330	.261
in own business	.203	.168	.343	.235	.253	.258	.164	.117	.129	.114
no business	.104	.066	.121	.144	.089	.154	.129	.092	.208	.152
Salary Employment	.473	.509	.382	.420	.494	.351	.425	.474	.426	.500
Total Employment	.780	.743	.846	.799	.835	.763	.710	.684	.756	.764
Self-Employment Earnings	112 (525)	97 (515)	417 (1,286)	329 (1,303)	425 (1,451)	154 (589)	151 (745)	87 (372)	68 (330)	164 (842)
Salary Earnings	1,739 (2,464)	1,636 (2,302)	2,305 (4,315)	2,422 (3,650)	2,232 (352)	1,389 (1,713)	688 (1,733)	609 (933)	823 (1,610)	1,480 (6,366)
Total Earnings	1,851 (2,493)	1,733 (2,302)	2,722 (4,383)	2,750 (3,735)	2,657 (3,180)	1,542 (1,752)	840 (1,849)	696 (1,002)	891 (1,678)	1,643 (6,393)

Notes: Reported are sample proportions.

Table 5: Effects on Employment and Earnings

	Project GATE			GATE II	
	Pennsylvania	Minnesota	Maine	North Carolina	Virginia
Self-Employment	.064 (.043)	.078 (.038)**	-.057 (.078)	.083 (.037)**	.028 (.047)
in own business	.016 (.038)	.110 (.035)***	.059 (.071)	.049 (.030)	.003 (.036)
no business	.048 (.026)*	-.032 (.027)	-.116 (.051)**	.042 (.026)	.027 (.040)
Salary Employment	-.058 (.047)	-.087 (.038)**	.107 (.079)	-.063 (.047)	-.043 (.055)
Total Employment	.029 (.041)	.031 (.030)	.097 (.070)	.019 (.043)	-.014 (.047)
Self-Employment Earnings	4 (49)	47 (99)	252 (171)	59 (46)	-114 (68)*
Salary Earnings	98 (223)	-314 (311)	852 (404)**	50 (116)	-750 (612)
Total Earnings	102 (224)	-268 (311)	1,104 (402)***	110 (125)	-865 (616)

Notes: Reported are estimated effects with standard errors in parenthesis. ***, **, * = statistically significant at the 1%, 5%, 10% level.

Table 6: Effects by Selected Characteristics, Project GATE

	By Self-Employment Experience		By College Degree	
	No Self-Employment Experience	Self-Employment Experience	No College Degree	College Degree
Pennsylvania				
Self-Employment	.022 (.049)	.194 (.085)**	.075 (.048)	.043 (.084)
in own business	-.026 (.044)	.147 (.075)**	.014 (.041)	.021 (.077)
no business	.048 (.029)*	.047 (.061)	.062 (.029)**	.022 (.052)
Salary Employment	-.010 (.055)	-.111 (.092)	-.037 (.057)	-.030 (.083)
Total Employment	.012 (.047)	.083 (.076)	.038 (.049)	.014 (.073)
Self-Emp. Earnings	-28 (48)	92 (126)	37 (55)	-64 (105)
Salary Earnings	150 (281)	202 (395)	50 (261)	372 (431)
Minnesota				
Self-Employment	.055 (.045)	.135 (.073)*	.055 (.053)	.098 (.055)*
in own business	.076 (.040)*	.196 (.070)***	.079 (.047)*	.137 (.052)***
no business	-.021 (.030)	-.061 (.055)	-.024 (.038)	-.039 (.038)
Salary Employment	-.055 (.046)	-.024 (.067)	-.095 (.053)	-.002 (.055)
Total Employment	.001 (.034)	.111 (.059)*	-.040 (.044)	.096 (.040)**
Self-Emp. Earnings	43 (127)	24 (123)	81 (109)	-1 (161)
Salary Earnings	-819 (540)	-454 (390)	-279 (328)	-290 (495)
Maine				
Self-Employment	-.052 (.094)	-.067 (.138)	.034 (.096)	-.225 (.128)*
in own business	-.007 (.084)	.186 (.123)	.114 (.086)	-.042 (.124)
no business	-.046 (.061)	-.253 (.120)**	-.080 (.062)	-.183 (.104)*
Salary Employment	.223 (.099)**	.023 (.126)	.088 (.101)	.277 (.122)**
Total Employment	.170 (.082)**	-.045 (.122)	.122 (.083)	.052 (.114)
Self-Emp. Earnings	30 (136)	643 (436)	359 (256)	19 (252)
Salary Earnings	1,813 (570)***	-819 (540)	724 (508)	1,268 (717)*

(continues on next page)

(continued from previous page)

	By Credit Access		By Age	
	Bad Credit	Good Credit	<45 Years	45+ Years
Pennsylvania				
Self-Employment	.047 (.056)	.082 (.064)	.077 (.057)	.053 (.062)
in own business	.048 (050)	.097 (.038)***	.050 (.051)	-.012 (.054)
no business	-.001 (.036)	-.015 (.056)	.027 (.034)	.066 (.037)*
Salary Employment	-.018 (.064)	-.051 (.068)	-.040 (.066)	-.030 (.067)
Total Employment	.028 (.056)	.031 (.060)	.037 (.054)	.023 (.059)
Self-Emp. Earnings	18 (60)	-15 (76)	-21 (67)	21 (62)
Salary Earnings	148 (283)	178 (349)	-188 (384)	461 (265)*
Minnesota				
Self-Employment	-.021 (.068)	.114 (.046)**	.089 (.056)	.068 (.053)
in own business	-.012 (.059)	.154 (.043)***	.114 (.051)**	.106 (.049)**
no business	-.009 (.051)	-.040 (032)	-.024 (.040)	-.038 (.037)
Salary Employment	.037 (.072)	-.077 (.046)*	-.124 (.057)**	.015 (.052)
Total Employment	.016 (.057)	.037 (.034)	-.036 (.042)	.083 (.041)**
Self-Emp. Earnings	117 (106)	8 (133)	340 (122)***	-199 (148)
Salary Earnings	-376 (492)	-251 (356)	-601 (449)	-41 (395)
Maine				
Self-Employment	.039 (.119)	-.115 (.100)	.058 (.115)	-.158 (.103)
in own business	.231 (089)***	-.044 (.093)	.092 (.105)	.030 (.096)
no business	-.191 (.094)**	-.072 (.063)	-.034 (.082)	-.188 (.063)***
Salary Employment	-.010 (.127)	.253 (.104)**	.108 (.115)	.195 (.116)*
Total Employment	.029 (.120)	.138 (.085)*	.166 (.091)*	.037 (.104)
Self-Emp. Earnings	497 (328)	84 (173)	185 (165)	286 (295)
Salary Earnings	500 (659)	1,165 (537)**	719 (445)*	1,088 (804)

Notes: Reported are estimated effects with standard errors in parenthesis and percentage of control group mean in brackets. ***, **, * = statistically significant at the 1%, 5%, 10% level.

Table 7: Effects by Selected Characteristics, GATE II

	By Self-Employment Experience		By College Degree	
	No Self-Employment Experience	Self-Employment Experience	No College Degree	College Degree
North Carolina				
Self-Employment	.077 (.042)*	.097 (.075)	.100 (.042)**	.035 (.079)
in own business	.043 (.036)	.061 (.056)	.042 (.035)	.072 (.057)
no business	.041 (.026)	.044 (.061)	.064 (.028)**	-.030 (.065)
Salary Employment	-.044 (.057)	-.108 (.079)	-.083 (.054)	.006 (.090)
Total Employment	.032 (.053)	.012 (.072)	.016 (.051)	.039 (.082)
Self-Emp. Earnings	39 (47)	111 (99)	52 (49)	84 (98)
Salary Earnings	174 (175)	-228 (158)	87 (128)	-70 (248)
Virginia				
Self-Employment	.129 (.055)**	-.102 (.081)	-.054 (.076)	.089 (.062)
in own business	.069 (.042)	-.082 (.061)	-.038 (.057)	.029 (.049)
no business	.064 (039)*	-.020 (.079)	-.011 (.061)	.061 (.055)
Salary Employment	-.108 (.076)	.040 (.079)	-.036 (.091)	-.056 (.068)
Total Employment	.022 (.069)	-.062 (.060)	-.093 (.071)	.035 (.060)
Self-Emp. Earnings	14 (42)	-278 (140)**	-196 (98)**	-76 (95)
Salary Earnings	-946 (923)	-515 (334)	-2,142 (1,594)	234 (332)

(continues on next page)

(continued from previous page)

	By Credit Access		By Age	
	Bad Credit	Good Credit	<45 Years	45+ Years
North Carolina				
Self-Employment	.064 (.051)	.089 (.067)	.116 (.049)**	.054 (.056)
in own business	.051 (.038)	.029 (.060)	.083 (.038)**	.018 (.047)
no business	.015 (.038)	.065 (.042)	.038 (.038)	.046 (.037)
Salary Employment	-.090 (.063)	-.041 (.078)	-.086 (.067)	-.051 (.065)
Total Employment	-.027 (.059)	.044 (.068)	.029 (.065)	.002 (.057)
Self-Emp. Earnings	71 (69)	57 (66)	97 (61)	19 (62)
Salary Earnings	63 (180)	-51 (175)	232 (230)	-118 (119)
Virginia				
Self-Employment	-.063 (.106)	.053 (.054)	--	.028 (.047)
in own business	.048 (.088)	-.007 (.040)	--	.003 (.036)
no business	-.112 (.087)	.064 (.046)	--	.027 (.040)
Salary Employment	.078 (.121)	-.075 (.062)	--	-.043 (.055)
Total Employment	.015 (.095)	-.021 (.053)	--	-.014 (.047)
Self-Emp. Earnings	-194 (140)	-92 (78)	--	-114 (68)*
Salary Earnings	-337 (385)	-867 (762)	--	-750 (612)

Notes: Reported are estimated effects with standard errors in parenthesis and percentage of control group mean in brackets. ***, **, * = statistically significant at the 1%, 5%, 10% level.

APPENDICES

Appendix A: Labor Market Conditions

	In 2003				In 2009		
	Pennsylvania	Minnesota	Maine	Entire U.S.	North Carolina	Virginia	Entire U.S.
Population	9.1 million	3.7 million	985,646	210.3 million	7.1 million	6.0 million	232.5 million
Labor Force Participation	63.6%	71.5%	65.4%	65.1%	63.1%	66.2%	64.2%
Unemployment rate	6.4%	4.9%	5.1%	6.7%	9.8%	6.3%	8.9%
Self-Employment rate	9.4%	11.5%	14.0%	11.3%	10.3%	8.7%	10.7%
Incorporated	2.9%	3.9%	3.7%	3.7%	4.0%	3.7%	3.9%
Unincorporated	6.5%	7.6%	10.3%	7.6%	6.3%	5.0%	6.8%
Average Earnings	$37,580	$39,821	$33,264	$39,367	$42,257	$53,277	$46,453
Salary workers	$36,443	$39,089	$32,263	$38,054	$41,480	$52,752	$43,396
Self-employed workers	$48,538	$45,476	$34,620	$38,843	$49,016	$60,701	$55,246
Incorporated	$69,809	$69,008	$56,701	$71,820	$72,519	$82,659	$80,403
Unincorporated	$39,170	$33,489	$26,684	$38,843	$34,413	$44,650	$40,951

Notes: Reported are sample proportions or sample means with standard deviations in parenthesis.
Source: Authors' tabulations of the 2003 and 2009 American Community Survey.

Appendix B: Characteristics of Unemployed Workers

	Unemployed Workers in 2003			Unemployed Workers in 2009	
	Pennsylvania	Minnesota	Maine	North Carolina	Virginia
Unemployment rate	.064	.049	.051	.098	.063
Male	.527	.579	.515	.557	.545
White	.797	.849	.947	.649	.707
Married	.410	.391	.511	.398	.552
18-25 Years Old	.215	.258	.194	.229	--
25-34 Years Old	.207	.192	.194	.201	--
35-44 Years Old	.225	.218	.207	.186	--
45-54 Years Old	.207	.192	.242	.217	.579
55+ Years Old	.147	.140	.163	.167	.420
No High School Diploma	.131	.122	.119	.178	.170
High School Diploma	.508	.437	.520	.434	.373
Some College	.184	.225	.203	.250	.206
College Degree	.176	.220	.159	.139	.252
Less than $25,000	.376	.319	.423	.449	.453
$25,000 – $49,999	.291	.275	.286	.266	.212
$50,000 – $74,999	.161	.179	.159	.147	.139
$75,000+	.172	.227	.132	.138	.196

Notes: Reported are sample proportions. Source: Authors' tabulations of the American Community Survey data.

Appendix C: Regression Results, Treatment Likelihood

	Project GATE			GATE II	
	Pennsylvania	Minnesota	Maine	North Carolina	Virginia
Male	.006 (.040)	.050 (.036)	-.116 (.073)	-.064 (.030)**	.101 (.054)*
White	.044 (.048)	.048 (.044)	-.181 (.114)	.009 (.031)	-.022 (.051)
Married	.011 (.049)	-.003 (.046)	.126 (.087)	.012 (.034)	.001 (.061)
Disabled	.001 (.080)	.019 (.067)	.036 (.112)	-.065 (.063)	-.117 (.142)
Age: 18-25 Years	--	--	--	--	--
Age: 25-34 Years	.144 (.105)	-.143 (.138)	-.230 (.269)	-.171 (.115)	--
Age: 35-44 Years	.103 (.104)	-.172 (.136)	-.375 (.263)	-.136 (.113)	--
Age: 45-54 Years	.205 (.106)*	-.241 (.136)	-.346 (.264)	-.170 (.113)	--
Age: 55+ Years	.076 (.116)	-.279 (.145)	-.452 (.288)	-.120 (.114)	-.003 (.049)
No High School Diploma	--	--	--	--	--
High School Diploma	-.080 (.100)	.070 (.124)	.017 (.154)	-.042 (.057)	-.105 (.266)
Some College	-.093 (.099)	.071 (.121)	.060 (.156)	-.027 (.059)	.043 (.257)
College Degree	-.047 (.104)	.040 (.121)	.083 (.160)	-.010 (.062)	.026 (.254)
Self-Employment Experience	-.017 (.047)	-.025 (.041)	.047 (.076)	.008 (.032)	.065 (.050)
Family Business	-.068 (.048)	.028 (.046)	-.026 (.088)	.008 (.028)	--
Relevant Work Experience	.062 (.040)	.035 (.041)	-.002 (.083)	.028 (.030)	.064 (.076)
Business Plan	.015 (.045)	-.073 (.045)	.045 (.095)	-.032 (.043)	-.166 (.110)
Bad/No Credit History	-.019 (.043)	.037 (.040)	.094 (.075)	--	--
Family Financial Support	.040 (.043)	.065 (.042)	-.070 (.078)	-.040 (.031)	.058 (.054)
Household Income					
Less than $25,000	--	--	--	--	--
$25,000 – $49,999	-.018 (.043)	.083 (.048)*	-.090 (.088)	.019 (.034)	-.057 (.064)
$50,000 – $74,999	-.087 (.067)	.090 (.058)	-.090 (.088)	-.020 (.049)	-.101 (.086)
$75,000+	-.129 (.081)	.058 (.061)	.004 (.155)	.113 (.061)*	-.036 (.075)
Constant	.470 (.138)***	.416 (.181)**	.983 (.383)***	.949 (.121)***	.380 (.270)
R-Squared	.0297	.0329	.0881	.0212	.0334
Observations	722	869	226	1,175	435

Notes: Dependent variable is the likelihood of treatment group assignment. Reported are estimated parameters with standard errors in parentheses. ***, **, * = statistically significant at the 1%, 5%, 10% level.

Appendix D: Characteristics of Survey Respondents

	Project GATE			GATE II	
	Pennsylvania	Minnesota	Maine	North Carolina	Virginia
Survey Respondents	467	675	176	825	336
Male	.533	.610	.602	.525	.479
Female	.467	.390	.398	.475	.521
White	.437	.804	.091	.608	.512
Nonwhite	.563	.196	.909	.392	.488
Married	.356	.547	.460	.535	.476
Disabled	.066	.074	.119	.065	.036
18-25 Years Old	.028	.016	.017	.022	--
25-34 Years Old	.197	.142	.148	.141	--
35-44 Years Old	.293	.326	.324	.250	--
45-54 Years Old	.362	.375	.381	.322	.503
55+ Years Old	.120	.141	.131	.265	.497
No High School Diploma	.041	.016	.063	.072	.010
High School Diploma	.276	.164	.284	.377	.083
Some College	.370	.333	.318	.267	.283
College Degree	.313	.486	.335	.284	.625
Self-Employment Experience	.238	.270	.318	.322	.435
Family Business	.668	.787	.756	.481	--
Relevant Work Experience	.792	.827	.807	.388	.893
Business Plan	.214	.169	.176	.127	.051
Bad/No Credit History	.548	.292	.386	--	--
Family Financial Support	.409	.495	.489	.538	.554
Household Income					
Less than $25,000	.411	.215	.364	.449	.310
$25,000 – $49,999	.347	.323	.381	.326	.289
$50,000 – $74,999	.137	.216	.165	.136	.137
$75,000+	.105	.246	.091	.090	.265

Notes: Reported are sample proportions.

Appendix E: Regression Results, Treatment Likelihood, Survey Respondents

	Project GATE			GATE II	
	Pennsylvania	Minnesota	Maine	North Carolina	Virginia
Male	.015 (.050)	.049 (.041)	-.134 (.085)	-.061 (.035)*	.093 (.062)
White	.052 (.061)	.039 (.051)	-.028 (.141)	.031 (.037)	-.031 (.058)
Married	.005 (.061)	.016 (.054)	.074 (.100)	.016 (.041)	.032 (.070)
Disabled	.053 (.097)	-.001 (.044)	.009 (.126)	-.111 (.071)	-.083 (.153)
18-25 Years	-.179 (.151)	.168 (.161)	.310 (.301)	.075 (.129)	--
25-34 Years	.001 (.069)	-.035 (.062)	.122 (.125)	-.035 (.055)	--
35-44 Years	--	--	--	--	--
45-54 Years	.066 (.060)	-.067 (.048)	.026 (.095)	-.008 (.045)	--
55+ Years	-.043 (.084)	-.106 (.067)	-.103 (.134)	.033 (.048)	-.016 (.056)
No High School Diploma	--	--	--	--	--
High School Diploma	-.196 (.126)	.173 (.163)	-.139 (.177)	-.005 (.068)	-.319 (.311)
Some	-.172 (.124)	.192 (.159)	-.126 (.178)	.003 (.070)	-.092 (.299)
College Degree	-.175 (.135)	.140 (.163)	-.060 (.193)	.014 (.072)	-.127 (.295)
Self-Employment Experience	-.085 (.058)	-.002 (.045)	-.018 (.087)	-.007 (.038)	.076 (.057)
Family Business	.069 (.051)	.028 (.048)	-.067 (.098)	.001 (.034)	--
Relevant Work Experience	-.069 (.059)	.058 (.052)	.156 (.111)	.042 (.036)	.123 (.090)
Business Plan	.021 (.059)	-.068 (.052)	.154 (.111)	.047 (.051)	-.141 (.129)
Bad/No Credit History	-.080 (.053)	.057 (.046)	.171 (.098)	--	--
Family Financial Support	.055 (.055)	.038 (.049)	-.021 (.091)	036 (.037)	.041 (.063)
Less than $25,000	--	--	--	--	--
$25,000 – $49,999	-.027 (.059)	.092 (.057)*	-.069 (.101)	.017 (.041)	-.055 (.074)
$50,000 – $74,999	-.102 (.083)	.109 (.068)	-.046 (.141)	-.058 (.057)	-.133 (.099)
$75,000+	-.152 (.098)	.098 (.070)	.042 (.173)	.059 (.067)	-.068 (.085)
Constant	.786 (.147)***	.123 (.193)	.793 (.254)***	.764 (.080)***	.523 (.313)*
R-Squared	.0621	.0502	.1366	.0242	.0426
Observations	467	675	176	661	336

Notes: Dependent variable is the likelihood of treatment among survey respondents. Reported is the estimated parameter with standard error in parenthesis. Statistical significance: ***, **, * = at the 1%, 5%, 10% level.

Appendix F: Regression Results, Likelihood of Any Training Receipt

	Project GATE			GATE II	
	Pennsylvania	Minnesota	Maine	North Carolina	Virginia
Treatment	.436 (.043)***	.392 (.034)***	.259 (.064)***	.200 (.044)***	.361 (.050)***
Male	-.028 (.044)	.016 (.034)	-.137 (.066)**	-.028 (.039)	-.049 (.056)
White	-.079 (.052)	.064 (.045)	.042 (.112)	-.056 (.041)	-.024 (.052)
Married	-.035 (.057)	.039 (.046)	.050 (.078)	.009 (.045)	-.005 (.063)
Disabled	.019 (.094)	.069 (.060)	-.137 (.099)	-.021 (.079)	-.165(.138)
Age: 18-25 Years	-.117 (.168)	.233 (.078)***	-.501 (.286)*	-.269 (.142)	--
Age: 25-34 Years	-.048 (.063)	.073 (.054)	-.182 (.095)*	.040 (.061)	--
Age: 35-44 Years	--	--	--	--	--
Age: 45-54 Years	-.007 (.053)	-.045 (.039)	-.072 (.080)	.123 (.049)**	--
Age: 55+ Years	-.139 (.072)*	.021 (.054)	.173 (.094)*	.010 (.053)	.033 (.050)
No High School Diploma	--	--	--	--	--
High School Diploma	.140 (.113)	.103 (.146)	-.046 (.144)	.131 (.075)*	-.019 (.280)
Some College	.188 (.110)*	.124 (.142)	.024 (.145)	.209 (.078)***	.044 (.268)
College Degree	.298 (.113)***	.164 (.144)	.279 (.143)*	.294 (.080)***	.065 (.265)
Self-Employment Experience	.016 (.051)	.007 (.036)	.138 (.065)**	.045 (.042)	.122 (.051)**
Family Business	-.045 (.046)	.036 (.044)	.110 (.073)	.004 (.037)	--
Relevant Work Experience	-.037 (.052)	.037 (.044)	-.032 (.073)	-.004 (.040)	.210 (.081)**
Business Plan	.125 (.050)**	.060 (.041)	.110 (.073)	-.032 (.057)	.008 (.116)
Bad/No Credit History	-.028 (.048)	.017 (.039)	-.032 (.073)	--	--
Family Financial Support	-.029 (.050)	-.047 (.040)	.107 (.070)	-.012 (.041)	-.060 (.057)
Household Income					
Less than $25,000	--	--	--	--	--
$25,000 – $49,999	-.052 (.054)	.079 (.050)	-.015 (.075)	.107 (.045)**	.078 (.067)
$50,000 – $74,999	-.059 (.069)	.130 (.059)**	-.088 (.108)	.154 (.063)**	.063 (.089)
$75,000+	.139 (.087)	.151 (.060)**	-.140 (.136)	.148 (.073)**	.128 (.077)*
Constant	.393 (.151)***	.304 (.187)*	.251 (.275)	.176 (.096)*	.117 (.282)
R-Squared	.2589	.2341	.3305	.1132	.1981
Observations	467	675	176	659	335

Notes: Reported are estimated parameters with standard errors in parentheses. ***, **, * = statistically significant at the 1%, 5%, 10% level.