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Volunteering as a Pathway to Employment:

Does Volunteering Increase Odds of Finding a Job for the Out of Work?

Christopher Spera, Ph.D.
Robin Ghertner, M.P.P.
Anthony Nerino, M.A.
Adrienne DiTommaso, M.P.A.

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Corporation for National and Community Service, Office of Research and Evaluation
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Authors

Christopher Spera, Ph.D.
Robin Ghertner, M.P.P.
Anthony Nerino, M.A.
Adrienne DiTommaso, M.P.A.

This report represents the work and perspectives of the authors and is the product of professional research. It does not represent the position or opinions of CNCS, the federal government, or the reviewers.

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EXECUTIVE SUMMARY

While economists have studied numerous strategies for unemployed persons to increase their chances of finding employment through activities such as acquiring additional training or education, there is little empirical literature to date on the extent to which volunteering can serve to maximize one's chances of finding employment. This paper aims to fill this critical gap by using statistical techniques to test the hypothesis that volunteering is associated with an increased likelihood of finding employment for individuals out of work.

Methodology: This study uses data from the 2002-2012 Current Population Survey (CPS) September Volunteer Supplement. We identified those individuals in a two-year cohort and combined them to create a dataset containing all ten cohorts from 2002-2003 through 2011-2012. Because our analysis was focused on the effect of volunteering on those without work, we restricted the sample to include respondents in their first survey year that were classified as either a) unemployed, or b) not in the labor force but interested in working. We further restricted our sample to individuals 16 years old and older, resulting in a final sample size of 70,535. The outcome variable used in this study was whether the respondent was employed or not at the end of Year 2. The primary independent variable of interest was whether or not the individual volunteered at all during Year 2. We modeled the employment status of respondents at the end of year two as a binary outcome, using a logit model with survey weights, controlling for a number of demographic and community-level factors. We tested the fit of our model using different fit statistics, assessed parameter stability across subgroups, and conducted robustness checks, including testing for alternate volunteer periods as well as random effects at the metropolitan level.

Results: After controlling for demographic variables, we found that volunteering was associated with a 27% higher odds of employment, statistically significant at the 99.9% confidence level. The association between volunteering and employment had the strongest effect on individuals without a high school diploma or equivalent (51% increase in odds) and individuals who live in rural areas (55% increase in odds). We found that the relationship between volunteering and employment is stable across gender, race, and ethnic categories, age, time, Metropolitan Statistical Area, and unemployment rate.

> The study found that volunteering is associated with a 27% higher odds of employment.

Discussion: The results of this study suggest a statistically significant and stable association between volunteering and employment. The overall association remains consistent across each year of the study period and different unemployment rates, suggesting that irrespective of economic conditions volunteering may add an advantage to the out of work seeking employment. The relationship between volunteering and employment is stronger for individuals without high school diplomas

and individuals living in rural areas. Volunteering may assist in "leveling the playing field" for these individuals who typically have a more difficult time finding employment, especially during a recession. These findings suggest it is critical for organizations that recruit volunteers to reach out to those who are out of work.

This research provides useful insights into the relationship between volunteering and employment in the United States. For example, we hypothesize that the mechanisms by which volunteering could lead to an increase in the likelihood of finding employment for those out of work include an increase in social capital and human capital. These increases could make individuals more marketable to, or productive for, employers and increase their odds of finding work. Alternatively, some workers may see volunteering as a possible entry route into an organization where they would like to work.

There are two primary limitations to the study. First, it does not establish a causal link between volunteering and employment. Second, there is the risk that volunteers differ from non-volunteers on certain factors that we could not measure, such as self-motivation, and that these factors can lead to employment but they are not derived from the volunteer experience. Future research should examine the causal mechanisms between volunteering and employment to further strengthen the findings presented in this report.

I. INTRODUCTION

The economic downturn that has plagued the United States economy over the last half-decade has increased the need for pathways to employment for millions of Americans struggling to find work. From January 2008 through October 2009, the national unemployment rate climbed from 5% to a peak of 10%, and although it has steadily declined since then it has remained stubbornly above historic levels. In 2012, some metropolitan areas still had unemployment rates exceeding 15%. Nationally, for those without a high school degree, unemployment was still over 10% as of April 2013. While economists have studied numerous strategies for out of work persons to increase their chances of finding employment, such as acquiring additional training or education, there is little empirical literature to date on the extent to which volunteering can serve to maximize one's chances of finding employment.

Research has shown that volunteering can provide social capital (Wollbaeck & Selle, 2002) and human capital (Schram & Dunsing, 1981), two factors that have been shown to be related to employment outcomes (Franzen & Hangartner, 2006; and Becker, 1993). Furthermore, a recent report released by the National Conference on Citizenship in conjunction with Civic Enterprises, CIRCLE (of Tufts University), the Knight Foundation, and the Saguaro Seminar reported that civic engagement is related to a community's ability to recover from an economic recession (NCoC, 2012).

Despite the lack of quantitative data on volunteering as a potential pathway for economic opportunity for the out of work, volunteering has been promoted in the media as a way to increase one's employment prospects (ABC video, 2009; CBS News, 2011; US News, 2012; or Smart Money, 2011). Furthermore, experts in the nonprofit sector and advocates of civic engagement present convincing anecdotal information that volunteering serves as a powerful technique for job-seekers (Institute for Employment Studies, 2011).

> "Volunteerism can be a way to help unemployed workers expand their network of contacts, improve their résumés, and make a positive impression in a competitive job market."
>
> SECRETARY OF LABOR HILDA L. SOLIS

Volunteering as a pathway to employment has also been promoted by the federal government. In April 2012, the Department of Labor issued policy guidance in the form of an Unemployment Insurance Program Letter (UIPL) recognizing that volunteering can help expand opportunity for unemployed individuals by enabling them to develop and maintain skills, expand their network of contacts, and enhance their resumes,

all while making a positive impact on their communities. The guidance states that volunteerism can be a viable and successful strategy that supports reemployment and does not need to interfere with unemployment compensation recipients' responsibilities to be able and available for work and actively seeking work. The guidance encourages state workforce agencies to promote volunteering to individuals receiving unemployment compensation (Oates, 2012).

In issuing this policy guidance, Secretary of Labor Hilda L. Solis suggested that volunteering can help put citizens back to work, especially for the segment of Americans that have been unemployed for long periods of time. Specifically, Secretary Solis (2012) said:

> …volunteerism can be a way to help unemployed workers expand their network of contacts, improve their résumés, and make a positive impression in a competitive job market. So at the Department of Labor, we're promoting volunteerism as one more strategy to help our long-term unemployed. In a complex 21st century economy that demands new skills of American workers, volunteerism is not a substitute for job training. But it can be an important complement. And it can be a way to give a leg up to job-seekers who've decided that enrolling in a training program is not the right choice for them at this time… The truth is – volunteering may actually expose job seekers to new job opportunities.

Given the importance of identifying strategies to help unemployed persons find work it is necessary to sufficiently validate volunteering as a pathway to employment using empirical evidence. The lack of rigorous quantitative evidence of this relationship limits the ability of policymakers to develop evidence-based solutions to unemployment and underemployment that involve volunteering as part of the solution. This paper aims to fill this critical gap by using statistical evidence to test the hypothesis that volunteering can improve the odds of finding employment for the out of work. With this goal in mind the primary research questions for the current study are:

1) is volunteering associated with an increased likelihood of employment for the out of work? and
2) how, if at all, does the relationship between volunteering and employment vary by demographic characteristics, labor market conditions, and community-level factors?

Volunteering as a Pathway to Employment

Volunteering has long been anecdotally associated as a pathway to employment, but empirically testing this theory has received little attention from social scientists and economists. To date, exploration of the relationship between volunteering and employment has been mainly descriptive in nature, and has mostly been examined as a sub-topic in studies on volunteer motivation (Jones, 2000; Gillespie & King, 1985; Hodgkinson & Weitzman, 1996; McDonald & Coffield, 1996) or as a sub-topic in studies on employment in the nonprofit sector (see Gay, 1998). A few qualitative studies have been conducted over the years, but in addition to these studies being mostly descriptive in nature, they lack generalizability due to small and non-representative samples (Janey, Tuckwiller, & Lonnquist, 1991; Baines & Hardill, 2008; Erel & Tomlinson, 2005; Tomlinson, 2010; Archer, 2005; Corden & Sainsbury, 2005).

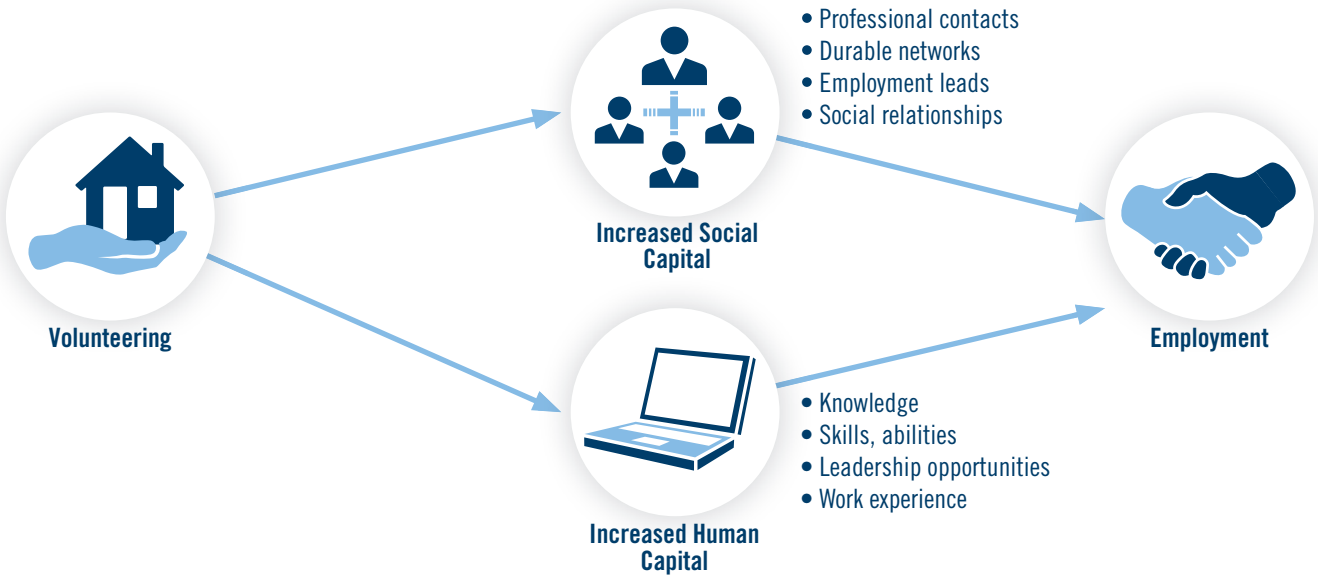
A handful of studies have examined volunteering and employment by gathering quantitative data, although most of these studies are limited as they focus on the volunteers' perceptions of the benefit rather than a more objective outcome measure. For example, in a study of a state-sponsored reemployment program in the United Kingdom, Hirst looked at volunteers' perceptions of how their volunteer activity was related to their employment outcomes. Over half of participants surveyed directly attributed their success in finding work to their volunteering activities. Among other results, he found that unemployed volunteers who had spent more than six months out of work were more likely to report that volunteering helped them find employment than unemployed volunteers who had spent less than six months out of work (Hirst, 2001). Despite the perceptions of volunteers, Hirst's subsequent regression analysis did not find evidence that voluntary participation was a significant factor in predicting positive labor market outcomes. He concluded that the characteristics of the volunteer experience such as teamwork, work experience, and supervisory role affect a volunteer's chances of finding work.

A study of members of formal volunteer organizations in Italy showed more modest results, with only 24% of unemployed participants attributing success in finding employment to their volunteer experience (Antoni, 2009). However, a subsequent regression analysis showed that participation in the associations' informal activities and participation in group-work with other volunteers had a positive, significant effect on the probability of finding a job. In another study (Statham & Rhoton, 1986), researchers measured labor outcomes available in the Mature Women's Module of the National Longitudinal Survey and explored the relationship between volunteering and employment with a focus on women's paid and volunteer work. Using data collected between 1974 and 1981, they found that in the long run women who reported volunteering had increased occupational prestige relative to their former positions. A subsequent re-analysis of the data by Wilson and Musick (2000) corroborated these findings. While Statham and Rhoton suggested that volunteering enhances human capital for working women in the long run, despite short run costs, their study lacks generalizability to the broader U.S. population.

Explanatory Mechanisms for Volunteering as a Pathway to Employment

Based on the literature, volunteering can serve as a pathway to employment through increases in one's social capital and human capital (see Figure 1). Although our dataset does not allow us to test these hypotheses, understanding these mechanisms provides the theoretical support for how volunteering can lead to employment. Establishing an empirical association between volunteering and employment is necessary before these mechanisms can be fully explored.

Figure 1. Social and Human Capital as Mechanisms of Volunteering as a Pathway to Employment



Recent literature provides empirical evidence to support the fact that volunteering leads to the formation of social capital (Wollbaeck & Selle, 2002). Social capital, as defined by Bourdieu (1985), is "the aggregate of the actual or potential resources which are linked to possession of a durable network of more or less institutionalized relationships of mutual acquaintance or recognition." He states that "through social capital, actors can gain direct access to economic resources (e.g., subsidized loans, investment tips, protected markets)" (Portes, 1998). Robust social networks are "individual resources that facilitate goal attainment – the goal being of either a personal or societal character" (Wollebaeck & Selle, 2002). Returning to work after a period of unemployment is one instance in which a social network can be deployed to obtain a goal, and extensive academic literature affirms this (Granovetter, 1974; Montgomery, 1991; Calvò-Armengol & Jackson, 2004; Franzen & Hangartner, 2006), although Mouw (2003; 2006) has pointed out that social networks may not be the mechanism by which employment is attained in these situations.

If volunteers are gaining or updating skills that are needed in the workplace through their volunteer activities, those skills may make them more attractive to and productive for employers and increase their chances of becoming employed.

Based on Bourdieu's definition, social capital is made up of two parts: individual access to resources possessed by associates, and the amount and quality of those resources. What supports getting a job isn't just social relationships, but the resources that are attached to those relationships. Out of work individuals may belong to a social network, but that network may not be able to confer employment. As Portes (1998) explains in his seminal article on social capital, "social networks are not a natural given and must be constructed through investment strategies oriented to the institutionalization of group relations, usable as a reliable source of other benefits." That means that for individuals whose network cannot provide employment opportunities, they can actively increase their opportunities by investing in additional social capital. Volunteering is one investment strategy they can pursue.

Volunteering could also lead to employment via accumulation of human capital, which, broadly defined by Schultz (1961) is the acquisition of "of all useful skills and knowledge…that is part of deliberate investment." More specifically, as pointed out by Becker (1962; 1993) and Mincer (1958), human capital is comprised of investments in education, skills, and training that have a measurable economic pay-off or return on investment. That return typically accrues in the form of increased earnings, but can be generally understood to lead to positive labor market outcomes. Among the many important studies linking human capital accumulation to volunteering (Schram & Dunsing, 1981; Clotfelter, 1985; Day & Devlin, 1998; Mueller, 1975), Menchik and Weisbrod (1987) note that volunteer work "raises one's future earning power by providing work experience and providing potentially valuable contacts." If volunteers are gaining or updating skills that are needed in the workplace through their volunteer activities, those skills may make them more attractive to and productive for employers and increase their chances of becoming employed. Alternatively, volunteering may send a signal to employers that an individual is motivated and productive, providing a competitive advantage to the job-seeker.

Volunteering may not affect all individuals equally or in the same ways. Individuals lacking the type of social capital that can lead to employment opportunities may receive a greater "boost" to their employment prospects due to volunteering relative to individuals with strong social capital who have little to gain from increased access to the same networks. Individuals with low levels of human capital, such as lower levels of education and less work experience, may

benefit more from the increased skills than those with higher levels of human capital. A further complication is that the groups that are more likely to benefit from volunteering (those with low levels of social and human capital) may not be the same as those that are more likely to volunteer. Research shows that volunteers are more likely to have higher socioeconomic status (including higher income, education, and occupational status), have extensive social networks, be married, and have children – all characteristics which are also highly correlated with positive labor market outcomes (Wilson, 2000; Wilson & Musick, 1997).

Given the impact of social and human capital on employment outcomes, and the role of volunteering in the accumulation of capital we expect to see a positive relationship between volunteering and unemployment for those individuals with lower levels of such capital. This includes individuals with lower education and lower socioeconomic status.

Challenges to Modeling Volunteering and Employment

There are three methodological challenges in modeling volunteering and employment. First, as stated above, volunteering is highly correlated with demographic characteristics that are also highly correlated with employment outcomes. Many of these characteristics can be controlled for given the appropriate methods and a robust dataset, and the dataset we use in this study – the 2002-2012 CPS – allows us to control for these. There are also likely to be other harder-to-observe aspects of volunteers that are unassociated with their volunteer experience, which help them find employment. Volunteers are more likely to be extroverts (Wilson, 2000), and may be more motivated, two factors that are attractive to employers. As we cannot control for these factors in our models there is the risk that any relationship found could be spurious.

A second challenge to identifying the causal pathway from volunteering to employment is that the relationship between the two can be bidirectional: volunteering can lead to employment, and employment can lead to volunteering. Stubbings and Humble (1984) found that the employed were more likely to volunteer than the unemployed. Preliminary analysis of our dataset from the 2002-2012 CPS found that the employed had a 35% higher odds of volunteering than those not employed. To address this risk, we focus our study only on the individuals not employed (and the individuals not in the work force).

A third challenge is that the Volunteer Supplement does not identify an individual's reasons or motivations for volunteering. An individual may volunteer for a number of reasons, and finding employment may not be one of them. Individuals that volunteer with employment in mind may be more likely to find work because they are actively developing social and human capital, while individuals that are not explicitly looking for work through their volunteer experience may be more passively developing that capital.

One method to isolate the relationship between volunteering and employment would be to separate the individuals who are long term volunteers, and those that began volunteering after being out of work. The former group may be less likely than the latter group to be volunteering to find employment. While the CPS data does not track respondents for more than 2 years we can identify who volunteered only after being out of work. If volunteering helps individuals find work, rather than being a manifestation of unobserved factors, these individuals should see a benefit.

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II. METHODOLOGY

This study used nationally-representative data spanning 2002 through 2012, from the Current Population Survey. We used statistical techniques to estimate whether individuals out of work in one year that volunteer are more likely to find a job in the following year, independent of a number of demographic and community-level characteristics. We modeled this relationship with a logit regression model and included survey weights to ensure that our results are generalizable. Finally, we conducted a number of tests on our models to assess whether they meet statistical requirements for fit and robustness.

Description of the Analytical Data Set

This study uses data from the 2002-2012 Current Population Survey (CPS) September Volunteer Supplement. The CPS is a survey administered by the U.S. Census Bureau and the Bureau of Labor Statistics (BLS) monthly to a generalizable sample of the civilian non-institutional population, with the primary purpose to collect labor information including detailed demographic and employment data. Since 2002, the Corporation for National and Community Service (CNCS) has partnered with the U.S. Census Bureau and BLS to produce the September Volunteer Supplement, which asks respondents specific questions regarding the volunteer activities they have done for the prior twelve months. The survey questions that are the focus of this analysis have not changed over that time period.

Population of Interest and Sample Size. In the CPS, a sampled housing unit is interviewed for four consecutive months, dropped out of the sample for the next eight months, and interviewed again in the following four months, which enables comparisons across years. To construct our dataset we identified those individuals in each two-year cohort and stacked them to create a dataset containing all ten cohorts from 2002-2003 through 2011-2012. We further restricted our sample to individuals 16 years old and older. Our analysis focuses primarily on the employment status of the respondent at the time of the interview.

Employment status can be employed, unemployed, and not in the labor force. Unemployed individuals are not working and are actively seeking employment. Respondents not in the labor force are not working and are not actively seeking employment. Because our analysis is focused on the effect of volunteering on those without work, we further restrict our sample to only include respondents classified as either unemployed, or not in the labor force and wanting a full or part time job in their first survey year. For the purposes of this study, we call either of these groups "out of work." The total sample size used for preliminary analysis was 71,671, and for our primary models it was reduced to 70,535 due to missing data for some variables.

Previous research has identified challenges in matching records in the CPS, particularly related to ensuring records are correctly matched (Madrian & Lefgren, 2000). Various methods have been proposed to match records by estimating the probability that two records correctly match. We thoroughly checked our data and had discussions with the U.S. Census Bureau on the risk of mismatches and concluded that our dataset had limited, if any, erroneous matches. We therefore did not take any additional steps to prepare the dataset.

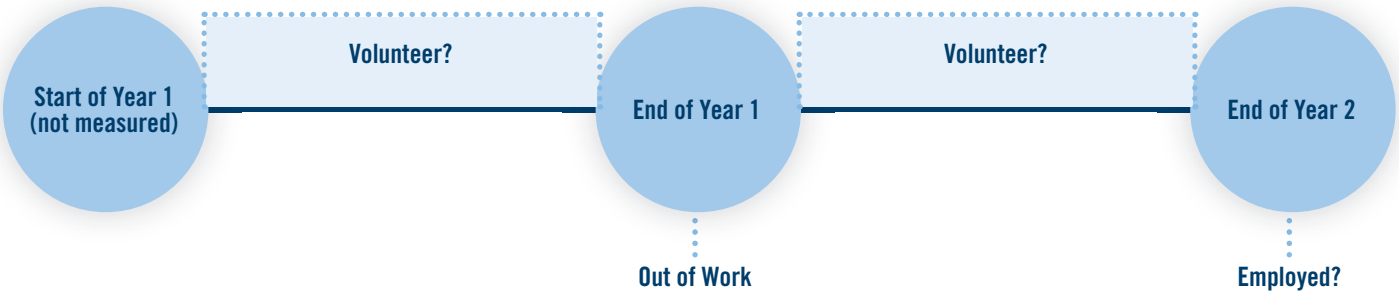
Independent and Dependent Variables. The outcome variable used in this study is whether the respondent was employed or not at Year 2. The

primary independent variable of interest is whether or not the individual has volunteered at all during Year 1. This variable was derived from two questions on the questionnaire: "Since September 1st of last year, have you done any volunteer activities through or for an organization?" and "Sometimes people don't think of activities they do infrequently or activities for children's schools or youth organizations as volunteer activities. Since September 1st of last year, have you done any of these types of volunteer activities?" Respondents answering yes to either of these questions were coded as having volunteered.

The measure of volunteering has two limitations. First, it does not differentiate individuals that volunteer from individuals that perform unpaid labor, such as interns, or individuals participating in specific government-sponsored programs that require service. It is not clear whether either of these groups would classify themselves as volunteers. These groups may be more or less likely than volunteers to secure employment through their service, which may confound our ability to identify a relationship between volunteering and employment.

The timing of the dependent and independent variable presents a unique challenge to our research. A second limitation to the measure of volunteering is that its timing is different than the measure of employment. Figure 2 illustrates the timing of activities in question.

Figure 2. Measurement of Volunteering and Employment in CPS



We chose to model volunteering during Year 2, as measured at the end of that year, for two key reasons. First, we can be sure that the respondent's volunteering occurred after being out of work at the end of Year 1. Second, if volunteering helps individuals find work, volunteers during Year 1 who were out of work at the start of Year 1 should be more likely to have found work by the end of that year, thereby removing them from our sample. There are two risks associated with this, however. First, we cannot be certain whether employment at the end of Year 2 occurs before or after volunteering. Second, measuring both volunteering and employment at the same point introduces some endogeneity and subjectivity to the measure in that response to one question may bias response to the other. We tested the robustness of our findings by measuring volunteering during Year 1 and Year 2, and the results showed no substantive difference.

Other variables used to isolate the independent relationship between volunteering and employment include various demographic variables from the CPS, such as gender, race, ethnicity, and parental status. We measure most independent variables at the end of Year 1. Studies on employment outcomes often include a measure of household income, in part to proxy for socioeconomic status. We did not include income in our model for two reasons. The first reason being because respondents under study are not employed at Year 1, their household income is likely lower than what it would be had they been employed. Therefore,

household income in this case is an imperfect measure of socioeconomic status. Second, household income is not available for all observations in our sample – 10,709 records were missing this variable, representing 15% of our total sample. For these reasons, we chose not to include income in our final models. We did, however, test if income mediates the relationship between volunteering and employment, and found no statistically significant effect.

Apart from these individual-level variables, we also collected data associated with the Metropolitan Statistical Areas (MSAs) where each respondent resided at the time of the survey. We collected the official September unemployment rate as estimated by BLS, and included both the unemployment rate and the year-on-year percent change in unemployment rate in the modeling. We also collected data on the industry sectors in each MSA from the County Business Patterns survey administered by the U.S. Census Bureau, which were not found to have substantive effect and were not included in the final models. Finally, we aggregated the individual-level variables up to the MSA level to calculate the proportion of the total population that volunteered, the proportion of each education level, and the makeup of occupation types within each MSA. Only education was found to make a substantive impact on the model; and we excluded the others for parsimony. One limitation to our dataset is that the CPS does not report a respondent's MSA if the population in the MSA is under 100,000, for confidentiality purposes. Including MSA-level variables reduced the sample by nearly 30%, from 71,671 to 43,596, excludes respondents prior to 2004 and in smaller MSAs and rural areas. A full list of all variables and their descriptive statistics can be found in Appendix A.

Weighting. CPS is a multistage probability sample of housing units in the United States, producing estimates for the total U.S. civilian non-institutionalized population. To make the results fully generalizable, and adjust for non-response bias, survey probability weights are required. We constructed survey weights in accordance with guidelines from BLS, and used Taylor-series linearization to estimate variance. All statistics reported in this paper use weights, with the exception of some of the measures of model fit. Logit regression models – as used in this paper – are estimated using maximum likelihood estimation (MLE). MLE using survey weights does not generate a "true" likelihood, in that it is not the true distribution of the sample under study. Because of this, typical likelihood-based tests and statistics, such as likelihood ratio tests, Akaike Information Criterion (AIC), Bayesian Information Criterion (BIC), and Pregibon's influence statistics, cannot be used. Wald tests can be conducted using survey data – they are practically equivalent to likelihood ratio tests – but they are only useful for nested models. Removing weights to use these specific tests allowed us to more broadly assess the quality of our models. As a check, we compared the parameter estimates for our models with and without weights and confirmed that they did not differ substantially.

Statistical Model Development and Testing. As the outcome variable in our model – employment status – is dichotomous, we used a logit model to identify the association with volunteering. A logit model transforms the binary outcome onto a log-odds scale and estimates the effect of each independent variable as a change in odds of having a specific outcome. This transformation allows the estimation of a linear relationship between outcome and independent variables. It is perhaps the most common approach to modeling dichotomous data, and most standard statistical packages easily incorporate survey weights into the estimation.

Given the large number of potential covariates to include, and the high level of collinearity among them, our first step in model building was to explore the bivariate relationship between employment and each independent variable. This initial analysis was designed to identify control variables that potentially mediated and moderated the relationship between volunteering and employment. A variable that is highly correlated with both volunteering and employment could mediate the effect of volunteering, meaning: a) it confounds or masks the true effect of volunteering on employment; b) the effect of volunteering occurs through this control variable; or c) it reveals the effect of volunteering to be spurious. In addition, as we expected the

effect of volunteering to be different for different subgroups, control variables could moderate the relationship between volunteering and employment. This means that the effect of volunteering changes in magnitude due to the presence or absence of the control variable. To explore these possibilities, we conducted an extensive series of simple models, including each control variable at a time, volunteering, and an interaction between volunteering and the control.

After identifying potential mediators and moderators, we proceeded to build our final models using various fit statistics. Unlike linear regression, there is a lack of consensus on the best methods to assess the fit of a logit model. All methods have limitations that have been explored in depth, particularly when dealing with large sample sizes such as in this study. Our goal was to use a wide range of fit statistics in order to identify different weaknesses in our model, address them as the data allowed, and thereby triangulate the best possible model. We used comparative fit statistics, including Wald and likelihood ratio tests to compare nested models and AIC and BIC statistics to compare non-nested models. We conducted global fit tests, including the Hosmer-Lemeshow test, Tukey's test for non-additivity (Tukey, Pregibon 1980), McFadden's R^2, and McKelvey and Zavoina's R^2. To address inflated Chi^2 values in the Hosmer-Lemeshow test and the Tukey's test due to our large sample (a well-known limitation to Chi^2 tests), we broke our total sample into randomly selected subsamples and ran the statistics on the subsamples, examining whether the fit statistic remained stable across each subsample. Although our purpose was not to predict positive outcomes, we analyzed the classification ability of our models by calculating sensitivity (percent of true positives correctly classified), specificity (percent of true negatives correctly classified), and the overall area under the curve (AUC) of the Receiver Operating Characteristic (ROC) curve. The AUC gives the probability that a randomly selected pair of respondents (one employed, one not employed) would have their predicted probabilities correctly ordered, meaning the employed would have a higher probability than the not employed. We also identified influential observations using Pregibon's influence statistics. Finally, we tested the assumption that the outcome measure (log-odds of employment) was a linear combination of the independent variables using a using a locally weighted scatterplot smoothing (LOWESS) function, a key assumption of logit models.

One additional check we conducted was to examine the parameter constancy or stability of our models for various subgroups. While we expect a heterogeneous effect of volunteering across certain subgroups, if in general the coefficients in our model fluctuate greatly across all groups, the interpretation at an aggregate level could overly mask the underlying instability. To do this, we ran seemingly-unrelated regressions (SUR) with a model for each subgroup. SUR allows the researcher to simultaneously run multiple models and use Wald tests to identify statistically significant differences in coefficients across the models.

Descriptive Summary

The sample used in our analysis consists of 70,535 respondents over the full sample period from 2002-2003 through 2011-2012, which represents 61,370,003 individuals when scaled up using the survey weights. Tables A1 and A2 in Appendix A provide summary statistics for all variables used in our study and compare the non-volunteer and volunteer subgroups. Thirteen percent of the total sample were employed at the end of Year 2; and 22% volunteered during Year 2. Among other points, females represented 58% of all respondents, students around 3%, and 25% were in rural areas. Around 10% of the sample were in each year. Sixteen percent of the sample were unemployed, 55% retired, and 29% not in the labor force for other reasons. One percent of the sample had never worked before, and 1% were laid off, but expected to be called back to their prior job.

Volunteers and non-volunteers differed on a number of key demographic characteristics. In particular, volunteers were 3 percentage points more likely to have been employed at Year 2. They were also more likely to be white, female, a parent, and retired. Volunteers were also more likely to have more education. Our preliminary analysis suggested that some of these differences could result in mediation to the extent that these characteristics also predict employment outcomes. Importantly, volunteers and non-volunteers did not differ substantially in their MSA-level characteristics.

III. RESULTS

We found that volunteering is associated with a 27% increase in odds of finding employment, highly statistically significant at the 99.9% confidence level. Volunteers without a high school degree and volunteers in rural areas have an even higher increase – 51% and 55%, respectively. Besides these groups, the relationship between volunteering and employment is relatively stable across gender, age, ethnicity, geographical area, and job market conditions. Our models satisfied common measures of fit and explanatory power, and the findings are robust to different model specifications.

Model Fit and Results

The initial bivariate model with volunteering as the sole predictor of employment found that volunteers have a 22% higher odds of finding employment after being out of work than non-volunteers, statistically significant at the 99.9% confidence level. This corresponds to approximately a 3 percentage point higher probability of finding employment. Our models were intended to identify if this relationship may in fact be due to other factors and if the relationship differed for certain subgroups.

Tables 1 and 2 report the regression output for three models; Table 1 reports the fit statistics and Table 2 the parameter estimates. The first model, "Base," includes a number of relevant demographic control variables. These variables were included either because of their theoretical relevance or because they were found to mediate and moderate the effect of volunteering. The next model, the Moderator model, included those same control variables and added in the interaction effects for two moderators: education and rural. The MSA model added MSA-level variables, including unemployment rate, percent change in unemployment rate from the prior year, and the educational makeup of the MSA.[1]

Table 1. Regression Fit Statistics

Statistic	Base Model	Moderator Model	MSA Model
N	70,535	70,535	43,596
Weighted N	61,370,003	61,370,003	43,013,471
F (p)	228 (0.00)	216.30 (0.00)	142.58 (0.00)
McFadden's R^2	0.27	0.27	0.27
McKelvey & Zavoina's R^2	0.36	0.36	0.37

1 As noted above, we tested for whether the makeup of an MSA's business sectors would have a mediating or moderating effect on volunteering. These data reduced our sample size further, and their effects were not substantial. We excluded them from the final model.

Table 1. Regression Fit Statistics *(continued)*

Statistic	Base Model	Moderator Model	MSA Model
AIC (Base and Moderator model)	39907.04	39890.14	-
BIC (Base and Moderator model)	40236.94	40238.37	-
AIC (Base and MSA model)	25591.02	-	25541.27
BIC (Base and MSA model)	25886.23	-	25879.9
Likelihood Ratio Test[a] - Chi^2 (p)	-	20.90 (0.00)	59.75 (0.00)
Hosmer & Lemeshow Test - F (p)	1.16 to 19.68 (0.00 to 0.32)	0.62 to 23.15 (0.00 to 0.78)	0.62 to 1.32 (0.00 to 0.97)
Tukey's Test[b] – coefficient of Hat[2] (p)	-0.06 to 0.03 (0.00 to 0.97)	-0.057 to 0.00 (0.01 to 0.95)	-0.06 to -0.01 (0.62 to 1.32)
Sensitivity[c]	98%	98%	98%
Specificity[c]	54%	54%	53%
ROC AUC	85%	85%	85%

a The Likelihood Ratio (LR) test for the Moderator model is that it is an improvement from the Base model. The LR test for the MSA model is that it is an improvement from the Moderator model. To adjust for sample size differences, for the MSA model LR test, we ran the Moderator model on the smaller sample.

b The Hosmer & Lemeshow test and Tukey's test are sensitive to large sample sizes. Statistics for these tests represent the range across four equally-sized randomly selected subsamples of the total sample for each model.

c For sensitivity and specificity, the cutoff value for classifying employed/not employed respondents was 12.99%, based on the percent of the entire sample that found work.

In general, the absolute goodness of fit statistics (McFadden's R^2, McKelvey & Zavoina's R^2, Tukey's Test, and Hosmer & Lemeshow test) and the prediction statistics (sensitivity, specificity, and ROC AUC) show no substantial difference across the models. With a binary outcome, it is rare to find pseudo-R^2 that are very high; that these measures are as high as they are indicates the model has enough explanatory power to merit consideration. The Hosmer & Lemeshow test and Tukey test were statistically significant on the full sample for each model, so we ran the statistics on four randomly-selected subsamples, of between 10,000 and 17,500 records each. We report the range of the statistics in the table; although the results for some of the subsamples were still statistically significant, none of the coefficients in the Tukey test were substantively large; and the expected and observed counts in the Hosmer & Lemeshow test were not substantively different. We concluded that our models satisfied these fit measures.

Turning to classification accuracy, although it is not the primary purpose of this research, these statistics – sensitivity, specificity, and ROC AUC – all indicate that the models have fairly strong prediction qualities. Sensitivity indicates that all models successfully classify 98% of all employed respondents, and around 54% of all not employed respondents. AUC indicates for 85% of any randomly-selected pair of respondents our models would predict that respondents who found employment have a higher probability of working than those who did not find employment.

With respect to the relative fit statistics, including the AIC, BIC, and likelihood ratio tests, all favor the Moderator model over the Base

model, indicating an improved fit due to the addition of interaction terms. The MSA model is preferable over the Base model when using the MSA subsample, indicating for the subsample of observations with MSA-level variables that added information improves the fit; though given the smaller sample size and the exclusion of rural respondents, it is not possible to directly compare the fit of these two models.

The last measure of fit was to examine the assumption that the logit models' dependent variable (log-odds of employment) is a linear combination of our independent variables, using a LOWESS plot. Analysis of the plot proved that the models satisfied this assumption.

Table 2 reports the parameter estimates for volunteering and the interaction between volunteering and moderating variables. Detailed regression output can be found in appendix B; it suffices to mention here that the general relationship between all control variables and employment is in large part what would be expected based on the general research on employment outcomes and is generally stable across the three models.

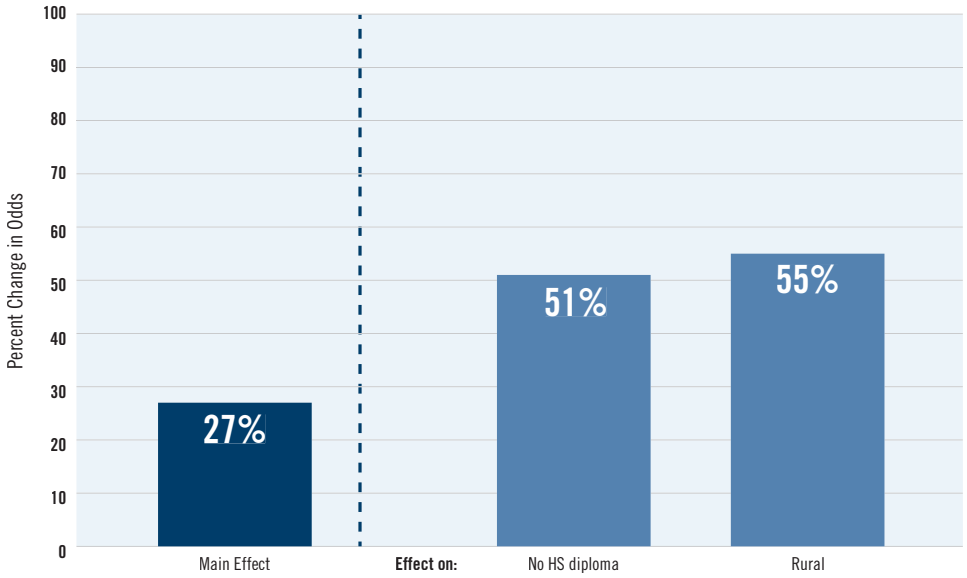
Table 2. Regression Estimates of Relationship between Volunteering and Employment

	Base Model		Moderator Model		MSA Model	
Variable	**Odds Ratio**	**SE**	**Odds Ratio**	**SE**	**Odds Ratio**	**SE**
Volunteer	**1.27*** **	**(0.05)**	**1.18*** **	**(0.05)**	**1.25*** **	**(0.06)**
Interaction terms						
No HS diploma	-	-	**1.28***	**(0.14)**	-	-
Rural	-	-	**1.31*** **	**(0.12)**	-	-

*Standard errors in parenthesis. * indicates statistically significant at p<0.05; ** at p<0.01; and *** at p<0.001.*

As estimated in the Base model, the overall, main relationship between volunteering and employment is a 27% increase in odds of finding work, statistically significant at the p<0.001 level. After including the interaction terms, the effect on two subgroups varies. The main effects in the MSA model only differ slightly from the Base model. Given the main effect is consistent with the base model, it indicates the MSA-level variables did not mediate the effect of volunteering overall. We tested whether these variables moderated the effect, and found no statistically or substantively significant moderation. Figure 3 reports effect of volunteering on different subgroups, based on the results from the Moderator model.

Figure 3. Percent Change in Odds of Employment Associated with Volunteering

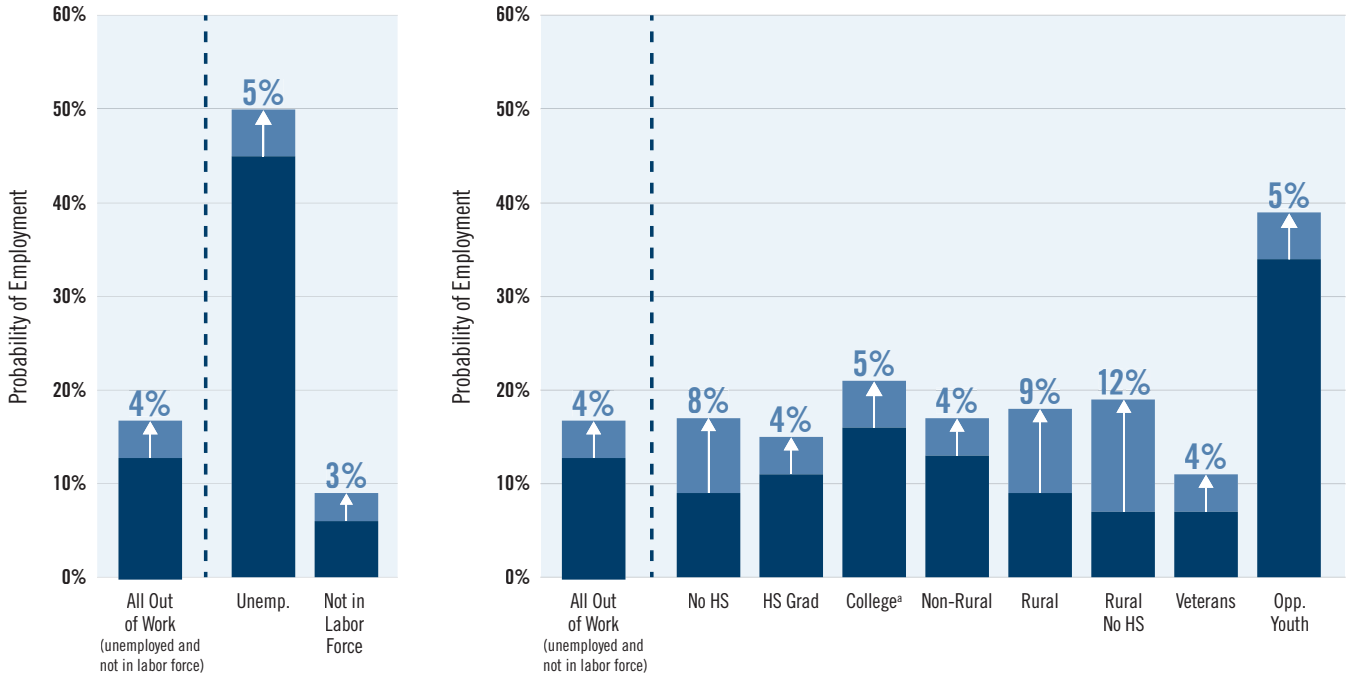


Note: The percent change in odds was calculated by combining log-odds coefficient from the main effect with the coefficient from the interaction effect, and then exponentiating the results.

Volunteering has the strongest effect on individuals who live in rural areas (55% increase in odds) and individuals without a high school diploma or equivalent (51% increase in odds). Importantly, we found that the relationship between volunteering and employment for individuals with no high school degree was independent of age. If one were to assume that groups that volunteer more are more likely to benefit from volunteering, this effect could be surprising: non-school age individuals without a high school degree are 16% points less likely than other education levels. However, if volunteering does indeed grow social and human capital as we theorize, those groups with the least social and human capital may have the most to gain from volunteering. Individuals without high school degrees are less likely than those with more education to have social networks that can assist in finding employment.

The estimates from the logit models reported above are in odds ratios, which indicate the percent increase in odds relative to a baseline group. An alternative way of understanding the association of volunteering on the likelihood of employment is transform odds ratios to predicted probabilities. In this context, the estimates indicate the change in probability of employment associated with volunteering. Whereas an odds ratio applies to all respondents equally, estimated changes in probability affect each respondent differently according to their baseline probability of employment without volunteering. Figure 4 reports the average change in probability of employment across all respondents in specific subgroups of interest. The change in probability is reported relative to the overall probability of employment for non-volunteers in the given subgroup.

Figure 4. Change in Probability of Employment Associated with Volunteering, by Subgroup

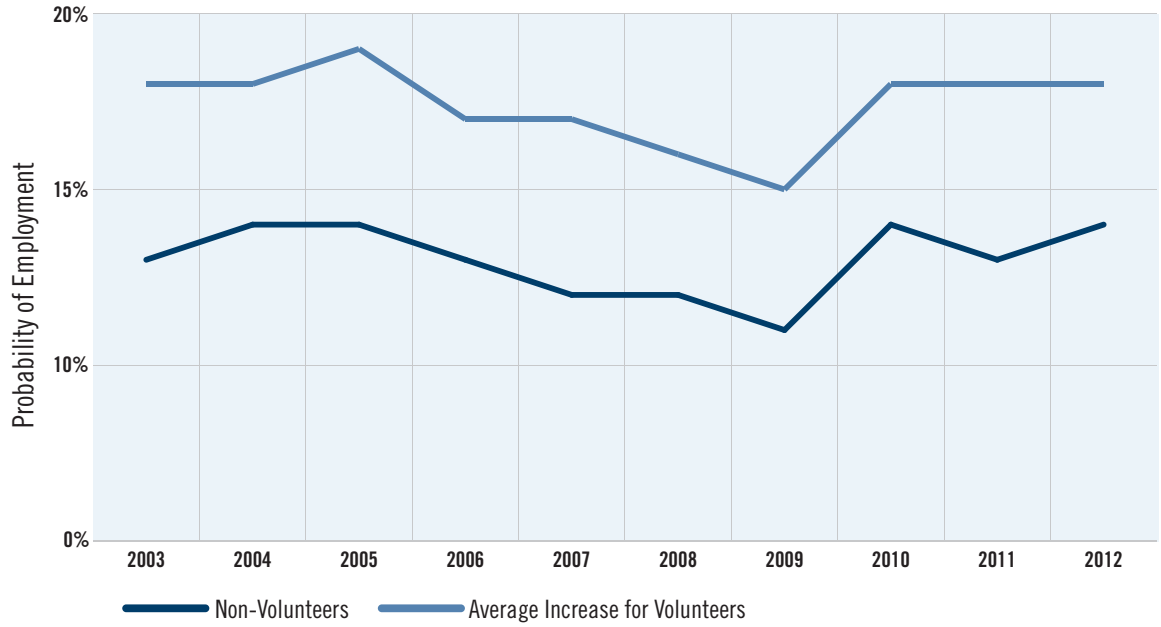


Note: Arrows represent the average increase in probability from the non-volunteer employment rate associated with volunteering.
a Includes individuals wth some college and college graduates.

Starting with the main effect, the 27% increase in odds associated with volunteering translates to a 4 percentage point average increase in probability for all respondents, meaning the probability increased likelihood from 13% to 17% on average. This increase differs by subgroup. For the unemployed (those actively seeking work), the increase is 5 percentage points, up from the 45% probability of employment for the unemployed non-volunteers. Looking at individuals without a high school degree, volunteering is associated with an 8 percentage point increase on average, double that of high school graduates, and 4 percentage points higher than respondents with some college or a college degree. Rural volunteers on average see a 9 percentage point increase in employment over non-volunteers, and if the volunteer did not have a high school degree, that increase is as high as 12 percentage point increase. For veterans, volunteering is associated with a 4 percentage point increase in probability of employment, and for opportunity youth (ages 16 through 24, not in school and not working), that increase is 5 percentage points.

In addition, we found that after controlling for the covariates in our model, the relationship between volunteering and employment was stable over each year of our sample. The national unemployment rate varied dramatically from a low of 4.4% to a high of 10% over this time period, and as can be seen in figure 5, employment outcomes for non-volunteers fluctuated quite a bit. Despite these changes, volunteering was associated with a consistent 4% point increase in likelihood of employment for each year. The results from our modeling were nearly identical when considering fluctuations in MSA-level unemployment rates. Despite large variation in unemployment across every MSA in our sample, the average increase in the probability of finding a job was remarkably stable at between 4 and 5% points. These findings suggest that volunteering has a stable relationship with employment regardless of the general economic conditions.

Figure 5. Change in Probability of Employment Associated with Volunteering, by Year



Note: Based on All Out of Work

Importantly, no other variables were found to substantially moderate the relationship between volunteering and employment. We explored the stability and constancy of our parameter estimates by running the individual-level model for different subgroups in a seemingly-unrelated regression (SUR) framework. We compared the association of volunteering and employment across different variable categories, and if a significant difference was found, we introduced an interaction term into the model to test for moderation. The variables we included in this test were gender, unemployment status (unemployed vs. not in labor force), age, race/ethnicity, student status, and sample year. These variables were identified as important moderators during our preliminary analysis. In two cases did we find substantial differences in volunteering. We found that the relationship between volunteering and employment on unemployed individuals was lower than for those not in the labor force when modeling the two groups separately, but the difference was not statistically significant and may be due to random

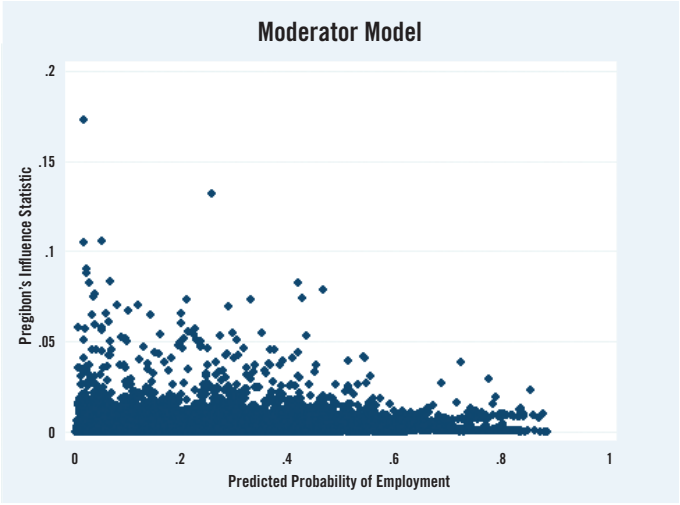
fluctuations in the data rather than substantive differences. We also found that the relationship of volunteering and employment was much significantly lower in 2004 than for other years. However, when treating that year as a moderating variable, the model fit did not improve (as measured by the AIC and BIC) nor did a likelihood ratio test show any added information to our model. These results indicate that the stability of the volunteer effect across race and ethnic categories, time, MSAs, age, gender, and unemployment status, however modest, is relevant for a wide range of individuals.

Model Robustness

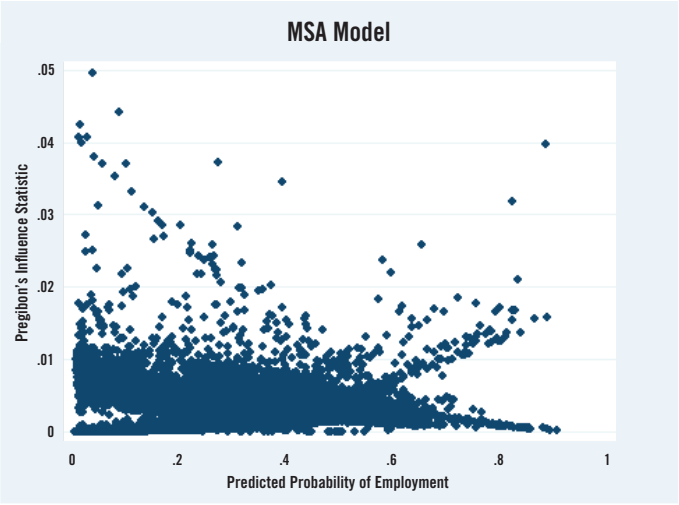
As described above, to test the robustness of our model, we conducted a number of sensitivity checks, including a detailed analysis of influential observations and tests for alternative specifications. To identify influential observations, we used Pregibon's influence statistics (Pregibon, 1981), which is an approximation of Cook's distance to a logistic model. The alternative specifications of our model included using different measures for volunteering, and testing for random effects at the MSA level.

Influential Observations. An observation is considered influential if removing it substantially changes the estimate of the model's coefficients (Sarkar et al, 2011). Influential observations may also be outliers – observations that deviate from their expected outcomes and are poorly explained by the model. Either situation can indicate omitted variables that could better predict their outcomes and reduce their influence. In our logit model, all individual-level variables are categorical, and therefore our concern is with influential covariate patterns, particularly if many observations share the same pattern. We used Pregibon's (1981) influence statistic to identify these patterns, and in general, high levels of this statistic indicate that the specific covariate patterns are overly influencing the regression parameters given their actual weight in the dataset. Figure 6 shows two scatter plots of the predicted probability of employment by Pregibon's influence for all observations from the Moderator and MSA models reported above. We analyzed influential observation for all three models. However, only the Moderator and MSA models are presented below, as the Base model is nested within the Moderator model.

Figure 6. Predicted Probability of Employment by Pregibon's Influence



N=70,535



N=43,596

There were no covariate patterns in the Moderator model that had influence statistics over 0.17 and only 560 observations were over 0.1. Removing these observations resulted in no substantial impact in the model's parameters, though model fit improved as measured by the AIC and BIC (with influential observations AIC/BIC = 42755.39 / 43103.62, without influential observations AIC/BIC = 42653.58 / 43001.5). For the MSA model, no covariate patterns had influence statistics over 0.05 and only 437 observations over 0.01. Removing these observations did not result in any substantial parameter change, though model fit improved again (with influential observations AIC/BIC = 27284.77 / 27623.4, without influential observations AIC/BIC = 25709.06 / 26038.43). Although fit improved in both models, because the coefficient on the volunteer measure did not change substantially, we retained these observations in the models and concluded that no observations substantively over-influenced our models.

Alternative Measurement of Volunteering. The first alternative specification we conducted was to measure volunteering in different ways. We have two observations for each respondent in a two-year period, and the respondent answered whether they volunteered for the 12 months prior to the measurement point. For our modeling we considered an individual as having volunteered if they volunteered during Year 2. This includes individuals who had a long history of volunteering (volunteering during Years 1 and 2, as well as any prior years), as well as those that volunteered for the first time during Year 2. Individuals in the former group may have volunteered prior to becoming out of work, and therefore they may be inherently different than those individuals who started volunteering after becoming unemployed. The latter group may have more motivation to use volunteering to find work. Therefore, testing the different effect on these groups may proxy some of the unobservable characteristics that put our main models at risk of selection bias outlined earlier.

Individuals who only volunteered during Year 2 ("new" volunteers) represented 7% of our sample, while individuals who volunteered during both Years 1 and 2 ("existing" volunteers) represented 15% of the sample. New volunteers had 21% higher odds of finding employment at the end of Year 2 (see table 3 for results of volunteer variables). Based on this model, new volunteers have a statistically significant 13% increase in odds of finding work, and existing volunteers see a 30% increase in odds. While the association of new volunteers is modest, it is statistically significant. This finding indicates that individuals who volunteered after being unemployed still have higher odds than non-volunteers. Without more information about the volunteer history of respondents, we could not explore this finding further. However, it strengthens the case that individuals who volunteer with a motivation to find employment do in fact find gains associated with volunteering.

Table 3. Odds Ratios for Employment, All Volunteers, New Volunteers, and Existing Volunteers

Group	Odds Ratio
All volunteers	**1.27****
New volunteers[a]	**1.13***
Existing volunteers[b]	**1.30****

** Indicates statistically significant at p<0.05, ** at p<0.001*
[a] *New volunteers are individuals who volunteered during Year 2 but not during Year 1.*
[b] *Existing volunteers are individuals who volunteered during both Years 1 and 2.*

Random MSA Effects. There may be particular aspects within an area that influence employment opportunities and volunteering that we were unable to account for with our data. One common way to address this is to specify the model with random effects by geographic area, and specify either a random intercept or a random coefficient on the volunteer variable. A significant random intercept would indicate that the average odds of finding work, independent of other covariates, fluctuate by geography in a manner not explained by other variables in the model. A significant random coefficient would indicate that the effect of volunteering on finding work fluctuates by geography in a manner not explained by other variables in the model.

The lowest geographic level we have is the MSA, and as stated above, this is not available for all observations. We modeled a random effects model with an intercept and the volunteer measure to test for a random intercept, and then again to test for a random intercept and a random coefficient. In the bivariate model, the intraclass correlation coefficient, which determines the amount of variation due to membership in a particular MSA, was statistically significant at the $p<0.01$ level, but practically small (0.007); when modeling a random coefficient with the covariates from our base model, the coefficient shrank to 0.003 ($Chi^2=3.29$), though still significant at $p<0.05$. Given the size of the coefficients and the sensitivity of Chi^2 statistics to sample size, these results indicate that a random intercept did not add any information. Similarly, the standard deviation on the random coefficient for volunteering in a bivariate model was statistically significant at the $p<0.05$ level, but with a practically small standard deviation (0.02), indicating a random coefficient was not necessary.

Combined with the fact that none of the MSA-level variables moderated the effect of volunteering, this finding indicates that the effect of volunteering on finding employment for out of work individuals is stable across geographic areas. It could be that the community-level aspects that influence volunteering are at a more local level. Our dataset did not allow us to explore this possibility.

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IV. DISCUSSION

Although cause-and-effect cannot be established, the results of this study suggest a statistically significant and highly stable association between volunteering and employment. The overall relationship remains consistent across each year of the study period, suggesting that irrespective of economic conditions volunteering may add an advantage to those seeking employment. Importantly, the relationship between volunteering and employment is stronger for certain subgroups – individuals who have low educational attainment, and those living in rural areas. Volunteering may serve to "level the playing field" for these individuals who typically have a more difficult time finding employment, especially during a recession.

To our knowledge, this research provides the most rigorous empirical study to date in the United States relating volunteering to employment. The study builds on recent research that suggests that communities with higher levels of civic health had weathered the economic downturn better than communities with lower levels of civic health (NCoC, 2012). Specifically, our study provides a necessary foundation for researchers to explore other aspects of the relationship between volunteering and labor market outcomes. The current study treated volunteering as a dichotomous measure; further research should identify whether the degree of volunteering, in terms of time or other levels of commitment, influences employment outcomes. We were not able to fully examine the different types of volunteering and their relationship to employment. Identifying whether certain volunteer activities have a stronger relationship with employment would be valuable.

Although our data did not allow us to test this, we hypothesize that the mechanisms by which volunteering increase the likelihood of finding employment for the out of work include an increase in social capital and human capital. Our results suggest for example, that volunteering may indeed develop or strengthen an individual's social capital, thereby providing volunteers access to opportunities for employment. This may be particularly important for individuals who have a greater social capital deficit, such as those lacking education. Educational deficits may impede the ability to develop professional ties that can lead to employment and preclude opportunities to demonstrate competence via academic internships. For individuals with low educational attainment, volunteering may promote the development of these professional associations. Similarly, for individuals residing in rural areas, volunteering may foster the development of stronger social networks, allowing greater access to employment opportunities if they exist.

The acquisition of skills or knowledge and the performance of volunteer duties may also demonstrate higher levels of capacity, potentially making the volunteer more attractive to and productive for employers. Stronger effects for those with low educational attainment may indicate that these candidates are employable and bring new skills and new experience to the job market. The development of both social and human capital via the mechanism of volunteering may represent an important pathway to greater employment viability. The individual who volunteers may make himself or herself more marketable to employers, increasing the odds of finding work. If volunteering also provides added value to employers due to a higher skilled workforce, as we propose, there may also be benefits to society and the economy as a whole.

While our findings suggest an association between volunteering and employment, our study has several limitations. Most importantly, our research did not establish a causal link between volunteering and employment. Our dataset did not allow the temporal identification of volunteering prior to employment, nor was it able to sufficiently control for all of the possible factors that could confound the relationship. Though both individuals with a history of volunteering and those who volunteered after being out of work had a higher odds of finding employment than those who did not volunteer, it is possible that by measuring volunteering we were actually measuring an unobserved

factor such as motivation. If this is the case, the relationship between volunteering and employment could be spurious. However, even in this situation, volunteering could bring added benefits to employment outcomes, to the extent that it can foster motivation and opportunity. In addition, while our study controlled for factors at the MSA level, there may be more factors associated with more local labor markets that influence the role of volunteering. Finally, we only examined employment as a dichotomous measure. Future research should explore whether volunteering has a relationship on full time versus part time status, occupation type, and earnings relative to prior employment, among other factors.

Future research should examine the causal mechanisms between volunteering and employment to further strengthen the findings presented in this report.

REFERENCES

ABC News. (May 2, 2009). Volunteering for employment: what can you do during your downtime to improve your chances of finding a job? Retrieved from http://abcnews.go.com/GMA/video?id=7158729.

Antoni, G. (2009). Getting a job through voluntary associations: the role of network and human capital creation. (Working Paper No. 14). Retrieved from EconPapers.org at http://econpapers.repec.org/paper/entwpaper/wp14.htm.

Archer, L., Hollingworth, S., and Maylor, U. (2005). *Challenging barriers to employment for refugees and asylum seekers in London*. London Metropolitan University.

Baines, S, and Hardill, I. (2008). At least I can do something: the work of volunteering in a community beset by worklessness. *Social Policy and Society*, 7, 307-317.

Becker, G. (1962). Investment in human capital: a theoretical analysis. *Journal of Political Economy*, 70:5, 9-49.

Becker, G. (1993). Human capital: a theoretical and empirical analysis with special reference to education (3rd ed.). London: University of Chicago Press.

Bourdieu, P. (1985). The forms of capital. In J. G. Richardson (Ed.), *Handbook of theory and research for the sociology of education*, 241-258. New York: Greenwood.

Calvò-Armengol, A., and Jackson, M. (2004). The effects of social networks on employment and inequality. *The American Economic Review*, 94:3, 426-454.

Clotfelter, C. (1985). Federal Tax Policy and Charitable Giving. Chicago: University of Chicago Press.

Corden, A., and Sainsbury, R. (2005). *Volunteering for employment skills: A qualitative research study.* York: Social Policy Research Unit, University of York.

Day, K., and Devlin, R. (1998). The payoff to work without pay: volunteer work as an investment in human capital. *Canadian Journal of Economics*, 31:5, 1179-1191.

Erel, U., and Tomlinson, F. (2005). *Women refugees —from volunteers to employees: a research project on paid and unpaid work in the voluntary sector and volunteering as a pathway into employment*, Working Lives Research Institute.

Franzen, A., and Hangartner, D. (2006). Social networks and labor market outcomes: the non-monetary benefits of social capital. *European Sociological Review*, 22:4, 353-368.

Gay, P. (1998). *Getting into work: The role of volunteering in improved employability*. London: Institute for Volunteering Research.

Gillespie, D., and King, A. (1985). Demographic understanding of volunteerism. *Journal of Sociology & Social Welfare*, 12, 798.

Granovetter, M. (1974). *Getting a job: a study of contacts and careers*. University of Chicago Press.

Green, A. (April 4, 2012). How volunteering can help you get a job. Retrieved from http://money.usnews.com/money/blogs/outside-voices-careers/2012/04/04/how-volunteering-can-help-you-get-a-job.

Hardill, I., and Baines, S. (2005). Doing one's duty: a case study of volunteering in a deprived community. *RSA International Conference*.

Hill, C. (April 11, 2011). Does volunteering give job seekers an edge? Retrieved from http://www.smartmoney.com/plan/careers/will-volunteering-help-me-find-a-paying-job-1302302740295/.

Hirst, A. (2001). *Links between volunteering and employability.* Research Report RR309. London: Department for Education and Skills.

Hodgkinson, V., and Weitzman, M. (1996). *Giving and volunteering in the United States*. Washington, D.C: Independent Sector.

Hollingshead, A. B. (1975). Four factor index of social status. Unpublished working paper. New Haven: Yale University.

Institute for Employment Studies. (May 2011). Volunteering: supporting transitions. Retrieved from http://www.employment-studies.co.uk/press/1108.php.

Janey, J., Tuckwiller, J., and Lonnquist, L. (1991). Skill transferal benefits from volunteer experiences. *Nonprofit and Voluntary Sector Quarterly*, 20:1, 71-79.

Jones, F. (2000). Youth volunteering on the rise. *Women* 34:40.3, 29-6.

Levin-Epstein, A. (September 13, 2011). Volunteer work: 5 ways to use it to get a paying job. Retrieved from http://www.cbsnews.com/8301-505125_162-47541606/volunteer-work-5-ways-to-use-it-to-get-a-paying-job/.

MacDonald, R., and Coffield, F. (1996). Labours of love: voluntary working in a depressed local economy. *Journal of Social Policy*, 25:1, Jan, 19-38.

Madrian, B., and L. J. Lefgren. (2000). An Approach to Longitudinally Matching Current Population Survey (CPS) Respondents. *Journal of Economic and Social Measurement*, 26, 31-62.

Menchik, P., and Weisbrod, B. (1987). Volunteer labor supply. *Journal of Public Economics*, 32, 159-183.

Mincer, J. (1958). Investment in human capital and personal income distribution. *Journal of Political Economy*, 66:4, 281-302.

Mouw, T. (2003). Social Capital and Finding a Job: Do Contacts Matter? *American Sociological Review*, 68:6, 868-898.

Mouw, T. (2006). Estimating the Causal Effect of Social Capital: A Review of Recent Research. *Annual Review of Sociology*, 32, 79-102.

Mueller, M. (1975). Economic determinants of volunteer work by women. *Signs*, 1, 325-338.

Montgomery, J. (1991). Social networks and labor-market outcomes: toward an economic analysis. *The American Economic Review*, 81:5, 1408-1418.

National Conference on Citizenship. (September 2012). Civic Health and Unemployment II: The Case Builds, Washington, D.C.

Oates, J. (April 19, 2012). Unemployment Insurance Program Letter No. 16-12 on Payment of Unemployment Compensation to Individuals who are Volunteering. Retrieved from http://wdr.doleta.gov/directives/attach/UIPL/uipl_16_12_acc.pdf.

Portes, A. (1998). Social capital: its origins and applications in modern sociology. *Annual Review of Sociology*, 24, 1-24.

Pregibon, Daryl. (1981). Logistic Regression Diagnostics. *The Annals of Statistics.* 9 (4), 705-724.

Schram, V., and Dunsing, M. (1981). Influences on married women's volunteer work participation. *Journal of Consumer Research*, 7, 371-379.

Schultz, T. (1961). Investment in human capital. *The American Economic Review*, 51:1, 1-17.

Solis, H. (April 19, 2012). "Remarks for the Honorable Hilda L. Solis White House Conference on Expanding Opportunity through Volunteering." Washington, D.C. Retrieved from http://www.dol.gov/_sec/media/speeches/20120419_WH.htm.

Statham, A., and Rhoton, P. (1986). *Mature and young women's volunteer work*, 1974-1981. Columbus: Center for Human Resource Research, The Ohio State University.

Stubbings, P., and Humble, S. (1984). *Voluntary work, unemployment and the labour market in Britain. In Voluntary Work and Unemployment Study in the Countries of the European Communities*, 1-63. London: Policy Studies Institute.

Tomlinson, F. (2010). Marking difference and negotiating belonging: refugee women, volunteering and employment. *Gender, Work & Organization*, 17:3, 278-296.

U.S. Census Bureau. (2006). Current Population Survey: *Design and Methodology*. Technical Paper 66. Washington, DC: Government Printing Office.

Wilson, J., and Musick, M. (1997). Who cares? Toward an integrated theory of volunteer work. *Annual Review of Sociology*, 62, 694-713.

Wilson, J., and Musick, M. (1999). The effects of volunteering on the volunteer. *Law and Contemporary Problems*, 62(4), 141-168.

Wilson, J. (2000). Volunteering. *Annual Review of Sociology*, 26, 215-240.

Wollbaeck, D., and Selle, P. (2002). Does participation in voluntary associations contribute to social capital? The impact of intensity, scope, and type. *Nonprofit and Voluntary Sector Quarterly*, 31, 32-61.

Appendices

Appendix A. Summary Statistics

Table A1. Descriptive Statistics for Individual-Level Variables

Variable	Proportion of Total Sample	Proportion of Volunteers	Proportion of Non-Volunteers
Employed, end of Year 2*	0.13	0.15	0.12
Volunteer during Year 2	0.22	-	-
Volunteer during Year 1	0.24	-	-
Volunteer only Year 2	0.07	-	-
Volunteer both Year 1 and 2	0.15	-	-
White*	0.83	0.88	0.81
Black*	0.12	0.08	0.13
Asian*	0.03	0.02	0.03
American Indian*	0.01	0.01	0.01
More than one race	0.02	0.02	0.02
Hispanic*	0.08	0.04	0.09
Immigrant*	0.10	0.06	0.12
Female*	0.58	0.66	0.55
Full-time student*	0.03	0.04	0.03
Part-time student*	0.00	0.00	0.00
Rural	0.25	0.27	0.25
Never worked*	0.01	0.01	0.01
Laid Off, expecting to return to work	0.01	0.01	0.01
Age 16-19*	0.07	0.05	0.03
Age 20-24*	0.06	0.02	0.04
Age 25-34*	0.14	0.05	0.06
Age 35-44*	0.19	0.07	0.07
Age 45-54*	0.22	0.10	0.12
Age 55-64*	0.18	0.22	0.23
Age 65 and above*	0.14	0.50	0.45
Veteran*	0.15	0.15	0.15
Unemployed	0.16	0.16	0.16
Not in Labor Force, Retired*	0.55	0.65	0.52
Not in Labor Force, Other*	0.29	0.19	0.32

Appendix A. Summary Statistics *(continued)*

Table A1. Descriptive Statistics for Individual-Level Variables

Variable	Proportion of Total Sample	Proportion of Volunteers	Proportion of Non-Volunteers
Parent*	0.10	0.12	0.10
No high school diploma or equivalent*	0.22	0.10	0.25
High school diploma or equivalent*	0.36	0.29	0.39
Some college*	0.24	0.29	0.23
College degree*	0.18	0.32	0.13
2003*	0.11	0.11	0.11
2004*	0.09	0.10	0.09
2005*	0.09	0.10	0.09
2006*	0.10	0.09	0.10
2007*	0.10	0.10	0.10
2008*	0.10	0.10	0.10
2009*	0.11	0.10	0.11
2010*	0.11	0.11	0.11
2011*	0.10	0.10	0.10
2012*	0.11	0.10	0.11

All statistics unweighted. N=71,671. Statistics for sample used in Base and Moderator models.
** indicates statistically significant difference between volunteers and non-volunteers at p<0.05.*

Table A2. Descriptive Statistics for MSA-Level Variables

Variable	Total Sample	Volunteers	Non-Volunteers
Unemployment rate	6.89 (2.70)	6.76 (2.63)	6.93 (2.71)
Percent change in unemp. rate from prior year	3.54 (2.11)	2.90 (2.09)	3.74 (2.11)
Proportion no HS degree or equivalent	0.16 (.05)	0.15 (0.05)	0.16 (0.05)
Proportion HS degree or equivalent	0.28 (0.06)	0.28 (0.06)	0.28 (0.06)
Proportion some college	0.28 (0.04)	0.28 (0.05)	0.28 (0.04)
Proportion college degree	0.29 (0.07)	0.29 (0.07)	0.28 (0.07)

All statistics unweighted. N=43,596. Statistics for sample used in MSA model.
Numbers represent means, standard deviations in parenthesis.
** indicates statistically significant difference between volunteers and non-volunteers at p<0.05.*

Appendix B. Detailed Regression Output

	Base		Moderator Model		MSA Model	
Variable	Odds Ratio	SE	Odds Ratio	SE	Odds Ratio	SE
Constant	1.00	(0.07)	1.02	(0.07)	1.50	(0.63)
Volunteer	1.27***	(0.05)	1.18***	(0.05)	1.25***	(0.06)
Black	0.71***	(0.03)	0.71***	(0.03)	0.70***	(0.04)
Asian	0.87	(0.08)	0.87	(0.08)	0.87	(0.09)
American Indian	1.00	(0.16)	1.01	(0.16)	1.34	(0.33)
Hispanic	1.03	(0.06)	1.03	(0.06)	1.04	(0.07)
More than one race	0.91	(0.11)	0.90	(0.11)	0.88	(0.12)
Immigrant	1.15*	(0.06)	1.14*	(0.06)	1.17**	(0.07)
Female	0.75***	(0.03)	0.75***	(0.03)	0.76***	(0.03)
Full-time student	1.04	(0.10)	1.02	(0.10)	0.98	(0.11)
Part-time student	1.63**	(0.29)	1.63**	(0.29)	1.55*	(0.32)
Rural	0.91*	(0.04)	0.85***	(0.04)		
Never worked	0.50***	(0.05)	0.50***	(0.05)	0.48***	(0.05)
Laid Off, expecting to return to work	1.76***	(0.21)	1.75***	(0.21)	1.91***	(0.27)
Age 16-19[a]	1.64***	(0.17)	1.63***	(0.17)	1.64***	(0.21)
Age 20-24[a]	1.41***	(0.10)	1.41***	(0.10)	1.47***	(0.13)
Age 25-34[a]	1.21***	(0.07)	1.21***	(0.07)	1.21**	(0.08)
Age 45-54[a]	0.77***	(0.04)	0.78***	(0.04)	0.76***	(0.05)
Age 55-64[a]	0.46***	(0.03)	0.46***	(0.03)	0.46***	(0.03)
Age 65 and above[a]	0.22***	(0.02)	0.22***	(0.02)	0.20***	(0.02)
Veteran	0.89*	(0.05)	0.89*	(0.05)	0.89	(0.06)
Not in Labor Force, Retired	0.13***	(0.01)	0.13***	(0.01)	0.13***	(0.01)
Not in Labor Force, Other	0.21***	(0.01)	0.21***	(0.01)	0.22***	(0.01)
Parent	1.32***	(0.06)	1.32***	(0.06)	1.31***	(0.07)
No high school diploma or equivalent[b]	0.67***	(0.03)	0.66***	(0.03)	0.71***	(0.04)
Some college[b]	1.35***	(0.05)	1.35***	(0.06)	1.38***	(0.07)
College degree[b]	1.90***	(0.09)	1.92***	(0.09)	1.91***	(0.10)
2004[c]	1.01	(0.07)	1.01	(0.07)		
2005[c]	1.08	(0.07)	1.08	(0.07)	1.05	(0.08)
2006[c]	1.02	(0.07)	1.02	(0.07)	0.95	(0.08)
2007[c]	1.01	(0.07)	1.01	(0.07)	0.96	(0.08)
2008[c]	0.91	(0.06)	0.91	(0.06)	0.92	(0.11)

Appendix B. Detailed Regression Output *(continued)*

	Base		Moderator Model		MSA Model	
Variable	Odds Ratio	SE	Odds Ratio	SE	Odds Ratio	SE
2009[c]	0.73***	(0.05)	0.73***	(0.05)	0.90	(0.13)
2010[c]	0.71***	(0.05)	0.71***	(0.05)	0.98	(0.09)
2011[c]	0.75***	(0.05)	0.75***	(0.05)	1.04	(0.09)
2012[c]	0.79***	(0.05)	0.79***	(0.05)	0.95	(0.08)
Unemployment rate (MSA)					0.93***	(0.01)
Percent change in unemp., from prior year (MSA)					1.19	(0.25)
Proportion HS degree (MSA)					1.23	(0.67)
Proportion some college (MSA)					0.84	(0.48)
Proportion college degree (MSA)					1.02	(0.47)
Interaction terms						
No HS diploma			1.28*	(0.15)		
Rural			1.31**	(0.12)		
Unweighted N		70,535		43,596		43,596
Weighted N		61,370,003		43,013,471		43,013,471

*Standard errors in parenthesis. * indicates significant at p<0.05; ** at p<0.01; and *** at p<0.001.*
a The reference category for age variables is ages 35-44.
b The reference category for education variables is high school diploma or equivalent.
c For Base and Moderator, the reference category for year effects is 2003. For MSA model, the reference category is 2004.

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