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The Impact of Youth Service on Future Outcomes: Evidence from Teach For America  
Will Dobbie and Roland G. Fryer, Jr  
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**ABSTRACT**

Nearly one million American youth have participated in service programs such as Peace Corps and Teach For America. This paper provides the first causal estimate of the impact of service programs on those who serve, using data from a web-based survey of former Teach For America applicants. We estimate the effect of voluntary youth service using a sharp discontinuity in the Teach For America application process. Participating in Teach For America increases racial tolerance, makes individuals more optimistic about the life chances of poor children, and makes them more likely to work in education. We argue that these facts are broadly consistent with the “Contact Hypothesis,” which states that, under appropriate conditions, interpersonal contact can reduce prejudice.

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“We need your service, right now, at this moment in history.... I’m asking you to help change history’s course. Put your shoulder up against the wheel. And if you do, I promise you - your life will be richer, our country will be stronger, and someday, years from now, you may remember it as the moment when your own story and the American story converged, when they came together, and we met the challenges of our new century.”

President Barack Obama, at the signing of the Edward M. Kennedy Serve America Act

## 1 Introduction

Over the past half century, nearly one million American youth have participated in national service programs such as the Peace Corps, AmeriCorps, Teach For America, and City Year.<sup>1</sup> These organizations have two stated objectives. The first is to provide services to communities in need. Peace Corps sends volunteers to work in education, business, information technology, agriculture, and the environment in more than 70 countries. Volunteers in Service to America (VISTA), a program in AmeriCorps, enlists members to serve for a year at local nonprofit organizations or local government agencies. Teach For America (TFA) recruits recent, accomplished college graduates to teach in some of the most challenging urban public schools.

There is emerging empirical evidence that service organizations benefit the individuals that they serve. Decker et al. (2006) find that students randomly assigned to Teach For America corps members score 0.04 standard deviations high in reading and 0.15 standard deviations higher in math compared to students in classrooms with traditional teachers. Moss et al. (2001) find that students enrolled in an AmeriCorps tutoring program experience larger than expected gains in reading performance.

A second objective of service organizations is to influence the values and future careers of those that serve. Peace Corps stated mission includes helping to “promote a better understanding of other peoples on the part of Americans.” VISTA hopes to encourage its members to fight poverty throughout their lifetimes. Teach For America aims to develop a corps of alumni dedicated to ending educational inequality even after their two-year commitment is over. Advocates of service organizations point to notable alumni such as Christopher Dodd (Peace Corps), Reed Hastings (Peace Corps), and Michelle Rhee (Teach For America), as evidence of the long term impact on individuals that serve.

Despite nearly a million service program alumni and annual government support of over a billion dollars, there is no credible evidence of the causal impact of service on those who serve.<sup>2</sup> This is

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<sup>1</sup>This includes approximately 200,000 Peace Corps volunteers ([http://multimedia.peacecorps.gov/multimedia/pdf/about/pc\\_facts.pdf](http://multimedia.peacecorps.gov/multimedia/pdf/about/pc_facts.pdf)), 637,000 AmeriCorps Volunteers ([http://www.americorps.gov/about/newsroom/states\\_news.asp](http://www.americorps.gov/about/newsroom/states_news.asp)), 28,000 Teach For America corps members (<http://www.teachforamerica.org/about-us/our-history/>), and 13,700 City Year volunteers (<http://www.cityyear.org/mediakit.aspx>).

<sup>2</sup>The 2010 federal budget included \$373 million for Peace Corps and \$98 million for AmeriCorps VISTA. Decker et al. (2006) report that school districts typically contribute about \$1,500 per TFA member to offset recruiting costs,

due, in part, to the fact that service alumni likely had different values and career goals even before serving. As a result, simple comparisons of service program alumni and non-alumni are likely to be biased.

This paper provides the first causal estimate of the impact of service programs on those who serve, using data from a web-based survey of TFA applicants - both those that were accepted and those that were not - administered for the purposes of this study.<sup>3</sup> The survey includes questions on an applicant's background, educational beliefs, employment, political idealism, and racial tolerance. The section on educational beliefs asks about the extent to which individuals feel that the achievement gap is solvable, and the importance of teachers in reaching that goal. Employment variables measure whether individuals are interested in working in education in the future, whether they are currently employed in education, and whether they prefer to work in an urban or suburban school. Political idealism is captured through a series of questions such as whether or not the respondent self-identifies as liberal, or whether America should spend more money on specific social policies. Racial tolerance is captured using an Implicit Association Test. For a complete list of questions, see Online Appendix B.

Our identification strategy exploits the fact that admission into TFA is a discontinuous function of an applicant's predicted effectiveness, calculated using a weighted average of scored responses to interview questions. As a result, there exists a cut-off point around which very similar applicants receive different application decisions. The crux of our identification strategy is to compare the average outcomes of individuals just above and below this cutoff. Intuitively, we attribute any discontinuous relation between average outcomes and the interview score at the cutoff to the causal impact of service in TFA.

The key threat to a causal interpretation of our estimates is that applicants may selectively respond to our survey. In particular, one may be concerned that TFA alumni will be more likely to respond, or that the non-alumni who respond will be different in some important way. Such selective response could invalidate our empirical design by creating discontinuous differences in respondent characteristics around the score cutoff. We evaluate this possibility in three ways. First, we test whether the survey response rate changes at the admissions cutoff. Second, we test whether the observable characteristics of survey respondents trend smoothly through the admissions cutoff score. Finally, we examine the density of survey respondents around the cutoff score. In all three cases, we find no evidence of the type of selective survey response that would invalidate our research design.

Our empirical analysis finds that serving in Teach For America increases an individual's faith and involvement in education, and increases racial tolerance. Political idealism remains essentially

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or about \$8 million per year in total.

<sup>3</sup>There are several studies examining the correlation between service and later outcomes. McAdam and Brandt (2009) compare 1993-1998 TFA alumni to TFA applicants who were admitted but chose not to serve. Haan (1974) surveyed 220 Peace Corps members bound for service, comparing those admitted to those that returned. Yamaguchi et al. (2008) surveyed individuals who "expressed interest" in AmeriCorps to individuals who applied to estimate the impact of AmeriCorps on civic engagement, employment, and educational attainment. All of these studies suffer from the same issues of self-selection and thus do not provide credible causal impacts of the effects of service programs on future outcomes of those that serve.

unchanged. TFA alumni are 52.8 percentage points more likely to believe that the “achievement gap is a solvable problem,” and 48.0 percentage points more likely to believe that teachers are the most essential determinant of a student’s success. TFA alumni are also 35.5 percentage points more likely to work for a K-12 school, and 47.5 percentage points more likely to work in an education related career. Finally, serving in TFA increases implicit white-black tolerance by 0.980 standard deviations. While service is also associated with higher implicit white-Hispanic tolerance, higher explicit white-black tolerance in the Modern Racism Scale, and a higher probability of believing that blacks and Hispanics are at least as intelligent as both whites and Asians, none of the estimates for explicit racial tolerance are statistically significant. Taken literally, this implies that while there is little treatment effect on measures of explicit tolerance, TFA increases the unconscious tolerance of its members.

Analysis of subsamples reveals that the impact of service on faith in education and educational involvement is larger for men, with no systematic differences by ethnicity or Pell Grant receipt – a rough proxy for household income at college entry.

We argue that this new set of facts, particularly those on racial beliefs, are consistent with the “Contact Hypothesis,” developed in Allport (1954) and extended by Brown and Hewstone (2005), Hewstone and Brown (1986), and Pettigrew (1998). The “Contact Hypothesis” states that intergroup contact increases tolerance. The majority of the empirical evidence shows that intergroup contact is negatively correlated with intergroup prejudice (Pettigrew and Tropp 2006), and in real world experimental settings, Boisjoly et al. (2006) and Barnhardt (2009) show that living with a minority group increases tolerance among white college students and Hindu children, respectively. Similarly, Clingingsmith et. al (2009) demonstrate that winning a lottery to participate in the Hajj pilgrimage to Mecca increases belief in equality and harmony of ethnic groups among other outcomes.

TFA service typically involves sending a college educated young adult, whose parental income is above the national average, into a predominantly poor and minority neighborhood. Seventy-four percent of corps members in our sample are white, and eighty percent have at least one parent with a college degree. The average parental income of a corps member while in high school is \$118 thousand, compared to the national median family income of approximately \$50 thousand (U.S. Census Bureau 2000). In sharp contrast to this privileged upbringing, roughly eighty percent of the students taught by corps members qualify for free or reduced-price lunch and more than ninety percent are African-American or Hispanic.

There are three potential caveats to our analysis. First, because TFA introduced its discontinuous method of selecting applicants in 2007, our primary analysis includes only one cohort of TFA applicants surveyed roughly a year after their service commitment ended. To address this issue, we also collected data on TFA applicants from the 2003 to 2006 cohorts. Applicants in these cohorts were admitted only if they met prespecified interview subscore requirements. For example, TFA admitted applicants with the highest possible interview score in perseverance and organizational ability so long as they had minimally acceptable scores in all other areas. In total, there were six separate combinations of interview subscores that met the admissions requirements. We estimate

the impact of service for the 2003 to 2006 cohorts by instrumenting for TFA placement using an indicator variable equal to one if a candidate meets one of the six subscore criteria for admissions, controlling for fully nonparametric controls for each individual interview subscore. The impact of TFA service is therefore identified using the interaction of the subscores. Our key identifying assumption is that, conditional on our nonparametric controls, the that the interaction of interview subscores only impacts future outcomes through TFA placement. These estimates suggest that the impacts of service are persistent, with older TFA alumni more likely to believe in the power of education, more likely to be involved or employed in education, and are more racially tolerant.

The second caveat to our analysis is that the response rate of the 2007 cohort to our web-based survey is only 30 percent. While there is no evidence of the type of selective survey response around the interview score cutoff that would invalidate our empirical design, we cannot rule out unobserved differences in who responded to our survey. With such a low response rate, the bounds on our analysis include both positive and negative effects.<sup>4</sup>

Third, although TFA is broadly similar to other service organizations, it also differs in important ways that limit our ability to generalize our results. To the extent that TFA’s impact on alumni is driven by factors that all service organizations have in common, the results of our study will be informative about the effects of service programs more generally. If one believes that the unique attributes of TFA such as its selectivity or focus on urban teaching drive its impact, the results of the study should be interpreted more narrowly.

The paper proceeds as follows. Section 2 provides a brief overview of Teach For America and its relationship to other prominent service programs around the world. Section 3 describes our web-based TFA survey and sample. Section 4 details our research design and econometric framework for estimating the causal impact of TFA on racial and educational beliefs, employment outcomes, and political idealism. Section 5 describes our results. The final section concludes. There are three online appendices. Online Appendix A provides further details of how we coded variables used in our analysis and constructed the samples. Online Appendix B provides implementation details and the complete survey administered to TFA applicants. Online Appendix C provides additional results and robustness checks of our main analysis excluded from the main text.

## 2 A Brief Overview of Teach For America

### *A. History*

Teach For America (TFA), a non-profit organization that recruits recent college graduates to teach for two years in low-income communities, is one of the nation’s most prominent service programs. Based on founder Wendy Kopp’s undergraduate thesis at Princeton University, TFA was created to build a movement to eliminate educational inequity by enlisting our nation’s most promis-

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<sup>4</sup>Approximately 26 percent of University of Chicago Business School alumni from the graduating classes of 1990 to 2006 responded to a web-based survey conducted in Bertrand, Goldin and Katz (2010). 10 percent of individuals receiving UI benefits in New Jersey initially responded to an online survey conducted in Krueger and Mueller (2011), with an additional 60 percent of those initial respondents dropping out of the follow-up survey.

ing future leaders. In 1990, TFA's first year in operation, Kopp raised \$2.5 million and attracted 2,500 applicants for 500 teaching slots in New York, North Carolina, Louisiana, Georgia, and Los Angeles.

Since its founding, TFA corps members have taught more than three million students. Today, there are 8,200 TFA corps members in 125 "high-need" districts across the country, including 13 of the 20 districts with the lowest graduation rates. Roughly 80 percent of the students reached by TFA qualify for free or reduced-price lunch and more than 90 percent are African-American or Hispanic.

TFA's relatively recent founding by one individual stands in sharp contrast to the history of other prominent social organizations such as Peace Corps and AmeriCorps, governmental organizations with their roots in 1960s-era social welfare programs. In 1993, President Bill Clinton signed the National Community Service Trust Act, which established the Corporation for National and Community Service, an umbrella organization for domestic community service programs. AmeriCorps incorporated two pre-existing programs, however: VISTA, which was created by President Lyndon Johnson in 1964 as part of his "War on Poverty;" and the National Civilian Community Corps, which was created by a bipartisan group of Senators in 1992. Peace Corps famously came about as the result of a speech made in 1960 by then presidential candidate John F. Kennedy at 2 a.m. to students at the University of Michigan, in which he challenged them to spend two years of their lives helping people in the developing world. President Kennedy signed an executive order establishing the Peace Corps in 1961.

### *B. Application Process*

Entry into TFA is highly competitive; in 2010, more than 46,000 individuals applied for just over 4,000 spots. 12 percent of all Ivy League seniors applied. A significant number of seniors from historically black colleges and universities also applied, including 1 in 5 at Spelman College and 1 in 10 at Morehouse College. 28 percent of incoming corps members received Pell Grants, and almost one-third are people of color.

In its recruitment efforts, TFA focuses on individuals who possess strong academic records and leadership capabilities, regardless of whether or not they have exposure to teaching practice prior to entry into TFA. Despite this lack of formal training, students assigned to TFA corps members score about 0.15 standard deviations higher in math and 0.04 standard deviations higher in reading than students assigned to traditionally certified teachers (Decker et al. 2006).

To apply, candidates complete an online application, which includes a letter of intent, and a resume. After a phone interview, the most promising applicants are invited to participate in an in-person interview, which includes a sample teaching lesson, a group discussion, a written exercise, and a personal interview. Candidates who receive an in-person interview complete a sample teaching lesson, participate in a group discussion, and have a one-on-one interview. Applicants who are invited to interview are also required to provide transcripts, obtain two on-line recommendations, and provide one additional reference.

Using information collected through the application and interview, TFA bases their selection of

candidates on a model that accounts for multiple criteria that they believe are linked to success in the classroom, including achievement, perseverance, critical thinking, organizational ability, motivational ability, respect for others, and commitment to the TFA mission. TFA conducts ongoing research on their selection criteria, focusing on the link between the selection criteria and observed single-year gains in student achievement in TFA classrooms.

Between 2003 and 2006, TFA admitted candidates who met prespecified interview subscore requirements. For example, TFA admitted all applicants with the highest possible achievement score so long as they had minimally acceptable scores in all other areas. Or, applicants could be admitted by having the highest possible score in perseverance and organizational ability, again so long as they had minimally acceptable scores in all other areas. In total, there were six separate combinations of interview subscores that met the admissions requirements. In 2007, TFA conducted a systematic review of their admissions measures, improving the correlation between these subscores and internal TFA measures of classroom success. Also starting in 2007, TFA began using a linear function of the application subscores to help rank and select candidates.

Entry into Peace Corps is also competitive. In the 2009 fiscal year, Peace Corps received 15,386 applications for approximately 3,400 spots. The application process can take anywhere from six to twelve months. Candidates must complete an online application, which includes two essays, three references, employment history, resume, community and volunteer activities, educational background, transcripts, and a health status review. Candidates are expected to have previous experience in their areas of interest. For example, candidates interested in teaching English should have three to six months of previous tutoring experience in English or a foreign language for at least ten hours per month; candidates interested in health care should have three to six months of volunteer or work experience in health care. The most qualified candidates are invited for an interview. Successful candidates must then pass medical, legal, and suitability reviews before being given an assignment.

Entry into AmeriCorps has generally been less competitive than entry into either TFA or Peace Corps, but the number of applications in recent years has increased substantially. From November 2008 through June 2009, the most recent period that data is available, AmeriCorps received 146,699 online applications for approximately 59,000 slots. The application process for AmeriCorps varies by program, but generally candidates must first submit an online application, which includes an essay and two references. The most suitable candidates are then screened using a phone interview. The entire application process takes approximately two months. While the application processes for TFA and Peace Corps are both extremely competitive and generally draw graduates from selective colleges, AmeriCorps members are more often between the ages of 18 and 21. Almost half are black and more than half are high school dropouts at the time that they join the program (Jastrzab et al. 1997).

### *C. Training and Placement*

During our sample period, accepted applicants were required to take part in a five-week TFA summer institute to prepare them for placement in the classroom at the end of the summer. The



TFA summer institute includes courses covering teaching practice, classroom management, diversity, learning theory, literacy development, and leadership. During the institute, groups of participants also take full teaching responsibility for a class of summer school students.

At the time of their interview, applicants submit their subject, grade, and location preferences. TFA works to balance these preferences with the needs and requirements of districts. With respect to location, applicants rank each TFA region as highly preferred, preferred, or less preferred and indicate any special considerations, such as the need to coordinate with a spouse. Over 90 percent of the TFA applicants accepted are matched to one of their “highly preferred” regions (Decker et al., 2006).

TFA also attempts to match applicants to preferred grade levels and subjects, depending on an applicants’ academic backgrounds, district needs, and state and district certification requirements. As requirements vary from region to region, applicants may not be qualified to teach the same subjects and grade levels in all regions. It is also difficult for school regions to predict the exact openings they will have in the fall, and late changes in subject or grade-level assignments are not uncommon.

TFA corps members are employed and paid directly by the school districts for which they work, and generally receive the same salaries and health benefits as other first year teachers. Most districts pay a \$1,500 per corps member fee to TFA to offset screening and recruiting costs. TFA gives corps members various additional financial benefits, including “education awards” of \$4,725 for each year of service, which they can use toward past or future educational expenses, and transitional grants and no-interest loans to help corps members make it to their first paycheck.

TFA corps members are hired to teach in local school districts through alternative routes to certification. Typically, they must take and pass exams required by their districts before they begin teaching. Corps members may also be required to take additional courses to meet state certification requirements or to comply with the requirements for highly qualified teachers under the No Child Left Behind Act.

Peace Corps members also undergo an extensive training process. They are required to complete a three-month intensive training program in the country in which they will be serving. The training process varies by country. Members usually live in a village, receive training and orientation in the local languages, and are expected to develop technical skills needed to do their work. In addition, Peace Corps members receive cross-cultural training, health training, and safety training. For instance, members might receive formal language instruction for five days a week in small groups. As part of the training, Peace Corps members typically live with a host family, an experience designed to ease the transition to the host site. Trainees also attend required medical sessions to help them practice preventive health care while in the host country. AmeriCorps training is less intensive than either TFA or Peace Corps training; members receive only a few weeks of training in first aid and other basic skills needed to carry out their projects.

### 3 Teach For America Survey and Sample

To understand the impact of TFA on racial and educational beliefs, employment outcomes, and political idealism, we conducted a web-based survey of the 2003-2009 TFA application cohorts between April 2010 and May 2011. The survey contained 87 questions and lasted approximately 30 minutes. As an incentive to complete the survey, every individual was entered into a lottery for a chance to win \$5,000. The complete survey is available in Online Appendix B.

#### *A. Contacting TFA Applicants*

Applicants were first contacted using email addresses supplied to TFA in their initial applications. Between April 2010 and June 2010, applicants received up to three emails providing them with information about the survey and link to the survey. Each email reminded applicants that by completing the survey they would be automatically entered in a lottery for \$5,000. Approximately 30 percent of the 2,567 2007 TFA alumni and 14 percent of the 4,801 2007 non-alumni started the survey during this phase.<sup>5</sup> To increase the response rate among non-alumni, we also contacted individuals using phone numbers from TFA application records. We began by calling each of the non-alumni who had not responded to the email and who had provided TFA a valid phone number using a automated call system with a brief 30 second recording with information about the survey. We then contacted non-respondents using personal calls from an outsourced calling service. Voicemails were left for those who did not answer the phone; for the 2007 cohort, those people were called again a few weeks later. This strategy resulted in an additional 395 responses among 2007 non-alumni. The process was similar for the 2003 - 2006 and 2008 - 2009 cohorts, though we made fewer follow up calls than with the 2007 cohort. Appendix B provides more details on each step of this process.

These strategies yielded a final response rate of 32.7 percent among 2007 TFA alumni and 29.6 percent among 2007 non-alumni. Among the other cohorts, the response rate is lower for older cohorts and non-alumni. The difference in the response rate between alumni and non-alumni is smallest in the 2007 cohort, likely due to the additional phone calls to the non-alumni in this cohort. Response rates are presented for all cohorts in Appendix Figure 1.

An important threat to our identification strategy is that the response rate changes discontinuously at the score cutoff. In this scenario, our results may be driven by changes in the type of respondent at the cutoff rather than the causal impact of TFA. We test for differences in the response rate at the admissions cutoff in Figure 1. We plot the fraction of applicants taking the survey in 0.0025 wide bins in interview score, and fitted values from a regression of an indicator variable for taking the survey on an indicator variable for scoring above the cutoff score, a quadratic in interview score, and a quadratic in interview score interacted with scoring above the cutoff. There is not a

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<sup>5</sup>Between June 2010 and July 2010 we also searched for both alumni and non-alumni non-responders on Facebook using accounts specifically created for the TFA survey. Account pages included an overview of, and a link to, the survey. We used email addresses from TFA to manually search for both alumni and non-admits on Facebook and attempted to “friend” them. Despite finding 2,610 applicants on Facebook, this method yielded only 53 accepted “friends.”

statistically significant impact of scoring above the cutoff score on survey response. If anything, candidates with scores above the cutoff are somewhat less likely to have taken the survey. We test for differences in survey response around the cutoff more formally in Section 5.4, finding no evidence that our identifying assumption is violated.<sup>6</sup>

### *B. The Survey*

Data collected in our online survey of TFA applicants is the heart of our analysis. We asked applicants about their demographics and background information, educational beliefs, employment outcomes and aspirations, political idealism, and racial beliefs. Whenever possible, survey questions were drawn from known instruments such as the College and Beyond Survey, Harvard and Beyond Survey, the The National Longitudinal Study of Adolescent Health Teacher Survey, the Modern Racism Scale, and the General Social Survey. In this paper, we use only a small fraction of the data we collected. For further details on these variables or those omitted from our analysis, see online Appendix B.

The set of questions on educational beliefs were designed to measure the extent to which individuals feel that the achievement gap is solvable, that schools can achieve that goal, and the importance of teachers in increasing student achievement. Survey respondents were asked whether they agreed or disagreed with a series of statements on a five point Likert scale ranging from “agree strongly” to “disagree strongly.” The statements included: “the achievement gap between children in low-income and high-income areas is a solvable problem;” “great schools can close the achievement gap;” and “if teachers try really hard, they can get through to even the most difficult or unmotivated students.” These questions are similar to those asked in the The National Longitudinal Study of Adolescent Health Teacher Survey. Other, more open-ended, questions included “what fraction of blacks can we reasonably expect to obtain a college degree and individuals,” and “who is the most important in determining how well students perform in school?” For questions with answers that do not have clear cardinality, we create indicator variables equal to one if the response was “favorable” (e.g. strongly agree that the achievement gap is a solvable problem).

Employment variables measure whether individuals are interested in working in education in the future, whether they are currently employed in education, and whether they prefer to work in an urban or suburban school. Political idealism is captured in a series of questions such as whether or not the respondent self identifies as liberal or whether the government should spend more or less on issues such as closing the achievement gap, welfare assistance, and fighting crime. For political

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<sup>6</sup>Appendix Figure 2 presents point estimates and associated 95 percent confidence intervals for the reduced form impact of having a score above the cutoff (2007 - 2009) or having a set of eligible interview subscores (2003 - 2006) on survey response in all cohorts. For the 2007 - 2009 cohorts we control for interview score and interview score interacted with scoring above the cutoff score. For the 2003 - 2006 cohorts we include fully nonparametric controls for each interview subscore, and report the point estimate for an indicator variable equal to one if the combination of interview subscores is eligible for TFA admission. While there is little difference in the response rate of eligible and ineligible applicants from the 2007 through 2009 cohorts, eligible applicants from the 2003 to 2006 are 6 to 11 percentage points more likely to respond to our survey. In Section 5.4 we test whether the eligible applicants who take the survey are different on observable characteristics, finding that eligible applicants who took the survey are more likely to be white or Asian in the 2003 through 2006 cohorts. The results for the 2003 to 2006 cohorts should be interpreted with these differences in response rate in mind.

idealism, we create indicator variables equal to one if the response is more liberal.

In the final portion of the survey, we asked participants to take a 10 minute Implicit Association Test (IAT) that measured white-black implicit bias. We measure implicit associations as they better indicate unconscious feelings about minorities (Bertrand, Chugh, Mullainathan 2005).<sup>7</sup> Manipulation has been shown to be harder on the IAT than other measures (Steffens 2004), and a recent meta-analysis reports the IAT is better at predicting behaviors than explicit attitudes when the association measured involves a black-white comparison (Greenwald et al. 2009). IAT scores also correlate well with other implicit measures of racist attitudes and real-world actions. For instance, individuals with more anti-black IAT scores are more likely to make negative judgments about ambiguous actions by blacks (Rudman and Lee 2002); more likely to exhibit a variety of micro-behaviors indicating discomfort with minorities, including less speaking time, less smiling, fewer extemporaneous social comments, more speech errors, and more speech hesitations in an interaction with a black experimenter (McConnell and Leibold 2001); and are more likely to show greater activation of the amygdala, an area of the brain associated with fear-driven responses, to the presentation of unfamiliar black versus white faces (Phelps et al. 2000). Moreover, in Sweden IAT scores predict discrimination in the hiring process among managers (Rooth 2007) and in the U.S., doctors with stronger anti-black IAT scores are less likely to prescribe thrombolysis for myocardial infarction to black patients diagnosed with the same condition as the equivalent whites (Green et al. 2006), though that latter finding has been questioned (Dawson and Arkes 2008).

We use a brief format IAT, developed in Sriram and Greenwald (2009), to assess the relative strength of automatic associations between “good” and “bad” outcomes and white and black faces. The brief format IAT performs similarly on test-retest and implicit-explicit correlations as the standard IAT, but with one third the number of trials. We standardize Implicit Association Test scores to have a mean of zero and a standard deviation of one, with higher values being more favorable.

To complement the IAT measure of implicit bias, individuals were also asked about explicit racial bias. Our first measure of explicit bias comes from the General Social Survey. Individuals were asked to separately rate the intelligence of Asians, blacks, Hispanics, and whites on a seven point scale that ranged from “almost all are unintelligent” to “almost all are intelligent.” We recoded this variable to indicate whether individuals believe that blacks and Hispanics are at least as intelligent as whites and Asians. Our second measure of explicit bias is the Modern Racism Scale (McConahay 1983). The Modern Racism Scale consists of six questions that individuals are asked how much they agree or disagree. Each item was re-scaled so that lower numbers are associated with a more anti-black response, then a simple average was taken of the six questions. We normalized this scale to have mean zero and standard deviation one across each cohort. The six statements that individuals are presented are: “over the past few years, blacks have gotten more economically than they deserve;” “over the past few years, the government and news media have shown more respect for blacks than

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<sup>7</sup>Some critics argue that the IAT may be assessing shared norms, familiarity, perceptual salience asymmetries, or cultural knowledge that does not correspond to personal endorsement of that knowledge (e.g. Karpinski and Hilton 2001; Rothermund and Wentura 2004).

they deserve;” “it is easy to understand the anger of black people in America;” “discrimination against blacks is no longer a problem in the United States;” “blacks are getting too demanding in their push for equal rights;” and “blacks should not push themselves where they are not wanted.”

Index variables for each survey domain were also constructed by standardizing the sum of individual questions to have a mean of zero and a standard deviation of one in each cohort. Rather than add dichotomous and standardized variables together, we converted all standardized variables to indicator variables equal to one if the continuous version of the variable was above the median of the full sample. Details on the coding of each measure are available in Appendix A.

### C. *The Final Sample*

Our final sample consists of data from our web-based survey merged to administrative data from Teach For America. The administrative records consist of admissions files and placement information for the 2003 to 2009 application cohorts. Our data includes all TFA applicants invited to the in-person interview. A typical applicant’s data include her name, undergraduate institution, GPA, and major, admissions decision, placement information, and interview score. Data from TFA administrative records and our web-based survey were matched using name, application year, college and email address. Our primary sample consists of all 2007 applicants who responded to our survey. Our secondary sample consists of survey respondents from all cohorts.

Summary statistics for the 2007 cohort are displayed in Table 1. 73 percent of the sample is white, 7 percent is Asian, 7 percent is black, and another 6 percent is Hispanic.<sup>8</sup> Alumni had an average college GPA of 3.58 while non-alumni had an average GPA of 3.46. The parents of both the typical alumni and non-alumni are highly educated; 58 percent of alumni have at least one parent with a graduate degree, while 50 percent of non-alumni do. Over 80 percent of both groups have at least one parent with a college degree. With that said, a significant fraction of TFA applicants come from disadvantaged backgrounds. 19 percent of TFA alumni in our sample were eligible for a Pell Grant in college, while 23 percent of non-alumni were eligible.

## 4 Research Design

Our identification strategy exploits the fact that entry into TFA is a discontinuous function of an applicant’s interview score. Consider the following model of the relationship between future outcomes ( $y_i$ ) and serving in TFA ( $TFA_i$ ):

$$y_i = \alpha + \gamma TFA_i + \varepsilon_i \tag{1}$$

The parameter of interest is  $\gamma$ , which measures the causal effect of service on future outcomes  $y_i$ . The problem for inference is that if individuals select into service organizations because of important

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<sup>8</sup>The racial distribution of TFA applicants mirrors that of colleges graduates at selective colleges more broadly. 5 percent of graduating seniors at “more selective” or “most selective” colleges are black. 6 percent are Hispanic (U.S. Department of Education 2010). The 2011 TFA cohort is more diverse than previous cohorts, with 12 percent of the cohort identifying as black and 8 percent identifying as Hispanic.

unobserved determinants of later outcomes, such estimates may be biased.<sup>9</sup> In particular, it is plausible that people who select into service organizations had different beliefs and outcomes before they served:  $E[\varepsilon_i|y_{it-1}] \neq 0$ . Since  $TFA_i$  may be a function of past beliefs and outcomes, this can lead to a bias in the direct estimation of  $\gamma$  using OLS. The key intuition of our approach is that this bias can be overcome if the distribution of unobserved characteristics of individuals who were just below the bar for TFA is the same as the distribution among those who were just above the bar:

$$E[\varepsilon_i|score_i = c^* + \Delta]_{\Delta \rightarrow 0^+} = E[\varepsilon_i|score_i = c^* - \Delta]_{\Delta \rightarrow 0^+} \quad (2)$$

where  $score_i$  is an individual's interview score, and  $c^*$  is the cutoff score below which very few applicants are admitted to TFA. Equation (2) implies that the distribution of individuals to either side of the cutoff is as good as random with respect to unobserved determinants of future outcomes ( $\varepsilon_i$ ). In this scenario, we can control for selection into TFA using an indicator variable for whether an individual has an interview score above the cutoff as an instrumental variable. Since service in  $TFA_i$  is a discontinuous function of interview score, whereas the distribution of unobservable determinants of future outcomes  $\varepsilon_i$  is by assumption continuous at the cutoff, the coefficient  $\gamma$  is identified. Intuitively, any discontinuous relation between future outcomes and the interview score at the cutoff can be attributed to the causal impact of service in TFA under the identification assumption in equation (2).

Formally, let TFA placement ( $TFA_i$ ) be a smooth function of an individual's interview score ( $score_i$ ) with a discontinuous jump at the eligibility cutoff  $c^*$ :

$$TFA_i = f(score_i) + \eta(score_i \geq c^*) + \varepsilon_i \quad (3)$$

In practice, the functional form of  $f(score_i)$  is unknown. We follow Card et al. (2008) and Lee and Lemieux (2010), among others, and approximate  $f(score_i)$  with a quadratic in interview score that is allowed to vary on either side of the cutoff. Estimation with a local linear regression, such as that presented in Ludwig and Miller (2007) and Almond et al. (2010), gives similar results (see Appendix Table 1).

The identified second stage parameter measures the average treatment effect for individuals induced into TFA by scoring just above the cutoff. To address potential concerns about discreteness in the interview score in both our first and second stage results, we cluster our standard errors at the interview score level (Card and Lee 2008). The key threat to a causal interpretation of our estimates is that applicants may selectively respond to our survey:

$$E[\varepsilon_i|survey_i = 1, score_i = c^* + \Delta]_{\Delta \rightarrow 0^+} \neq E[\varepsilon_i|survey_i = 1, score_i = c^* - \Delta]_{\Delta \rightarrow 0^+}$$

where  $survey_i = 1$  represents the set of TFA applicants who answered at least one question in our web-based survey.

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<sup>9</sup>Studies that examine the association between service and future outcomes, such as Jastrzab and Winship (2008) and McAdam and Brandt (2009), estimate equations such as (1).

In particular, one may be concerned that former TFA alumni will be more likely to respond, or that the non-alumni who do respond will be different in some important way. Such selective response could invalidate our empirical design by creating discontinuous differences in respondent characteristics around the score cutoff. In Section 5.4 we evaluate this possibility of in three ways: by testing whether the observable characteristics of survey respondents trends smoothly through cutoff, by examining whether the fraction of applicants taking the survey trends smoothly through the cutoff, and by examining the density of survey respondents around the cutoff. None of these tests points to evidence of the type of selective survey response that would invalidate the empirical design.

One final problem unique to our setting is that the cutoff score  $c^*$  must be estimated from the data. TFA does not specify a cutoff score each year. Rather, they select candidates using the interview score as a guide until a prespecified number of teaching slots are filled. Our goal is to identify the unknown score cutoff that best fits the data. To identify this optimal discontinuity point, we use a technique similar to that used to identify structural breaks in time series data and identify discontinuities in the dynamics of neighborhood racial composition (Card, Mas, and Rothstein 2008). Specifically, we regress an indicator variable equal to one if the individual was selected for TFA on a constant and an indicator variable equal to one if the individual scored above a particular cutoff  $c$  in the full sample of applicants. We then loop over all possible cutoffs  $c$  in 0.0001 intervals, selecting the value of  $c$  that maximizes the  $R^2$  of our specification. Hansen (2000) shows that this procedure yields a consistent estimate of the true discontinuity. A standard result in the structural break literature (e.g., Bai 1997) is that one can ignore the sampling error in the location of the discontinuity when estimating the magnitude of the discontinuity. Using different cutoff points around the optimal  $c^*$  yield very similar results.

## 5 Results

### 5.1 First Stage

First-stage results of the impact of the score cutoff on TFA service are presented graphically in Figure 2. The figure presents actual and fitted values for our first stage regression. The sample includes all 2007 applicants to TFA who answered at least one question on our survey. An individual is defined as having served in TFA if she accepted the TFA offer and was assigned a school district. Actual values are plotted in bins of size 0.0025.<sup>10</sup> The fitted values are from a regression of an indicator variable equal to one if an individual served in TFA on an indicator variable for being above the cut-off score,  $c^*$ , a quadratic trend in interview score, and a quadratic trend in interview

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<sup>10</sup>Lee and Lemieux (2010) propose a formal test for optimal bin width based on the idea that if the bins are narrow enough, then there should not be a systematic relationship between the outcome variable and the running variable within each bin. Otherwise, the bin is too wide and the mean value of the outcome variable is not representative at the boundaries. A simple test for this consists of adding a set of interactions between the bin dummies and the running variable to a base regression of the outcome variable on the set of bin dummies, and testing whether the interactions are jointly significant. A bin width of 0.0025 passes this test.

score interacted with the indicator for being above the cut-off score. In symbols:

$$TFA_i = \alpha_1 + \alpha_2(\text{score}_i \geq c^*) + \alpha_3 \text{score}_i + \alpha_4 \text{score}_i^2 + \alpha_5 \text{score}_i \cdot (\text{score}_i \geq c^*) + \alpha_6 \text{score}_i^2 \cdot (\text{score}_i \geq c^*) + \varepsilon_i \quad (4)$$

where  $\alpha_2$  is the effect of having an interview score above the cutoff score on the probability of service.

Figure 2 suggests that there is a large and precisely estimated increase in the probability of serving in TFA at the cutoff score. About 35 percent of applicants scoring just below the cutoff serve, while approximately 65 percent of applicants scoring just above the threshold serve. The corresponding estimates are significant at the 1 percent level, suggesting that our empirical design has considerable statistical power.

## 5.2 Main Results

Figure 3 summarizes our main results, and Figures 4 through 7 present results for each set of questions separately. Each figure presents actual and fitted values for 2007 applicants to TFA who answered at least one question on our survey. Section 5.5 provides results for additional cohorts. Actual values are plotted in bins of size 0.0025. The fitted values are from a regression of the dependent variable on an indicator variable for being above the cut-off score,  $c^*$ , a quadratic in interview score, and a quadratic in interview score interacted with the indicator for being above the cut-off score. Thus, similar to our first stage specification, our reduced form specification is:

$$y_i = \alpha_1 + \alpha_2(\text{score}_i \geq c^*) + \alpha_3 \text{score}_i + \alpha_4 \text{score}_i^2 + \alpha_5 \text{score}_i \cdot (\text{score}_i \geq c^*) + \alpha_6 \text{score}_i^2 \cdot (\text{score}_i \geq c^*) + \varepsilon_i \quad (5)$$

where  $\alpha_2$  is the reduced form effect of having an interview score above the cutoff score on the probability of service. Below each figure we present the p-value associated with the reduced form effect  $\alpha_2$ . Results in tabular form, including two stage least squares estimates, are available in Appendix C.

Our summary results in Figure 3 examine the standardized sum of dichotomous individual questions from that domain. Continuous variables were converted to dichotomous variables by creating an indicator variable equal to one if the continuous version of the variable was above the median of the full sample. The racial tolerance index is made up of an individual's white-black IAT score only. Details on the coding of each measure are available in Appendix A. Figure 3 suggests that serving in Teach For America increases an individual's faith and involvement in education, and increases racial tolerance. Individuals who serve score 1.582 standard deviations higher on our index of educational faith, and 1.880 standard deviations on our index of educational employment. TFA alumni are also 0.980 standard deviations "more tolerant" than non-alumni. Political idealism remains essentially unchanged.

Figure 4 presents results for each education belief variable separately. Serving in TFA increases an individual's faith in the ability of poor children to compete with more advantaged children, and



the importance teachers in raising student achievement. Individuals who serve are 52.8 percentage points more likely to believe that poor children can compete with more advantaged children, 47.7 percentage points more likely to believe that the achievement gap is solvable, 48.0 percentage points more likely to believe that teachers are the most important determinant of success, 25.6 percentage points more likely to believe that schools can close the achievement gap without the help of families, and 84.5 percentage points more likely to disagree that there is little teachers can do to ensure that students succeed. Individuals who serve also believe that we can reasonably expect 30.3 percent more minorities to graduate from a four year college than individuals who do not serve.

The effect of TFA on involvement in education is depicted in Figure 5. An important criticism of TFA is that corps members frequently depart before their two-year commitment has been fulfilled or immediately after (Darling-Hammond et al. 2005). Our results do not address the question of whether TFA teachers are more likely to stay in education compared to other teachers. Instead, we ask whether TFA leads individuals to stay in education longer than they otherwise would have without TFA.

Figure 5 suggests that those who serve in TFA are more likely to be employed in a K-12 school or in education more generally one to two years after their commitment ends. Our two stage least squares estimates suggest that serving in TFA increases the probability of being employed in a K - 12 school by 35.5 percentage points and in education more broadly by 47.5 percentage points. Individuals who serve are also 45.8 percentage points more likely to believe that service is an important part of their career, and 35.9 percentage points more likely to prefer an urban teaching job over a suburban teaching job. Interestingly, there is not a statistically significant effect of service on wanting to work in education in the future, though the point estimate is positive. There is also no effect of service on the preference of an urban teaching job over a finance job at the same salary, though this may be because almost all survey respondents prefer teaching.

The effect of TFA on political idealism is depicted in Figure 6. Individuals were asked how liberal they consider themselves, and whether we should spend more money closing the achievement gap, on welfare assistance, and on fighting crime. Serving in TFA does not have a significant impact on political idealism, at least as we have measured it here. We cannot rule out moderate size effects of either direction, however.

Our final set of outcomes, racial tolerance, are presented in Figure 7. Our primary measure of racial tolerance comes from the brief format Implicit Association Test (IAT), developed in Sriram and Greenwald (2009), that assesses the relative strength of automatic associations between “good” words and black faces. We normalize the IAT to have a mean of zero and a standard deviation of one in each cohort. To complement the IAT measure, individuals were also asked about the relative intelligence of whites, Asians, blacks and Hispanics, and a set of six questions that together make up the Modern Racism Scale (McConahay 1983). We normalize the Modern Racism Scale to have a mean of zero and a standard deviation of one in each cohort. Each measure is normed so that higher numbers are associated with greater tolerance. More information on each measure is available in the data appendix.

Remarkably, serving in TFA increases implicit white-black tolerance by 0.980 standard deviations. To put this in context, black applicants score 0.558 standard deviations higher than Asian applicants on the IAT, while white and Hispanic applicants score 0.084 and 0.253 standard deviations higher respectively. The causal impact of TFA service is therefore equivalent to moving the median Asian applicant to above the 50th percentile of the black distribution of racial tolerance towards blacks.

Service is also somewhat associated with higher explicit white-black tolerance in the Modern Racism Scale, and a higher probability of believing that blacks and Hispanics are at least as intelligent as both whites and Asians, though none of the estimates for explicit racial tolerance are statistically significant. Taken literally, this implies that while there is little treatment effect on measures of explicit tolerance, TFA increases the unconscious tolerance of its members.

### 5.3 Analysis of Subsamples

Table 2 investigates heterogeneous treatment effects across gender, ethnicity, and whether or not a TFA applicant received a Pell Grant in college (a proxy for poverty). We allow for separate linear trends in interview score by group. The impact of service on faith in education and educational involvement is larger for men than for women. Service increases a male applicants faith in education by 2.261 standard deviations, while increasing a female applicant’s faith in education by 0.867 standard deviations. Educational involvement increases 3.289 standard deviations for male applicants and 0.917 standard deviations for female applicants.

The impact of service on faith in education is also larger for applicants without Pell Grants in college, but smaller on involvement in education. There are no statistically significant differences by ethnicity, though the point estimates tend to be larger for blacks and Hispanics, even for the impact of service on racial tolerance.

### 5.4 Tests for Quasi-Random Assignment

Our empirical strategy assumes that applicants do not selectively respond to our survey. One specific concern is that former TFA corps members will be more likely to respond. Similarly, we may be concerned that the non-corps members who do respond will be different from the corps members who respond in some important way. Such selective response could invalidate our empirical design by creating discontinuous differences in respondent characteristics around the score cutoff. Although the continuity assumption cannot be fully tested, we investigate whether the fraction of applicants responding changes at the cutoff, whether the observable characteristics of survey respondents trends smoothly through the cutoff, and examine the density of survey respondents around the cutoff.

Figure 1 tests whether the fraction of 2007 applicants responding to the survey changes at the cutoff. We present actual and fitted values of the survey response rate. There does not appear to be any difference in the response rate at the score cutoff. If anything, applicants above the cutoff are somewhat less likely to take to the survey.<sup>11</sup>

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<sup>11</sup>Appendix Figure 2 presents analogous results for the other TFA cohorts. For the 2007 - 2009 cohorts we control

Figure 8 tests whether the observable characteristics of 2007 survey respondents trends smoothly through the cutoff. If there is a discontinuous change at the cutoff, that would indicate that respondents who were eligible for TFA differ in a way that would invalidate our research design. We present actual and fitted values for 2007 applicants to TFA who answered at least one question on our survey. Actual values are plotted in bins of size 0.0025. As with our first stage and reduced form regressions, the fitted values are from a regression of the dependent variable on an indicator variable for being above the cut-off score, a quadratic in interview score, and a quadratic in interview score interacted with the indicator for being above the cut-off score. We examine gender, ethnicity, college GPA, whether an individual had a Pell Grant in college, and whether an individual majored in a math or science field. Survey respondents with interview scores just above the cutoff have lower college GPAs, but are no more likely to be white or Asian, male, eligible for a Pell Grant, or to have majored in a math or science field. Results are identical in the full sample of applicants.<sup>12</sup>

A final robustness test is to check whether the frequency of respondents changes at the cutoff. To provide a formal estimate of a potential kink in the number of observations at the cutoff, we follow the approach of McCrary (2008) and first collapse the data into equal sized bins. The two key variables in the collapse data set are the number of observations in each bin and the interview score that each bin is centered around. We then regress the number of observations in each bin on a third order polynomial in interview score which we allow to vary on either side of the cutoff. A third order polynomial does a good job of fitting the data with an  $R^2$  of 0.96 in the survey sample and 0.98 in the full sample. As suggested by Figure 9, the coefficient on the interaction term is statistically insignificant in both samples. Results are similar for both higher and lower order polynomials.

Given the general lack of statistical significance of our robustness checks, we interpret our results as showing no clear evidence that our identifying assumption is violated in our primary sample of 2007 applicants. Our robustness checks are less clear for the 2003 to 2006 cohorts. Eligible applicants are more likely to respond to our survey, and survey respondents are more likely to be white or Asian than non-respondents. The results from the 2003 to 2006 cohorts should be interpreted with this caveat in mind.

## 5.5 Additional Cohorts

One potential caveat to our analysis is that it includes only one cohort of TFA applicants surveyed roughly a year after their service commitment ended. If there are important longer term impacts

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for interview score and interview score interacted with scoring above the cutoff score. For the 2003 - 2006 cohorts we include fully nonparametric controls for each interview subscore, and report the point estimate for an indicator variable equal to one if the combination of interview subscores is eligible for TFA admission. While there is little difference in the response rate of eligible and ineligible applicants from the 2007 through 2009 cohorts, the marginal eligible applicant from the 2003 to 2006 is approximately 6 to 11 percentage points more likely to respond to our survey. The results from these cohorts should be interpreted with this caveat in mind.

<sup>12</sup>Appendix Figure 3 presents results from all cohorts, minus Pell Grant status which is not available from 2003 to 2006. We plot reduced form coefficients and associated 95 percent confidence intervals for each cohort, each from a separate regression. Eligible applicants who took the survey are more likely to be white or Asian in the 2003 through 2006 cohorts, and have somewhat higher college GPAs. Eligible and ineligible applicants do not differ by gender or college major in any of the cohorts in our sample.

of service, our analysis will understate the true impact of TFA. If, on the other hand, the impacts fade over time, our estimates are an upper bound on the true effects of TFA.

To shed some light on this issue, we also collected data on TFA applicants in the 2003 to 2006 and 2008 to 2009 cohorts. Recall that between 2003 and 2006, TFA admitted candidates who met prespecified interview score requirements. For example, TFA admitted all applicants with the highest possible critical thinking and organization skills so long as they had minimally acceptable scores in all other areas. Or, applicants could be admitted by having the highest possible score in perseverance and organizational ability, again so long as they had minimally acceptable scores in all other areas. We estimate the impact of service in the 2003 to 2006 cohorts by instrumenting for TFA placement using an indicator variable equal to one if a candidate meets one of the six subscore criteria for admissions. We include fully nonparametric controls for each interview subscore. The impact of TFA service is therefore identified using the interaction of the subscores. Our key identifying assumption is that, conditional on our nonparametric controls, the that the interaction of interview subscores only impacts future outcomes through TFA placement. For candidates from the 2008 and 2009 cohorts, we use our regression discontinuity strategy outlined in Section 4.

Figure 10 presents results for the impact of service on our summary measures for all available cohorts. We plot reduced form coefficients and associated 95 percent confidence intervals for each cohort. Each estimate comes from a separate regression. The impact of service on educational and racial beliefs and educational involvement is persistent. Alumni from the 2003 to 2006 cohorts are more likely to believe in the power of education, more likely to be employed in education, and are more racially tolerant. Point estimates on the educational beliefs and involvement variables are statistically significant for all alumni cohorts. The racial tolerance point estimate is statistically significant at the 5 percent level for the 2006, 2005 and 2003 cohorts, and statistically significant at the 10 percent level for the 2004 cohort. On the other hand, current TFA corps members from the 2008 and 2009 cohorts are only somewhat more likely to believe in the power of education, and are no more racially tolerant than the marginal non-corps member.

## 6 Conclusion

Nearly one million American youth have participated in service programs such as Peace Corps and Teach For America, and annual government spending in support of youth service programs exceeds one billion dollars. This paper has shown that serving in Teach For America has a positive impact on an individual's faith in education, involvement in education, and surprisingly, racial tolerance. The impact of service is also quite persistent, with effects present 5 years after the completion of the TFA service commitment. The impact of service on educational beliefs and involvement is larger for males, but there are no statistically significant differences by ethnicity.

Our results, particularly those on racial beliefs, are broadly consistent with the "Contact Hypothesis," which suggests that contact with other groups will increase tolerance. Changes occur through a combination of increased learning, changed behavior, new affective ties, and reappraisals

of one's own group (Pettigrew 1998). A substantial empirical literature suggests that intergroup contact is negatively correlated with intergroup prejudice (Pettigrew and Tropp 2006). Recent research suggests that this correlation may be causal. Boisjoly et al. (2006) show that white students at a large state university who were randomly assigned black roommates in their first year are more likely to endorse affirmative action, have more personal contact with minority groups, and view a diverse student body as essential for a high-quality education. In a similar study, Barnhardt (2009) shows that Hindus randomly assigned to live near Muslim neighbors are significantly more implicitly and explicitly tolerant.

Recall, TFA service typically involves a considerable degree of intergroup contact over a two year period – 74 percent of corps members in our sample are white, and 80 percent have at least one parent with a college degree. The average parental income of a corps member is \$118 thousand. In stark contrast, roughly 80 percent of the students taught by TFA members qualify for free or reduced-price lunch and more than 90 percent are African-American or Hispanic.

Taken together, the evidence presented in this paper suggests that TFA service has a significant impact on an individual's values and career decisions. Youth service, particularly service involving extended periods of intergroup contact, may not only help disadvantaged communities, but help create a more socially conscious and more racially tolerant society.

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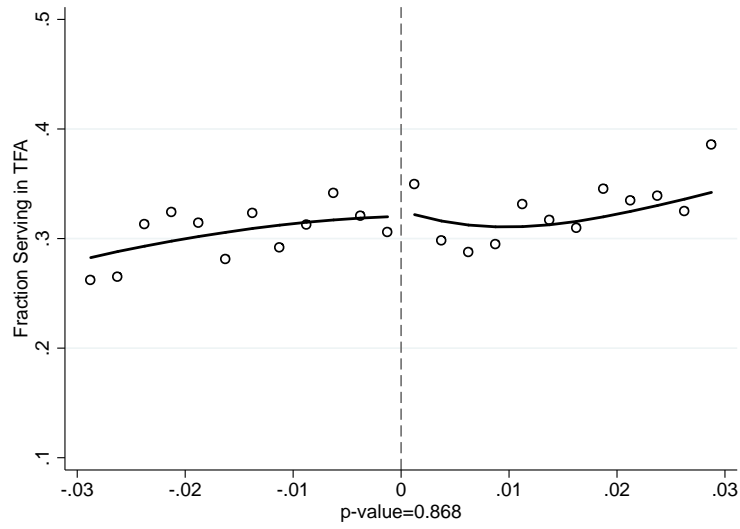
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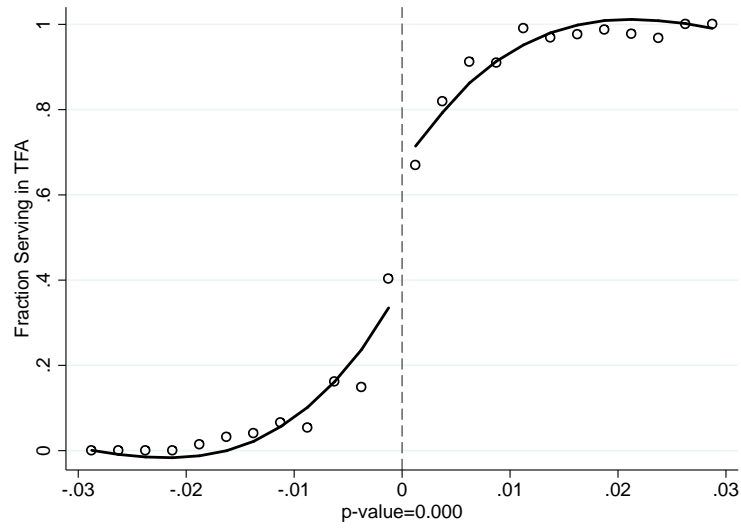


Figure 1  
Survey Response



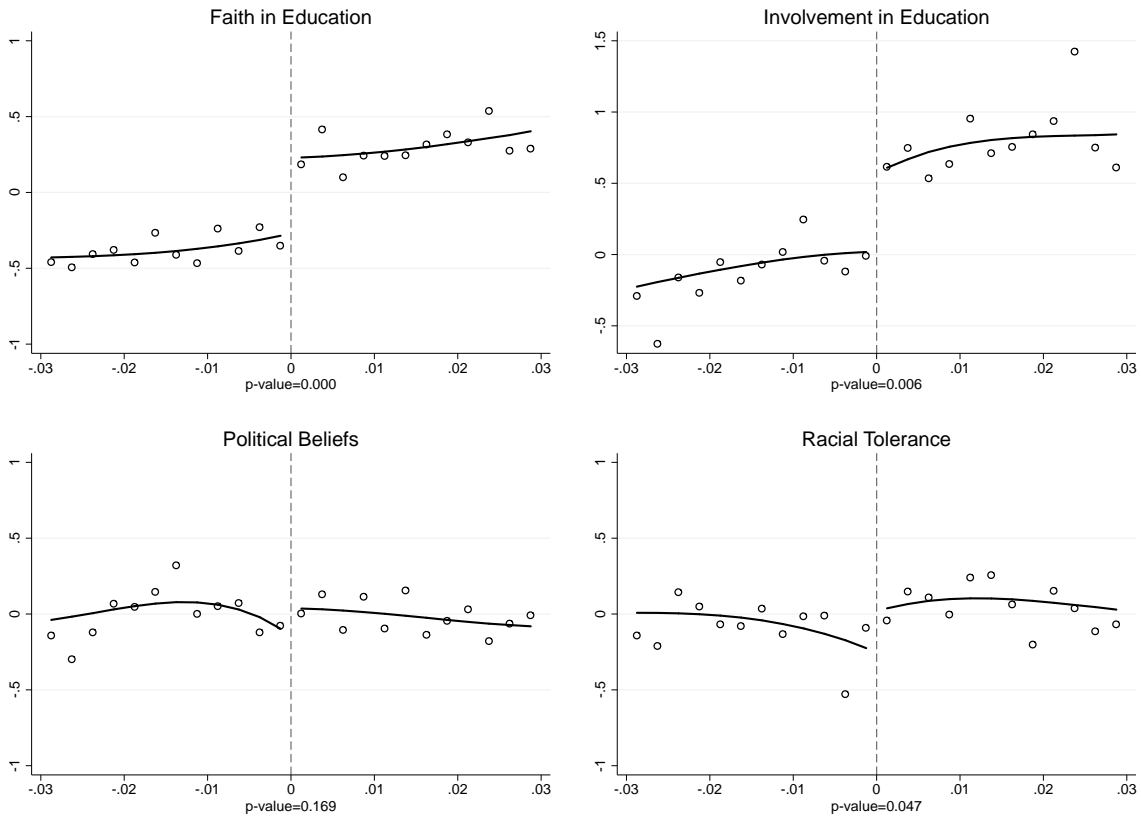
This figure presents actual and fitted values for 2007 TFA applicants. The actual values are plotted in bins of size 0.0025. The fitted values come from a regression of the dependent variable on an indicator variable for scoring above the cutoff score, interview score, and interview score interacted with an indicator variable for scoring above the cutoff score. The p-value is the significance of the indicator variable.

**Figure 2**  
**First Stage Results**



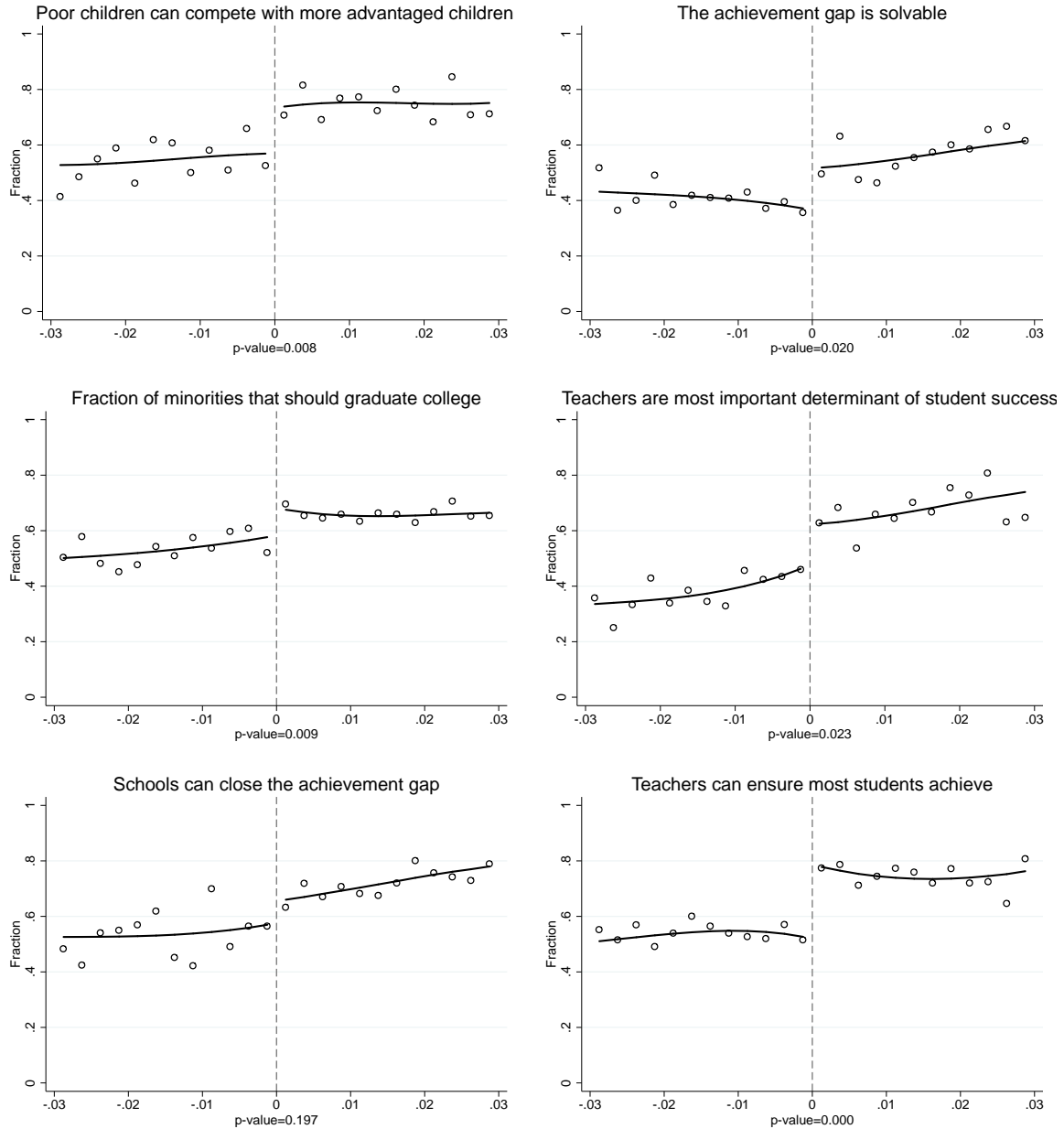
This figure presents actual and fitted values for 2007 TFA applicants. The actual values are plotted in bins of size 0.0025. The fitted values come from a regression of the dependent variable on an indicator variable for scoring above the cutoff score, a quadratic in interview score, and a quadratic in interview score interacted with an indicator variable for scoring above the cutoff score. The p-value is the significance of the indicator variable.

**Figure 3**  
**Summary of Main Results**



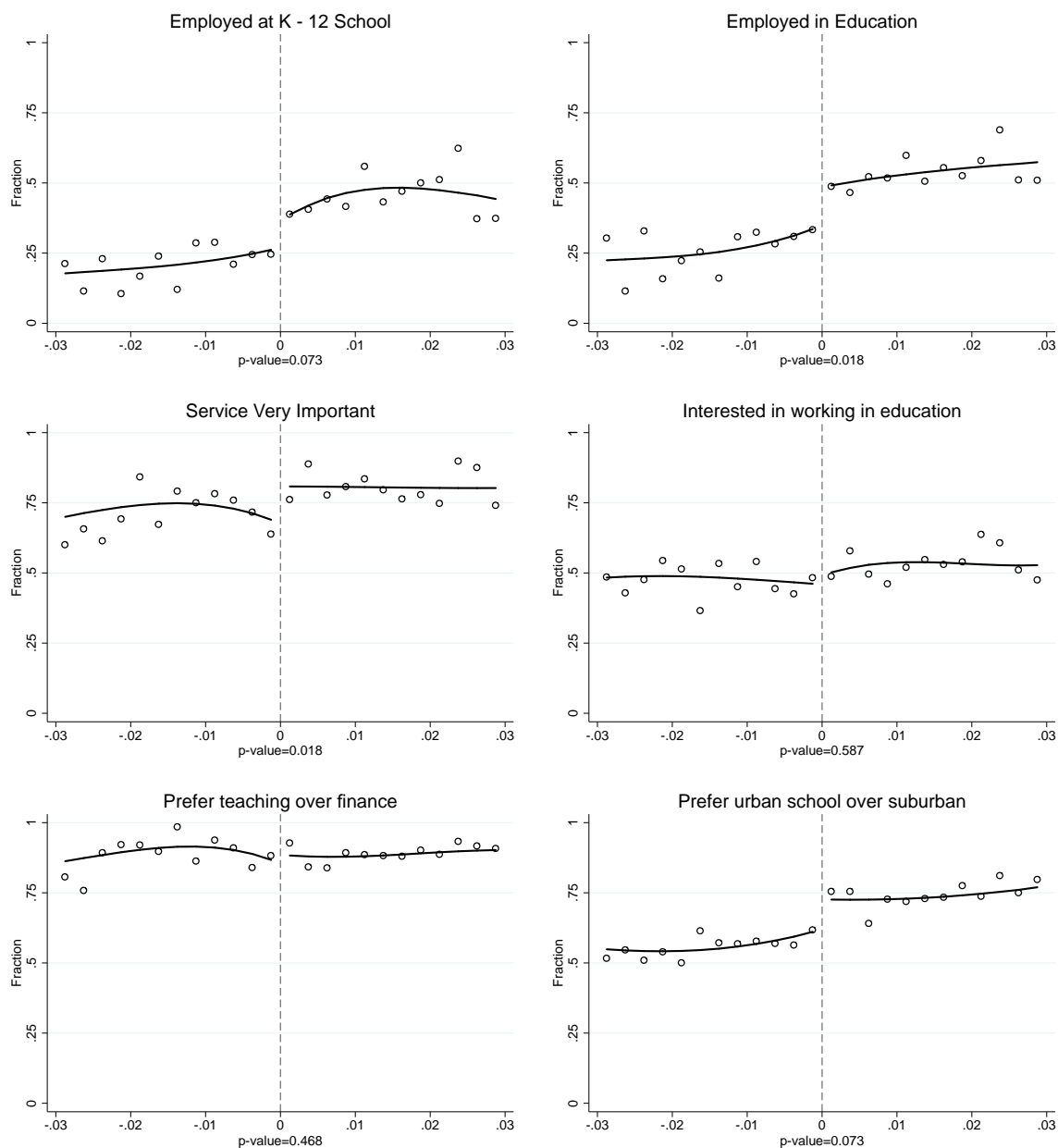
This figure presents actual and fitted values for 2007 TFA applicants who took the survey. The actual values are plotted in bins of size 0.0025. The fitted values come from a regression of the dependent variable on an indicator variable for scoring above the cutoff score, a quadratic in interview score, and a quadratic in interview score interacted with an indicator variable for scoring above the cutoff score. The p-value is the significance of the indicator variable. Each index was constructed by standardizing the sum of all questions in that area to have a mean of zero and a standard deviation of one. All standardized variables were converted to indicator variables using the median of the full sample. The variables included in each composite variable are available in the data Appendix.

**Figure 4**  
**Faith in Education**



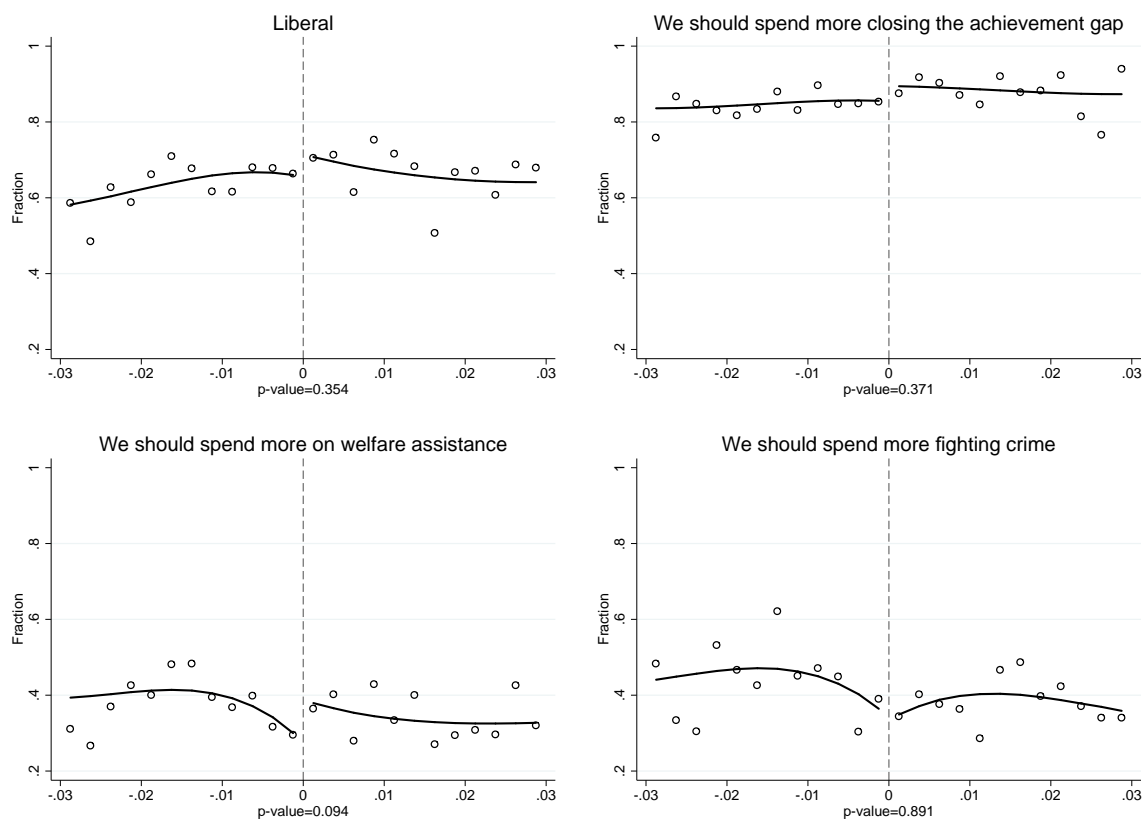
This figure presents actual and fitted values for 2007 TFA applicants. The actual values are plotted in bins of size 0.0025. The fitted values come from a regression of the dependent variable on an indicator variable for scoring above the cutoff score, a quadratic in interview score, and a quadratic in interview score interacted with an indicator variable for scoring above the cutoff score. The p-value is the significance of the indicator variable.

**Figure 5**  
**Involvement in Education**



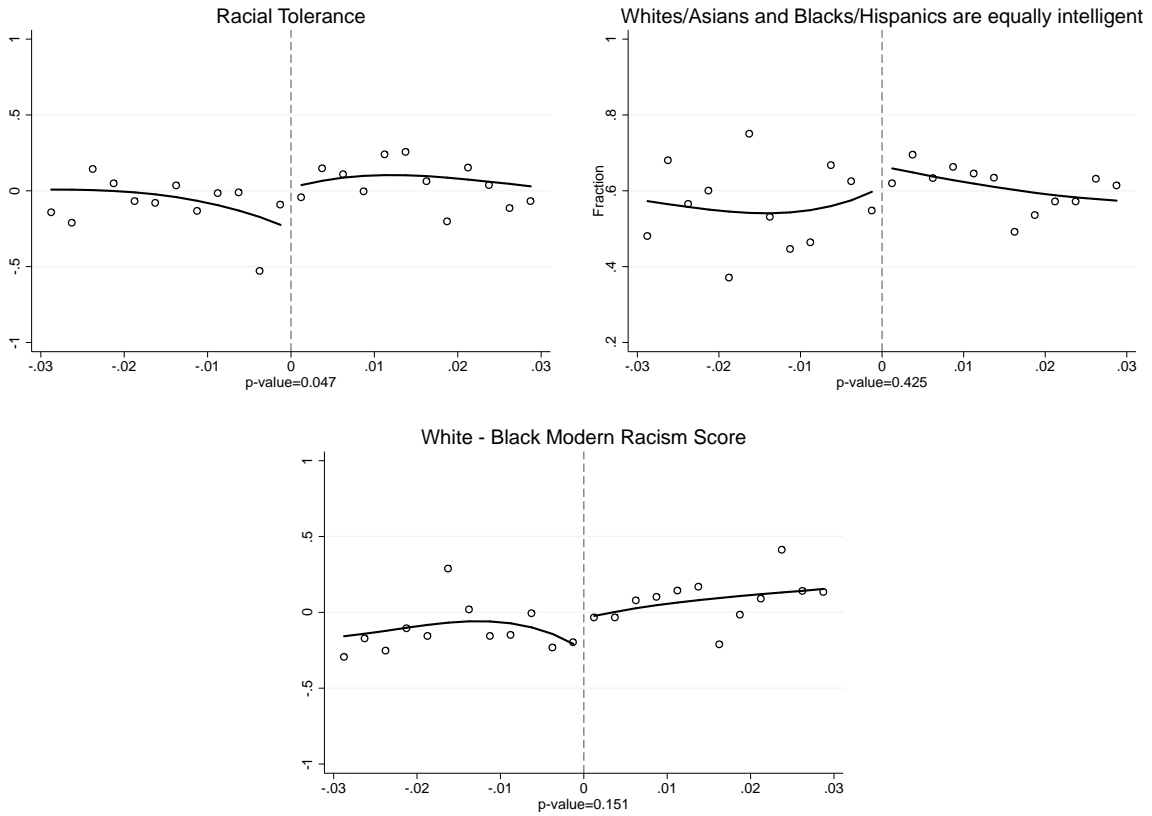
This figure presents actual and fitted values for 2007 TFA applicants. The actual values are plotted in bins of size 0.0025. The fitted values come from a regression of the dependent variable on an indicator variable for scoring above the cutoff score, a quadratic in interview score, and a quadratic in interview score interacted with an indicator variable for scoring above the cutoff score. The p-value is the significance of the indicator variable.

**Figure 6**  
**Political Idealism**



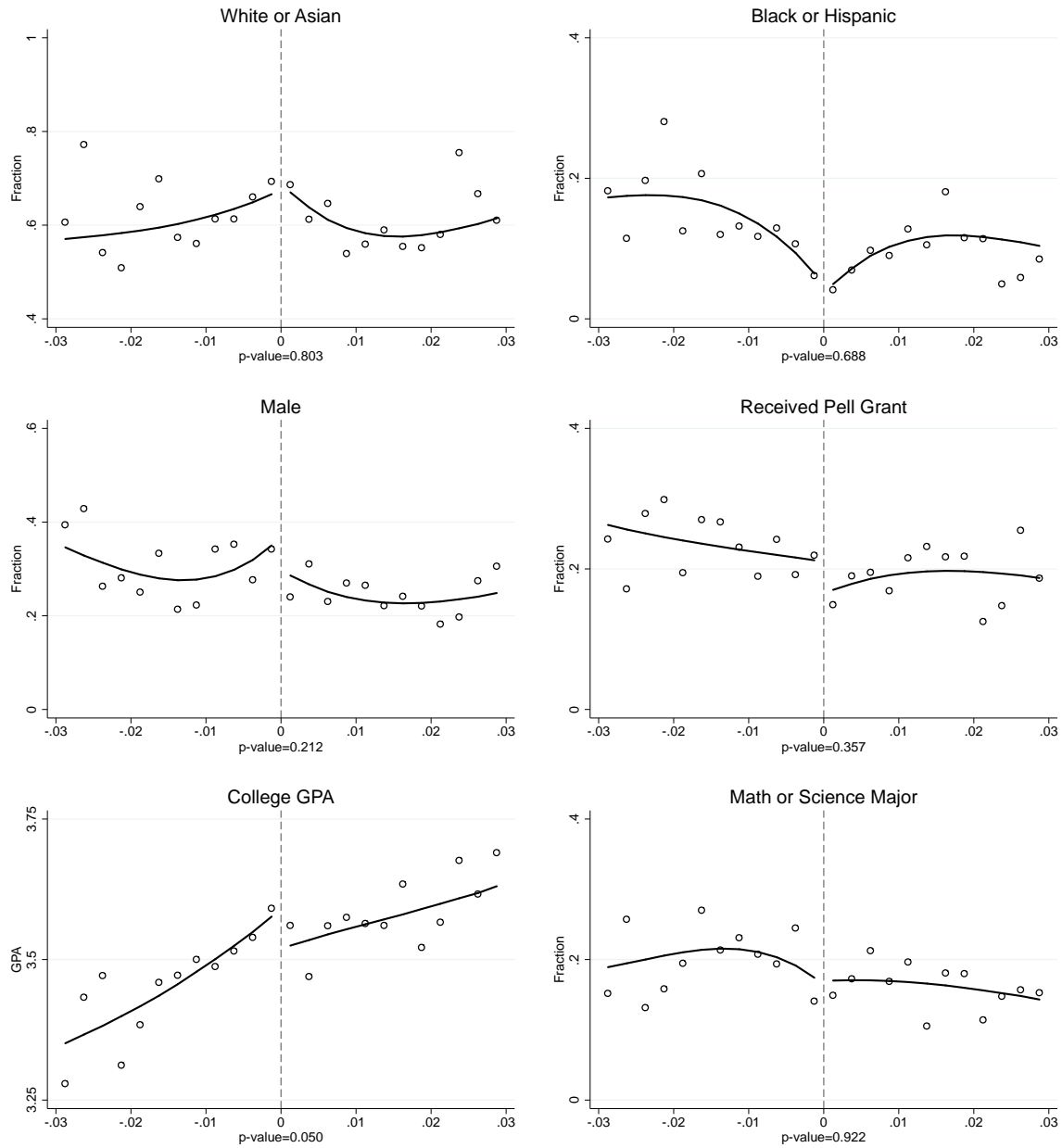
This figure presents actual and fitted values for 2007 TFA applicants. The actual values are plotted in bins of size 0.0025. The fitted values come from a regression of the dependent variable on an indicator variable for scoring above the cutoff score, a quadratic in interview score, and a quadratic in interview score interacted with an indicator variable for scoring above the cutoff score. The p-value is the significance of the indicator variable.

Figure 7  
Racial Tolerance



This figure presents actual and fitted values for 2007 TFA applicants. The actual values are plotted in bins of size 0.0025. The fitted values come from a regression of the dependent variable on an indicator variable for scoring above the cutoff score, a quadratic in interview score, and a quadratic in interview score interacted with an indicator variable for scoring above the cutoff score. The p-value is the significance of the indicator variable.

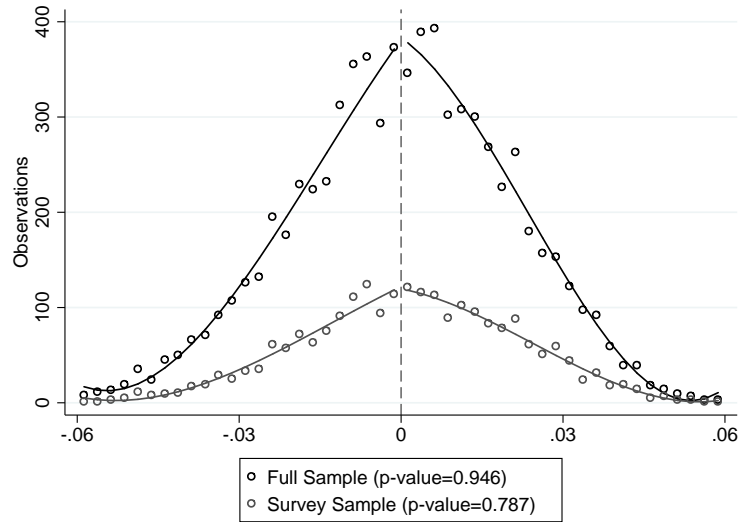
**Figure 8**  
**Test of Quasi-Random Assignment**



This figure presents actual and fitted values for 2007 TFA applicants who took the survey. The actual values are plotted in bins of size 0.0025. The fitted values come from a regression of the dependent variable on an indicator variable for scoring above the cutoff score, a quadratic in interview score, and a quadratic in interview score interacted with an indicator variable for scoring above the cutoff score. The p-value is the significance of the indicator variable.

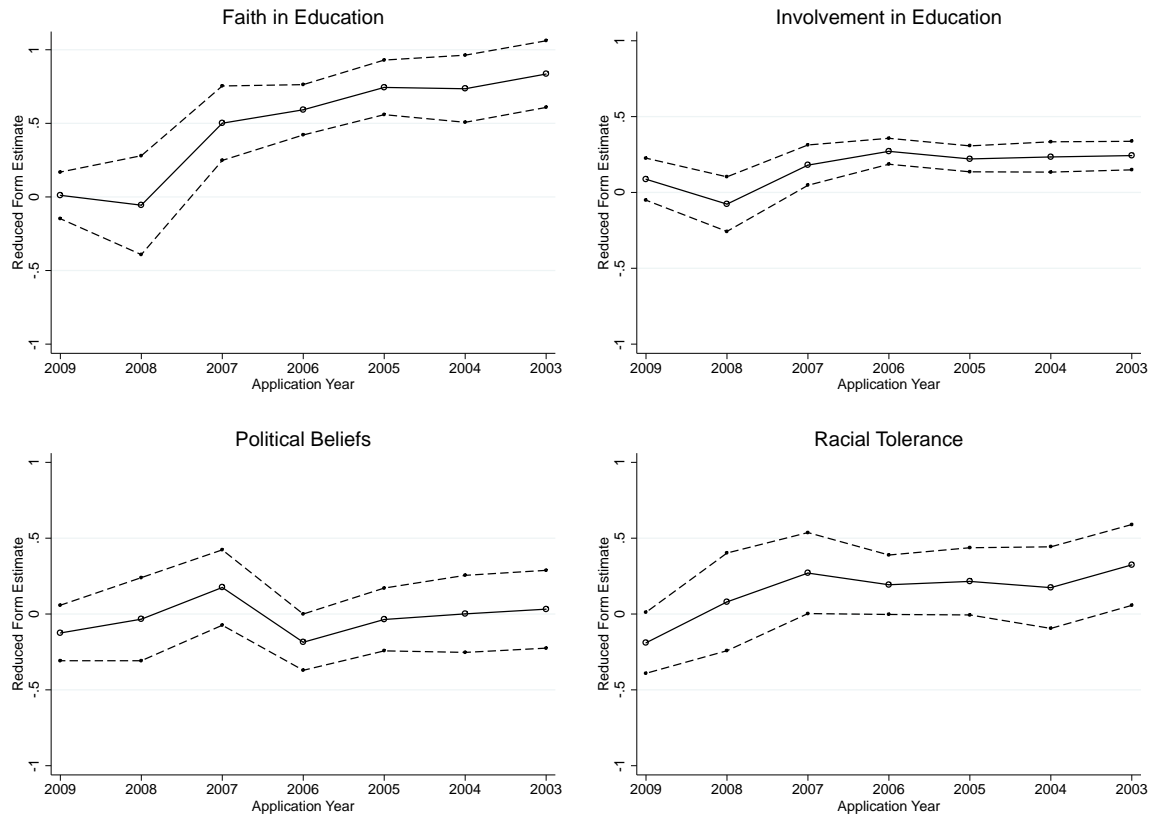


**Figure 9**  
**Number of Observations**



This figure presents actual and fitted values for 2007 TFA applicants. The actual values are plotted in bins of size 0.0025. The fitted values come from a regression of the dependent variable on an indicator variable for scoring above the cutoff score, a cubic in interview score, and a cubic in interview score interacted with an indicator variable for scoring above the cutoff score. The p-value is the significance of the indicator variable.

**Figure 10**  
**Main Results by Cohort**



This figure presents point estimates and 95 percent confidence intervals for the reduced form effects by cohort. The 2007 - 2009 cohorts are estimate using a regression discontinuity design, control for a quadratic interview score and a quadratic in interview score interacted with scoring above the cutoff score. The 2003 - 2006 cohorts are estimate using the interaction between interview subscores that determines TFA selection. For the 2003 - 2006 cohorts we include fully nonparametric controls for each interview subscore, and report the point estimate for an indicator variable equal to one if the combination of interview subscores is eligible for TFA admission.

**Table 1**  
**Summary Statistics**

<i>Background Variables</i>	TFA			Not TFA		
	Mean	SD	N	Mean	SD	N
Asian	0.07	0.25	1,233	0.07	0.26	1,067
White	0.74	0.44	1,233	0.71	0.45	1,067
Black	0.06	0.23	1,233	0.07	0.25	1,067
Hispanic	0.07	0.25	1,233	0.06	0.24	1,067
Mixed Race	0.05	0.21	1,233	0.04	0.20	1,067
College GPA	3.58	0.29	1,233	3.46	0.35	1,067
Received Pell Grant	0.19	0.39	1,233	0.23	0.42	1,067
Math or Science Major	0.17	0.37	1,233	0.19	0.40	1,067
Married	0.12	0.33	1,233	0.13	0.34	1,067
Mother has BA	0.35	0.48	1,201	0.40	0.49	1,026
Mother has more than BA	0.39	0.49	1,201	0.33	0.47	1,026
Father has BA	0.28	0.45	1,200	0.28	0.45	1,023
Father has more than BA	0.46	0.50	1,200	0.41	0.49	1,023
<i>Faith in Education</i>						
Poor children can compete with more advantaged children	0.76	0.43	1,101	0.55	0.50	931
The achievement gap is solvable	0.57	0.49	1,100	0.41	0.49	932
Fraction of minorities that should graduate college	0.66	0.26	922	0.53	0.27	753
Teachers are most important determinant of student success	0.69	0.46	1,071	0.37	0.48	895
Schools can close the achievement gap	0.73	0.44	1,100	0.53	0.50	933
Teachers can ensure most students achieve	0.76	0.43	1,101	0.53	0.50	933
<i>Involvement in Education</i>						
Employed at K - 12 School	0.45	0.50	1,233	0.20	0.40	1,067
Employed in Education	0.54	0.50	1,233	0.26	0.44	1,067
Service Very Important	0.80	0.40	1,146	0.72	0.45	971
Prefer teaching over finance	0.88	0.32	1,135	0.90	0.31	949
Prefer urban school over suburban	0.75	0.43	1,134	0.56	0.50	954
Interested in working in education	0.53	0.50	1,233	0.48	0.50	1,067
<i>Political Beliefs</i>						
Liberal	0.66	0.47	1,092	0.64	0.48	923
We should spend more closing the achievement gap	0.88	0.32	1,041	0.85	0.35	875
We should spend more on welfare assistance	0.32	0.47	1,041	0.41	0.49	875
We should spend more fighting crime	0.38	0.48	1,041	0.44	0.50	875
<i>Racial Tolerance</i>						
IAT White-Black	0.06	1.02	1,001	-0.07	0.97	855
Whites/Asians and Blacks/Hispanics are equally intelligent	0.60	0.49	905	0.58	0.49	783
White - Black Modern Racism Score	0.09	0.92	946	-0.10	1.08	794

This table reports summary statistics for the 2007 TFA application cohort. The sample is all applicants who answered at least one survey question.

**Table 2**  
**Subsample Results**

	Male	Female	p-value	Asian/ White	Black/ Hispanic	p-value	Pell Grant	No Pell Grant	p-value
Faith in Education	2.261*** (0.823)	0.867*** (0.218)	0.006	0.892 (0.552)	1.142*** (0.249)	0.106	0.791*** (0.305)	1.286** (0.616)	0.010
	2029	2032					1485		
Involvement in Education	3.289** (1.444)	0.917*** (0.364)	0.023	1.413 (0.985)	1.471*** (0.410)	0.152	1.111** (0.509)	-0.575 (0.976)	0.029
	2290	2294					1667		
Political Beliefs	0.960 (0.790)	-0.068 (0.215)	0.225	-0.196 (0.516)	0.248 (0.253)	0.703	0.108 (0.311)	0.546 (0.594)	0.730
	2019	2022					1480		
Racial Tolerance	0.738 (0.750)	0.648*** (0.255)	0.326	1.015 (0.691)	0.612** (0.272)	0.142	0.406 (0.335)	1.421 (0.944)	0.226
	1848	1852					1341		

This table reports first stage, reduced form and two-stage least squares estimates. The sample is all 2007 applicants who answered at least one question included in the composite index. All regressions control for a quadratic in the interview score interacted with an indicator variable for scoring above the cutoff score. Standard errors are clustered at the interview score level. \*\*\* = significant at 1 percent level, \*\* = significant at 5 percent level, \* = significant at 10 percent level.

## 7 Online Appendix A: Data Description and Construction of Variables

NOT FOR PUBLICATION

Data for this project comes from a web-based survey administered between April 2010 and May 2011. This appendix describes these data and details the procedures used to code them.

### 7.1 Summary Indices

#### **Racial Tolerance**

This variable consists of the white - black IAT scores.

#### **Faith in Education**

This variable was constructed by standardizing the sum of our education belief questions to have a mean of zero and a standard deviation of one in the full sample. Rather than add dichotomous and standardized variables together, we converted all standardized variables to indicator variables. Specifically, we created an indicator variable equal to one if the variable was above the median of the full sample. The set of measures include whether poor children can compete with more advantaged children, whether the achievement gap is solvable, the percent of minorities that should be expected to graduate college, whether teachers are the most important determinant of student success, whether schools alone can close the achievement gap, and whether teachers can ensure most students achieve.

#### **Involvement in Education**

This variable was constructed by standardizing the sum of our employment questions to have a mean of zero and a standard deviation of one in the full sample. Rather than add dichotomous and standardized variables together, we converted all standardized variables to indicator variables. Specifically, we created an indicator variable equal to one if the variable was above the median of the full sample. The set of measures include whether an individual is employed at a K - 12 school, whether an individual is employed in education more broadly, whether an individual believes service is important, whether an individual is interested in working in education in the future, whether an individual prefers teaching in an urban district to a finance career, and whether an individual prefers teaching in an urban district to a suburban district.

#### **Political Idealism**

This variable was constructed by standardizing the sum of our political belief questions to have a mean of zero and a standard deviation of one in the full sample. Rather than add dichotomous and standardized variables together, we converted all standardized variables to indicator variables. Specifically, we created an indicator variable equal to one if the variable was above the median of the full sample. The set of measures include whether an individual self identifies as liberal or very liberal, whether an individual believes we should spend more on closing the achievement gap, whether an individual believes we should spend more on welfare, and whether an individual believes we should spend more on fighting crime.

### 7.2 Background

#### **Parent's Education**

Respondents were asked "What is the highest level of education that your mother has completed?" and

"What is the highest level of education that your father has completed?" The answer choices range from less than a high school diploma to Ph.D., Ed.D., or D.B.A. We recoded this variable to be two variables. The first is equal to one if the respondent's mother has a B.A. The second is equal to one if the respondent's mother has more than a B.A. We recoded the father variable in the same way.

### **Parent's Income**

Respondents were asked "During your senior year of high school, what is your best estimate of your parents' income?" The answer choices range from less than \$20,000 to \$100,000 in \$20,000 bins, up to \$150,000 in \$25,000 bins and up to more than \$250,000 in \$50,000 bins. The responses to the earnings questions were transformed into real-valued variables using the mid-point of each bin and \$275,000 for the top most bin.

## **7.3 Racial Tolerance**

### **Implicit Association Test**

We use a brief format Implicit Association Test (IAT), developed in Sriram and Greenwald (2009), to assess the relative strength of automatic associations between "good" words and black faces. The IAT relies on a respondent's speed of response to measure the strength of their unconscious mental associations. The respondent must quickly categorize words and pictures of faces that appear on the screen. Faces are to be categorized as black or white and words as good or bad. Pairs of categories appear on either side of the screen. If the stimulus belongs to categories on the right (left) of the screen, respondents are to hit a key on the right (left) side of the keyboard. Each respondent completes a number of versions of the task. In the "compatible" versions, the two categories on one side are paired according to a stereotype, such as black with bad words and white with good words. In the incompatible versions, the categories are paired counter-stereotypically, such as black with good words and white with bad words. The key insight of the race IAT is that an implicit bias against blacks shows up as a response time differential between the compatible and incompatible versions.

We normalize the IAT measure so that it has a mean of zero and a standard deviation of one across the sample of survey respondents, with higher measures associated with a more anti-black response.

### **Number of minority friends**

Respondents were asked "Of your 10 best friends, how many are black or Hispanic?" The variable was coded directly from the response.

### **Minority relationship**

Respondents were asked "Have you ever dated someone that is black or Hispanic?" We recoded this variable to equal one if the respondent said yes.

### **Blacks and Hispanics do not value education**

Respondents were asked if they agreed or disagreed with the statement "blacks and Hispanics do not value education to the same extent that whites and Asians do." We recoded this variable to equal one if the respondent did not disagree strongly.

### **Blacks disadvantaged due to ability or will power**

Respondents were asked "On average, blacks have worse jobs, income and housing than whites. These differences are mostly due to..." The answer choices were discrimination, blacks being born with less ability to

learn, blacks not having the same opportunities for education, and blacks not having the same motivation or will-power. We recoded this variable to equal one if the respondent answered that blacks do not have the same will-power or ability.

#### **Believes whites/Asians work harder than blacks/Hispanics**

Respondents were asked "Where would you rank whites on this scale?" The answer choices range from almost all are lazy to almost all are hard working on a seven point scale. This question was repeated for Asians, blacks and Hispanics. We coded this variable to equal to one if respondents said that either whites or Asians were more intelligent than either blacks or Hispanics.

#### **Believes whites/Asians are more intelligent than blacks/Hispanics**

Respondents were asked "Where would you rank whites on this scale?" The answer choices range from almost all are unintelligent to almost all are intelligent on a seven point scale. This question was repeated for Asians, blacks and Hispanics. We coded this variable to equal to one if respondents said that either whites or Asians were more intelligent than either blacks or Hispanics.

#### **Modern Racism Scale**

Respondents were asked on a five point scale whether they agreed or disagreed with the following statements: 1) Over the past few years, blacks have gotten more economically than they deserve; 2) Over the past few years, the government and news media have shown more respect for blacks than they deserve; 3) It is easy to understand the anger of black people in America; 4) Discrimination against blacks is no longer a problem in the United States; 5) blacks are getting too demanding in their push for equal rights; 6) blacks should not push themselves where they are not wanted. Each item was rescaled so that higher numbers were associated with a more anti-black response, then a simple average was taken of the six questions. We then normalized the scale to have mean zero and standard deviation one across the sample of survey respondents.

## **7.4 Faith in Education**

#### **Poor children can compete**

Respondents were asked if they agreed or disagreed with the statement "Students from low-income communities cannot be expected to do as well in school as students from more affluent communities." We recoded this variable to equal one if the respondent disagreed strongly.

#### **Achievement gap is solvable**

Respondents were asked if they agreed or disagreed with the statement "The student achievement gap between children in low-income and high-income areas is a solvable problem." We recoded this variable to equal one if the respondent agreed strongly.

#### **Percent of minorities that should be expected to graduate from college**

Respondents were asked "17 percent of blacks 25 and older currently have a college degree. What percent of minority children can we reasonably expect to graduate from a 4-year college?"

#### **Teachers are the most important determinant of success**

Respondents were asked "Who is most important in determining how well students perform in school?"



The available responses were students, teachers and parents. We recoded this variable to equal one if the respondent answered teachers.

### **Schools alone can close the achievement gap**

Respondents were asked if they agreed or disagreed with the statement "Students can only succeed if they have parents or family at home helping them." We recoded this variable to equal one if the respondent strongly disagreed.

### **Teachers can ensure most students achieve**

Respondents were asked if they agreed or disagreed with the statement "There really is very little a teacher can do to ensure that most of his/her students achieve at a high level." We recoded this variable to equal one if the respondent strongly disagreed.

### **Teachers are the most important source of success**

Respondents were asked "Which do you believe is the most important source of student success?" The answer choices included student's home background, student's intellectual ability, student's enthusiasm or perseverance, teacher's attention to the unique interests and abilities of the student, teacher's use of effective methods of teaching, and teacher's enthusiasm or perseverance. We recoded the variable to equal one if the respondent chose any of the three sources related to teachers.

### **Teachers can get through to all students**

Respondents were asked if they agreed or disagreed with the statement "If teachers try really hard, they can get through to even to the most difficult or unmotivated students." We recoded this variable to equal one if the respondent agreed strongly.

### **Teachers are responsible for keeping students in school**

Respondents were asked if they agreed or disagreed with the statement "I feel that teachers have the primary responsibility for keeping students from dropping out of school." We recoded this variable to equal one if the respondent agreed strongly.

### **Teachers can ensure student success**

Respondents were asked if they agreed or disagreed with the statement "There really is very little a teacher can do to ensure that most of his/her students achieve at a high level." We recoded this variable to equal one if the respondent disagreed strongly.

### **Students can succeed even without family support**

Respondents were asked if they agreed or disagreed with the statement "Students can only succeed if they have parents or family at home helping them." We recoded this variable to equal one if the respondent disagreed strongly.

### **When a teacher should be fired**

Respondents were asked "A teacher should be dismissed if the following happens once." The answer choices included fails to make adequate progress on standardized tests, receives a poor evaluation from school administrators, receives a parent complaint, is found to have an inappropriate personal relationship with a student,

is found to have a past criminal record, commits a crime outside of school hours, makes an inappropriate racial/sexual remark to students in class, and physically disciplines a student. For each answer we recoded the variable to equal one if the respondent indicated yes.

## **7.5 Involvement in Education**

### **Employed in a K - 12 School**

Respondents were asked about their current employer. We coded a respondent as working at a K - 12 school if they reported working for a K-12 public school, a K-12 charter school, or a K-12 private school. Respondents were coded as not working in a K - 12 school if they worked for a for-profit company, a not-for-profit, a college or university, or a local, state or federal government.

### **Employed in K - 12 education**

Respondents were asked about their current employer. We coded a respondent as working in education if they reported working for a K-12 public school, a K-12 charter school, a K-12 private school, or a not-for-profit that focuses on K-12 education. Respondents were coded as not working in K - 12 education if they worked for a for-profit company, a not-for-profit that does not focus on K-12 education, a college or university, or a local, state or federal government.

### **Prefers finance**

Respondents were presented with the following scenario: "Consider two possible occupations: 1. Teaching in an urban public school district, 60 hours a week. 2. Working as a Vice President at a Middle Market Private Equity Firm, 60 hours a week. Both the teaching job and the finance job pay \$50,000 per year. Which job would you prefer?" If the respondent chose teaching, the hypothetical salary for the private equity position was increased by \$25,000. This scenario repeated itself until the respondent chose the finance job or the salary reached \$500,000. If the respondent chose the private equity position, the hypothetical salary for the teaching position increased in the same manner. We recode this variable to equal one if the respondent prefers the teaching position at equal pay.

### **Prefers urban teaching**

Respondents were presented with the following scenario: "Now consider two possible teaching positions: 1. Teaching in an urban public school district, 60 hours a week. 2. Teaching in a suburban public school district, 60 hours a week. Both the urban job and the suburban job pay \$50,000 per year. Which job would you prefer?" If the respondent chose urban teaching, the hypothetical salary for the suburban teaching position was increased by \$25,000. This scenario repeated itself until the respondent chose the suburban teaching job or the salary reached \$500,000. If the respondent chose the suburban teaching position, the hypothetical salary for the urban teaching position increased in the same manner. We recode this variable to equal one if the respondent prefers the urban teaching position at equal pay.

### **Job satisfaction**

Respondents were asked "Overall, how satisfied are you with this job?" The answer choices ranged from extremely satisfied to extremely unsatisfied on a six point scale. We recoded this variable to equal one if the respondent was extremely satisfied.

### **Importance of job characteristics**

Respondents were asked "In any job, not just the one you have now, how important are each of the following aspects?" The characteristics included intellectual challenge, stress level, salary and benefits and service to society. The answer choices ranged from very important to not important on a three point scale. For each characteristic we recoded this variable to equal one if the respondent thought a characteristic was very important.

#### **Interested in future careers**

Respondents were asked "What is your level of interest in the following careers?" The careers included principal, elected office, political advocacy, business, law, science/technology, starting a social venture, work on Teach For America staff, and teaching. The answer choices ranged from high interest to low interest on a three point scale. For each career we recode this variable to equal one if the respondent has a high interest.

## **7.6 Political Idealism**

### **Liberal**

Respondents were asked "Where would you place yourself on this scale of political views?" The answer choices ranged from very liberal to very conservative on a five point scale. We recoded this variable to equal one if the respondent identifies as liberal or very liberal.

### **Spending**

Respondents were asked "For each of the following issues, indicate if the government is spending too much money, the right amount, or too little." For each category we consider - lowering the crime rate, closing the achievement gap and increasing welfare/cash assistance for the poor - we recode this variable to equal one if the respondent believes we should spend more money on that issue.

## 8 Online Appendix B: Full TFA Applicant Web-Based Survey

NOT FOR PUBLICATION

### 8.1 Applicant Contact Process

Below, we detail the process used to contact TFA applicants regarding our survey.

#### *A. Email (April 2010 – June 2010, May 2011)*

TFA provided a total of 63,262 email addresses for applicants in the 2003 to 2009 cohorts. Each person received up to three emails between April 2010 to June 2010. A final email was sent to non-alumni in May 2011.

The fraction of emails that “bounced” was higher for non-alumni and older cohorts. 11 percent of 2003 alumni and 36 percent on non-alumni emails “bounced,” while only 2 percent of 2009 alumni and 6 percent on non-alumni emails “bounced.” Of those receiving the email, approximately 35 percent of alumni and 25 percent of non-alumni opened the email, with over 80 percent of those opening emails starting the survey.

#### *B. Facebook*

The second major touch point, for those who did not complete a survey after the initial emails, was to find TFA applicants on Facebook using accounts specifically created for the TFA/EdLabs survey. First, accounts for “Harvard EdLabs” were created on Facebook. Account pages included an overview of, and a link to, the survey. Second, we used email addresses from TFA to manually search for both alumni and non-admits on Facebook and attempted to “friend” them. Unfortunately, Facebook does not allow individual profiles to be used for any commercial gain, and 5 of the 16 accounts were disabled. Even for those accounts that were not disabled by Facebook, the outreach (i.e. the number of alumni and non-alumni that were successfully added as friends) was not particularly successful. More specifically, 2,612 friend requests were made resulting in 53 friend confirmations.

#### *C. Phone calls (July – May)*

The third and final attempt at contacting TFA non-alumni was personal phone calls, using phone numbers from TFA application records. Non-alumni that had not yet taken the survey were contacted via phone in the evenings during three iterations: in the first, during the summer, 400 numbers from the 2007 non-admits were called personally while 2,680 2007 non-admits were called using an online, automated call system. The 400 calls were split into two groups for a brief experiment: 200 recipients would be offered a \$20 Amazon gift card for completing the survey, while the other 200 would not be offered any incentive. After the two groups produced nearly identical rates of taking the survey, we decided to proceed with later callings without offering incentives. The 2,680 numbers that were called using an automated call system heard a brief, 30 second recording that provided context about and a link to the survey.

During the second round of personal phone calls, 2,412 of the 2007 non-admits that were previously called using the automated phone system and had not yet taken the survey were called. As before, voicemails were left for those who did not answer the phone; in many (though not all) cases, those people were called again a few weeks later.

During the final third round, the non-admits from the 2003 - 2006 and 2008 - 2009 cohorts were called using the automated phone system then personal phone calls. These calls took place between April 2011 and May 2011.

## 8.2 Survey

Below is the full survey administered online between April 2010 and May 2011.

### A. Demographics:

1. Please enter your preferred Email address below (e.g., jane.doe@acme.com).
2. Please enter your first name and last name below (e.g., John Smith).
3. Please indicate your birthdate using the dropdowns below.
4. Please indicate your sex.
5. Which of the following best describes your race/ethnicity? Asian, Pacific Islander, black, Non-Hispanic, black, Hispanic, Native American or Alaskan Native, white, Non-Hispanic, white, Hispanic, Mixed Race, black and white, Other Mixed Race, Other
6. What year did you apply to Teach For America?
7. Where do you live now? (e.g., 123 Single Street, Simpletown, WA, 92403)? Street Address, City, State, Zipcode
8. Taken all together, how would you say things are these days? Would you say that you are very happy, pretty happy or not too happy? Very happy? Pretty happy? Not too happy?

### B. Background Information:

1. Where were you born? City, State, Country.
2. What High School did you graduate from? High School, City, State.
3. Which option below most accurately reflects your current relationship status? I am married, I am single (never married), I am living with someone in a marriage like relationship, I am separated, I am divorced, I am widowed.
4. How many children do you have?
5. What is the highest level of education that your mother has completed?, Less than a high school diploma, High School diploma, Some college/vocational school, Bachelor's degree, Master's degree, Law degree (JD, LLB), Medical degree (MD, DDS, DVM, etc.), Ph.D., Ed.D., D.B.A., Other/Not Applicable
6. What is the highest level of education that your father has completed? Same options as above.
7. During your senior year of high school, what is your best estimate of your parents' income? Do not know, < \$20,000, \$20,000 to \$39,999, \$40,000 to \$59,999, \$60,000 to \$79,999, \$80,000 to \$99,999, \$100,000 to \$124,999, \$125,000 to \$149,999, \$150,000 to \$199,999, \$200,000 to \$250,000, > \$250,000
8. We are interested in your educational history SINCE you applied to Teach For America. Please fill in the level and type of degree for your three highest degrees obtained SINCE you applied to Teach For America (e.g., M.A. in Education).

### C. Teach For America:

1. How likely is it that you would recommend Teach For America to a friend or family member? Extremely Likely, Moderately Likely, Somewhat Likely, Slightly Likely, Not at all Likely
2. Did you serve in Teach For America?
3. Where did you serve? Type in School, City, State (e.g., South Eugene HS, Eugene, OR)
4. How many years did you teach in the district where you were placed?
5. Looking back, do you wish you had ...Taught in the district for more years, Taught in the district the same amount of time, Taught in the district for fewer years
6. How satisfied were you with your principal at your placement school? Extremely satisfied, Very satisfied, Satisfied, Unsatisfied, Very unsatisfied, Extremely unsatisfied
7. How satisfied were you with your relationship with other teachers at your placement school? Same answer choices as above.
8. If you could do it all over again, would you serve as a Teach For America corps member?

*D. Employment*

1. Your current employer is a ...For-profit company, Not-for-profit that focuses on K-12 education, Not-for-profit that does not focus on K-12 education, K-12 public school, K-12 charter school, K-12 private school, College or university, Local, state or federal government, Other
2. What is your current or most recent occupation? Please be as specific as possible (e.g., high school math teacher)
3. What was your title when you started with your current employer? (e.g., Vice President of Sales)
4. What is your current title?
5. In what year did you start working for your current employer?
6. What is your current annual income? < \$20,000, \$20,000 to \$39,999, \$40,000 to \$59,999, \$60,000 to \$79,999, \$80,000 to \$99,999, \$100,000 to \$124,999, \$125,000 to \$149,999, \$150,000 to \$199,999, \$200,000 to \$250,000, > \$250,000
7. What was your annual income when you started this job? Same as Above
8. How many hours per week do you typically work at this job? < 30 hours, 31-35 hours, 36-40 hours, 41-45 hours, 46-50 hours, 51-55 hours, 56-60 hours, 61-65 hours, 66-70 hours, > 70 hours
9. Overall, how satisfied are you with this job? Extremely Satisfied, Very Satisfied, Satisfied, Unsatisfied, Very Unsatisfied, Extremely Unsatisfied
10. In any job, not just the one you have now, how important are each of the following aspects? Very Important, Somewhat Important, Not Important
  - Intellectual Challenge
  - Stress Level
  - Salary and Benefits
  - Service to Society

11. In your current job, how satisfied are you with each of the following aspects? Very Satisfied , Somewhat Satisfied, Not Satisfied  
Same as above.
12. Consider two possible occupations:
  1. Teaching in an urban public school district, 60 hours a week.
  2. Working as a Vice President at a Middle Market Private Equity Firm, 60 hours a week.
 Both the teaching job and the finance job pay \$50,000 per year.  
Which job would you prefer?
13. Now consider two possible teaching positions:
  1. Teaching in an urban public school district, 60 hours a week.
  2. Teaching in a suburban public school district, 60 hours a week.
 Both the urban job and the suburban job pay \$50,000 per year.  
Which job would you prefer?
14. We are interested in your past jobs. What were your last three occupations and titles, prior to working for your current employer? Please be as specific as possible.
15. What is your level of interest in the following careers? High Interest, Some Interest, No Interest  
Principal/Head of School  
Elected Office  
Political Advocacy  
Business  
Law  
Science/Technology  
Starting a Social Venture  
Work on Teach For America staff  
Teaching

*E. Social and Civic Engagement:*

1. In a typical month, how many total hours do you spend doing volunteer or charitable work? None, 1-5 hours, 5-10 hours, 11-15 hours, 16-20 hours, 21-25 hours, > 25 hours
2. Have you participated as a volunteer for any of the following groups during the past year? Select all that apply.  
Educational Work with Kids (e.g. tutoring)  
Other Educational Work (e.g. school board, school governance organizations)  
Other Work with Kids (e.g. Big Brother/Big Sisters, coaching)  
Other Volunteer Work (religious organizations, alumni organizations)
3. Have you donated money to any charitable organization or group during the past year? Which group?  
How much?  
Name of Organization:  
Amount Donated: \$

4. Of your 10 best friends, how many are black or Hispanic?
5. Have you ever dated someone that is black or Hispanic? Yes, No

*F. Beliefs:*

1. For each of the following issues, indicate if the government is spending too much money, the right amount, or too little.

Protecting the Environment

Improving the Nation's Healthcare System

Lowering the Crime Rate

Reducing the level of Drug Addiction

Closing the Achievement Gap

Increasing Welfare/Cash Assistance for the Poor

Beliefs (Part One): 2/15 52% of survey complete

2. Where would you place yourself on this scale of political views?

Very Liberal

Liberal

Moderate

Conservative

Very Conservative

3. What type of school do you plan to send your children to?

Traditional public school

Charter school

Magnet school

Religiously affiliated or denominational private school

Private prep school

Not yet decided

Not applicable as I am not planning to have children

4. Which do you believe is the most important source of student success?

Student's home background

Student's intellectual ability

Student's enthusiasm or perseverance

Teacher's attention to the unique interests and abilities of the student

Teacher's use of effective methods of teaching

Teacher's enthusiasm or perseverance

The next series of questions asks whether you agree or disagree with a particular statement.

5. The student achievement gap between children in low-income and high-income areas is a solvable problem. Agree strongly, Agree somewhat, Neither agree nor disagree, Disagree somewhat, Disagree strongly



6. If teachers try really hard, they can get through to even to the most difficult or unmotivated students. Same as above.
7. I feel that teachers have the primary responsibility for keeping students from dropping out of school.
8. There really is very little a teacher can do to ensure that most of his/her students achieve at a high level.
9. Students can only succeed if they have parents or family at home helping them.
10. Students from low-income communities cannot be expected to do as well in school as students from more affluent communities.
11. Great schools can close the achievement gap.
12. What are the three factors you think are the most significant causes of the achievement gap?
13. 17 percent of blacks 25 and older currently have a college degree. What percent of minority children can we reasonably expect to graduate from a 4-year college?
14. Who is most important in determining how well students perform in school? Students, Teachers, Parents
15. A teacher should be dismissed if the following happens once. Select all that apply.

Fails to make adequate progress on standardized tests

Receives a poor evaluation from school administrators

Receives a parent complaint

Is found to have an inappropriate personal relationship with a student

Is found to have a past criminal record

Commits a crime outside of school hours

Makes an inappropriate racial/sexual remark to students in class

Physically disciplines a student

*G. Knowledge:*

1. On nationally standardized math and reading exams such as the Long Term National Assessment of Educational Progress (NAEP), the average black 8th grader tends to score how many grade levels behind the average white student? One grade level behind, Two grade levels behind, Three grade levels behind, Four grade levels behind, Five grade levels behind, Six or more grade levels behind
2. On nationally standardized math and reading exams such as the Long Term National Assessment of Educational Progress (NAEP), the average Hispanic 8th grader tends to score how many grade levels behind the average white student? Same as above.
3. What percentage of black, Hispanic, and white men aged 18 to 24 are incarcerated, on parole, or on probation? % of black men aged 18-24, % of Hispanic men aged 18-24, % of white men aged 18-24
4. What percentage of black, Hispanic, and white male youth are currently active gang members? % of black youth, % of Hispanic youth, % of white youth
5. What percentage of black, Hispanic, and white children are currently living in single parent households? % of black children, % of Hispanic children, % of white children
6. What percentage of black, Hispanic, and white children are born out of wedlock? Same as above.

7. What percentage of black, Hispanic, and white mothers are currently eligible for state or federal financial assistance (i.e. welfare)? % of black mothers, % of Hispanic mothers, % of white mothers

#### *H. Beliefs*

1. In the long run, hard work usually brings a better life and success; luck and connections don't matter that much. Agree strongly, Agree somewhat, Neither agree nor disagree, Disagree somewhat, Disagree strongly
2. The government should take more responsibility to ensure that everyone is provided for. Same as above.
3. Poor people in this country can escape from poverty. Same as above.
4. blacks and Hispanics do not value education to the same extent that whites and Asians do. Same as above.
5. Why are people poor in this country? They are poor because society treats them unfairly, They are poor because of laziness and lack of will power
6. On average, blacks have worse jobs, income and housing than whites. These differences are mostly due to ...Discrimination blacks being born with less ability to learn, blacks not having the same opportunities for education, blacks not having the same motivation or will-power
7. Where would you rank whites on this scale?

Almost all are lazy

Many more are lazy than hardworking

More are lazy than hardworking

Comparable numbers of lazy and hardworking

More are hardworking than lazy

Many more are hardworking than lazy

Almost all are hardworking

8. Where would you rank blacks on this scale? Same as above.
9. Where would you rank Hispanics on this scale? Same as above.
10. Where would you rank Asians on this scale?
11. Where would you rank whites on this scale?

Almost all are unintelligent

Many more are unintelligent than intelligent

More are unintelligent than intelligent

Comparable numbers of unintelligent and intelligent

More are intelligent than unintelligent

Many more are intelligent than unintelligent

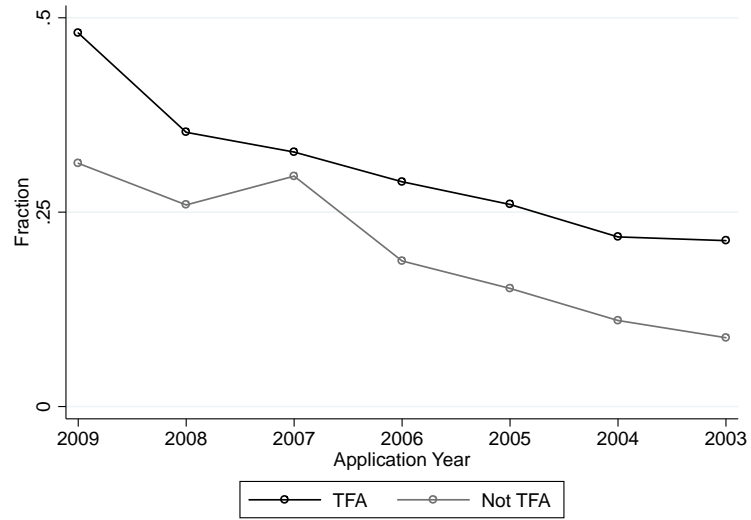
Almost all are intelligent

12. Where would you rank blacks on this scale? Same as above.
13. Where would you rank Hispanics on this scale? Same as above.

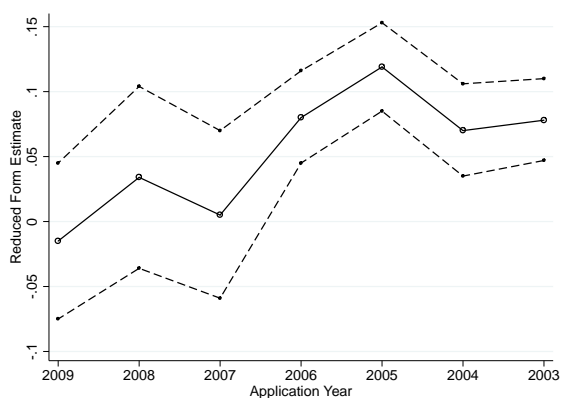
14. Where would you rank Asians on this scale? Same as above.
15. Over the past few years, blacks have gotten more economically than they deserve. Agree strongly, Agree somewhat, Neither agree nor disagree, Disagree somewhat, Disagree strongly
16. Over the past few years, the government and news media have shown more respect for blacks than they deserve. Same as above.
17. It is easy to understand the anger of black people in America. Same as above.
18. Discrimination against blacks is no longer a problem in the United States. Same as above.
19. blacks are getting too demanding in their push for equal rights. Same as above.
20. blacks should not push themselves where they are not wanted. Same as above.

## 9 Online Appendix C: Additional Results

Appendix Figure 1  
Response Rate by Cohort

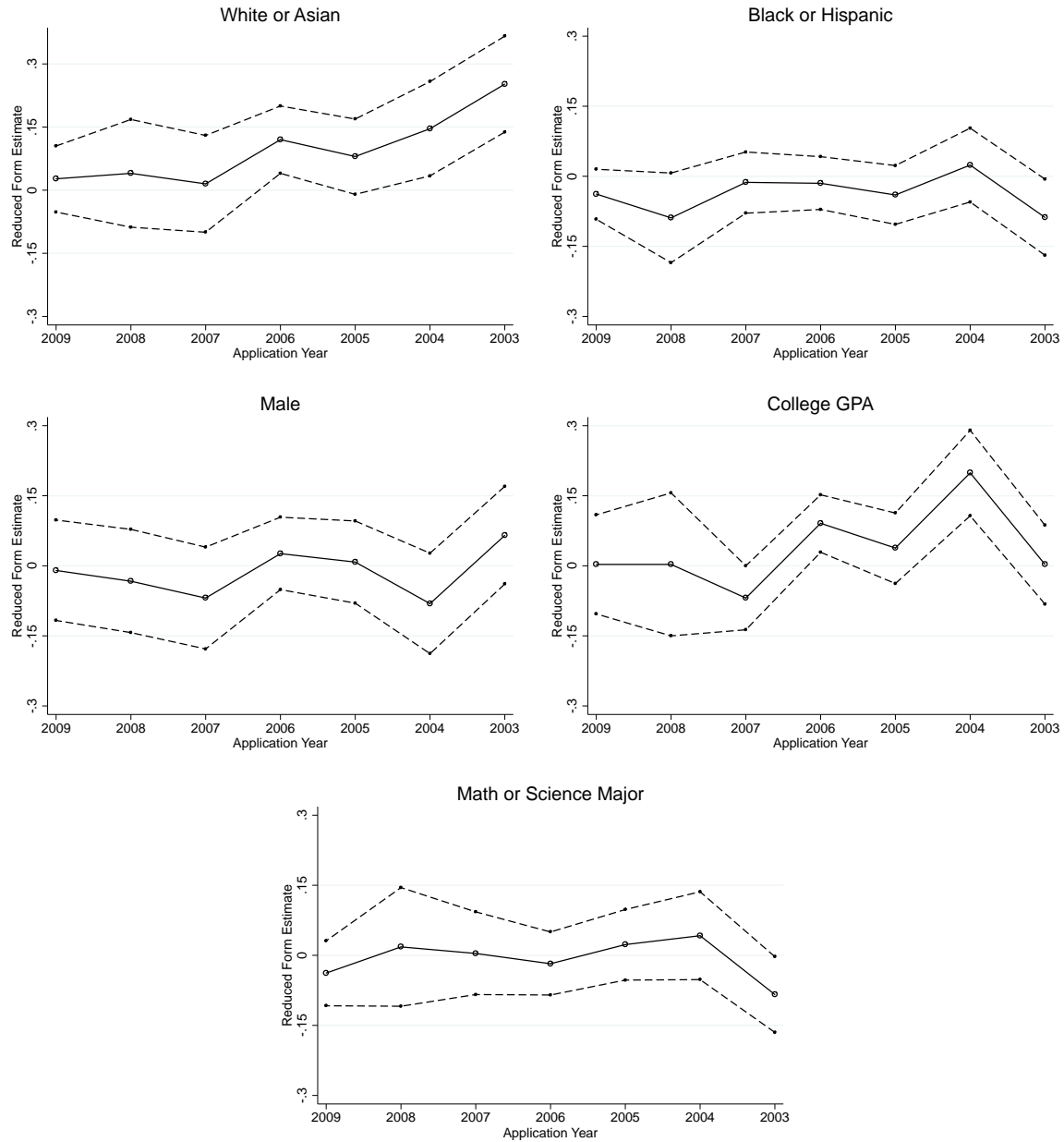


**Appendix Figure 2**  
**Survey Response by Cohort**



This figure presents point estimates and 95 percent confidence intervals for the reduced form difference in response rates by cohort. The 2007 - 2009 cohorts are estimate using a regression discontinuity design, control for a quadratic in interview score and a quadratic in interview score interacted with scoring above the cutoff score. The 2003 - 2006 cohorts are estimate using the interaction between interview subscores that determines TFA selection. For the 2003 - 2006 cohorts we include fully nonparametric controls for each interview subscore, and report the point estimate for an indicator variable equal to one if the combination of interview subscores is eligible for TFA admission.

**Appendix Figure 3**  
**Test of Quasi-Random Assignment by Cohort**



This figure presents point estimates and 95 percent confidence intervals for the reduced form effects by cohort. The 2007 - 2009 cohorts are estimate using a regression discontinuity design, control for a quadratic in interview score and a quadratic in interview score interacted with scoring above the cutoff score. The 2003 - 2006 cohorts are estimate using the interaction between interview subscores that determines TFA selection. For the 2003 - 2006 cohorts we include fully nonparametric controls for each interview subscore, and report the point estimate for an indicator variable equal to one if the combination of interview subscores is eligible for TFA admission.

**Appendix Table 1**  
**Robustness of Index Outcomes**

Polynomial Order	1			2		
Bandwidth	0.02	0.04	0.06	0.02	0.04	0.06
Faith in Education	1.462*** (0.323) 1348	0.960*** (0.161) 1939	0.871*** (0.131) 2032	2.969** (1.283) 1348	1.568*** (0.386) 1939	1.256*** (0.270) 2032
Involvement in Education	1.898*** (0.551) 1541	1.175*** (0.268) 2193	1.057*** (0.216) 2294	4.324* (2.413) 1541	1.915*** (0.659) 2193	1.562*** (0.459) 2294
Political Beliefs	0.408 (0.311) 1339	0.123 (0.161) 1929	0.083 (0.132) 2022	0.771 (0.933) 1339	0.465 (0.370) 1929	0.258 (0.265) 2022
Racial Tolerance	0.658* (0.355) 1231	0.552*** (0.176) 1766	0.464*** (0.142) 1852	0.527 (1.191) 1231	0.763* (0.428) 1766	0.748*** (0.301) 1852

This table reports two-stage least squares estimates with various polynomials and bandwidths. The sample is all 2007 applicants who answered at least one question included in the composite index. All regressions control for a quadratic in interview score and a quadratic in interview score interacted with an indicator variable for scoring above the cutoff score. Standard errors are clustered at the interview score level. \*\*\* = significant at 1 percent level, \*\* = significant at 5 percent level, \* = significant at 10 percent level.

**Appendix Table 2**  
**Summary of Main Results**

	FS	RF	TOLS	TOLS w/controls
Faith in Education	0.313*** (0.056) 2032	0.501*** (0.129) 2032	1.598*** (0.442) 2032	1.582*** (0.439) 2032
Involvement in Education	0.287*** (0.053) 2294	0.554*** (0.200) 2294	1.931*** (0.754) 2294	1.880*** (0.745) 2294
Political Beliefs	0.309*** (0.056) 2022	0.175 (0.127) 2022	0.565 (0.431) 2022	0.603 (0.431) 2022
Racial Tolerance	0.289*** (0.058) 1852	0.270** (0.136) 1852	0.934* (0.503) 1852	0.980** (0.501) 1852

This table reports first stage, reduced form, and two-stage least squares estimates. The sample is all 2007 applicants who answered at least one question included in the composite index. All regressions control for a quadratic in interview score and a quadratic in interview score interacted with an indicator variable for scoring above the cutoff score. Standard errors are clustered at the interview score level. \*\*\* = significant at 1 percent level, \*\* = significant at 5 percent level, \* = significant at 10 percent level.



**Appendix Table 3**  
**Faith in Education**

	FS	RF	TOLS	TOLS w/controls
Poor children can compete with more advantaged children	0.312*** (0.056) 2028	0.164*** (0.062) 2028	0.526*** (0.201) 2028	0.528*** (0.201) 2028
The achievement gap is solvable	0.312*** (0.056) 2028	0.150** (0.065) 2028	0.482** (0.213) 2028	0.477** (0.212) 2028
Fraction of minorities that should graduate college	0.320*** (0.061) 1672	0.099*** (0.038) 1672	0.310*** (0.122) 1672	0.303*** (0.121) 1672
Teachers are most important determinant of student success	0.309*** (0.057) 1963	0.148** (0.065) 1963	0.480** (0.214) 1963	0.480** (0.213) 1963
Schools can close the achievement gap	0.312*** (0.056) 2029	0.081 (0.062) 2029	0.258 (0.200) 2029	0.256 (0.198) 2029
Teachers can ensure most students achieve	0.313*** (0.056) 2030	0.265*** (0.060) 2030	0.848*** (0.223) 2030	0.845*** (0.221) 2030

This table reports first stage, reduced form, and two-stage least squares estimates. The sample is all 2007 applicants who took our web-survey. All regressions control for a quadratic in interview score and a quadratic in interview score interacted with an indicator variable for scoring above the cutoff score. Standard errors are clustered at the interview score level. \*\*\* = significant at 1 percent level, \*\* = significant at 5 percent level, \* = significant at 10 percent level.

**Appendix Table 4**  
**Involvement in Education**

	TOLS			
	FS	RF	TOLS	w/controls
Employed at K - 12 School	0.287*** (0.053) 2294	0.100* (0.056) 2294	0.348* (0.199) 2294	0.355* (0.198) 2294
Employed in Education	0.287*** (0.053) 2294	0.138** (0.059) 2294	0.481** (0.211) 2294	0.475** (0.210) 2294
Service Very Important	0.292*** (0.055) 2113	0.130** (0.055) 2113	0.447** (0.206) 2113	0.458** (0.206) 2113
Prefer teaching over finance	0.309*** (0.056) 2081	0.029 (0.040) 2081	0.095 (0.132) 2081	0.084 (0.132) 2081
Prefer urban school over suburban	0.286*** (0.056) 2085	0.107* (0.060) 2085	0.375* (0.214) 2085	0.359* (0.212) 2085
Interested in working in education	0.287*** (0.053) 2294	0.033 (0.061) 2294	0.115 (0.213) 2294	0.091 (0.212) 2294

This table reports first stage, reduced form, and two-stage least squares estimates. The sample is all 2007 applicants who took our web-survey. All regressions control for a quadratic in interview score and a quadratic in interview score interacted with an indicator variable for scoring above the cutoff score. Standard errors are clustered at the interview score level. \*\*\* = significant at 1 percent level, \*\* = significant at 5 percent level, \* = significant at 10 percent level.

**Appendix Table 5**  
**Political Idealism**

	FS	RF	TOLS	TOLS w/controls
Liberal	0.310*** (0.056)	0.058 (0.062)	0.186 (0.204)	0.188 (0.204)
	2011	2011	2011	2011
We should spend more closing the achievement gap	0.304*** (0.058)	0.040 (0.044)	0.131 (0.148)	0.138 (0.148)
	1912	1912	1912	1912
We should spend more on welfare assistance	0.304*** (0.058)	0.108* (0.065)	0.356 (0.234)	0.373 (0.234)
	1912	1912	1912	1912
We should spend more fighting crime	0.304*** (0.058)	-0.009 (0.066)	-0.030 (0.216)	0.004 (0.215)
	1912	1912	1912	1912

This table reports first stage, reduced form, and two-stage least squares estimates. The sample is all 2007 applicants who took our web-survey. All regressions control for a quadratic in interview score and a quadratic in interview score interacted with an indicator variable for scoring above the cutoff score. Standard errors are clustered at the interview score level. \*\*\* = significant at 1 percent level, \*\* = significant at 5 percent level, \* = significant at 10 percent level.

**Appendix Table 6**  
**Racial Tolerance**

	FS	RF	TOLS	TOLS w/controls
Racial Tolerance	0.289*** (0.058) 1852	0.270** (0.136) 1852	0.934* (0.503) 1852	0.980** (0.501) 1852
Whites/Asians and Blacks/Hispanics are equally intelligent	0.349*** (0.060) 1685	0.056 (0.070) 1685	0.160 (0.203) 1685	0.145 (0.201) 1685
White - Black Modern Racism Score	0.305*** (0.061) 1738	0.205 (0.143) 1738	0.674 (0.490) 1738	0.633 (0.490) 1738

This table reports first stage, reduced form, and two-stage least squares estimates. The sample is all 2007 applicants who took our web-survey. All regressions control for a quadratic in interview score and a quadratic in interview score interacted with an indicator variable for scoring above the cutoff score. Standard errors are clustered at the interview score level. \*\*\* = significant at 1 percent level, \*\* = significant at 5 percent level, \* = significant at 10 percent level.

**Appendix Table 7**  
**Test of Quasi-Random Assignment**

	FS	RF	TOLS	TOLS full sample
White or Asian	0.287*** (0.053) 2294	0.015 (0.059) 2294	0.051 (0.206) 2294	-0.032 (0.116) 7338
Black or Hispanic	0.287*** (0.053) 2294	-0.013 (0.033) 2294	-0.047 (0.118) 2294	-0.016 (0.085) 7338
Male	0.288*** (0.053) 2290	-0.069 (0.055) 2290	-0.240 (0.201) 2290	-0.240 (0.201) 2290
Received Pell Grant	0.287*** (0.053) 2294	-0.045 (0.049) 2294	-0.158 (0.173) 2294	-0.080 (0.099) 7338
Math or Science Major	0.287*** (0.053) 2294	0.004 (0.045) 2294	0.015 (0.158) 2294	0.037 (0.087) 7338
College GPA	0.287*** (0.053) 2294	-0.069** (0.035) 2294	-0.240* (0.126) 2294	-0.227*** (0.075) 7338

This table reports first stage, reduced form, and two-stage least squares estimates for various baseline characteristics. The sample is all 2007 applicants. All regressions control for a quadratic in interview score and a quadratic in interview score interacted with an indicator variable for scoring above the cutoff score. Standard errors are clustered at the interview score level. \*\*\* = significant at 1 percent level, \*\* = significant at 5 percent level, \* = significant at 10 percent level.

**Appendix Table 8**  
**Number of Observations**

Bin Size	Survey Sample	Full Sample
0.0010	-0.319	1.598
	(3.471)	(7.056)
	112	118
0.0025	-2.440	1.694
	(8.962)	(24.762)
	48	48
0.0050	-3.230	18.846
	(21.866)	(47.167)
	24	24
0.0075	-11.581	59.263
	(20.629)	(59.457)
	16	16
0.0100	-71.076**	-61.337
	(26.195)	(37.426)
	12	12

This table reports reduced form results testing for differences in the number of observations around the interview score cutoff. The sample is 2007 TFA applicants. \*\*\* = significant at 1 percent level, \*\* = significant at 5 percent level, \* = significant at 10 percent level.