THE ROLE OF RELIGIOUS AND SOCIAL ORGANIZATIONS IN THE LIVES OF DISADVANTAGED YOUTH[*]

Rajeev Dehejia, Tufts University and NBER
Thomas DeLeire, University of Wisconsin-Madison
Erzo F.P. Luttmer, Harvard University, NBER, and IZA
Josh Mitchell, Harvard University

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Abstract

This paper examines whether participation in religious or other social organizations can help offset the negative effects of growing up in a disadvantaged environment. Using the National Survey of Families and Households, we collect measures of disadvantage as well as parental involvement with religious and other social organizations when the youth were ages 3 to 19 and we observe their outcomes 13 to 15 years later. We consider a range of definitions of disadvantage in childhood (family income and poverty measures, family characteristics including parental education, and child characteristics including parental assessments of the child) and a range of outcome measures in adulthood (including education, income, and measures of health and psychological wellbeing). Overall, we find strong evidence that youth with religiously active parents are less affected later in life by childhood disadvantage than youth whose parents did not frequently attend religious services. These buffering effects of religious organizations are most pronounced when outcomes are measured by high school graduation or non-smoking and when disadvantage is measured by family resources or maternal education, but we also find buffering effects for a number of other outcome-disadvantage pairs. We generally find much weaker buffering effects for other social organizations.

1. Introduction

This paper examines whether religious and social organizations benefit youth by offsetting the long-term consequences of growing up in a disadvantaged environment. Disadvantages suffered during childhood not only impose an immediate cost on children and families, but have also been shown to impose harm that lasts well into adulthood. Research in economics and other social sciences has documented that children who grow up in poverty have worse physical health, lower levels of cognitive ability, lower levels of school achievement, more emotional and behavioral problems, and higher teenage childbearing rates. Other sources of disadvantage include growing up with a single or less educated parent, parental job loss, divorce, or death, and growing up in a poor neighborhood. Moreover, the consequences of a disadvantaged upbringing may be compounded by weak ties to the community and the family.

Not all children who grow up disadvantaged suffer negative outcomes to the same extent. Families and children can adopt strategies to try to minimize the negative impacts of their surroundings. In this paper, we examine one such strategy: engagement with religious and other social organizations. The link between poverty and poor outcomes has been hypothesized to be partially due to deficiencies in parenting, home environments, and neighborhoods. Religious and social organizations could therefore make up for some of this lost social capital by providing counseling, social services, income support, or a network of social contacts. Our previous research (Dehejia, DeLeire, and Luttmer 2007) has found that religious organizations enable adults to partially insure their consumption and happiness against income shocks. This paper builds on those

results by examining whether involvement with religion or social organizations mitigates the long-run negative effects on youth of growing up in a disadvantaged environment.

In particular, we examine whether, by adulthood (13 to 15 years later), children whose parents were involved with religious and social organizations suffered less harm from growing up in a disadvantaged environment than children whose parents were less involved. We consider 14 measures of disadvantage in childhood: family income and poverty (measured by household income relative to the poverty line, the poverty rate in the census tract where the child resides, and by whether the child's household received public assistance); family characteristics (measured by the mother's level of education, by whether the child's parent was unmarried, by whether the parents' marriage broke up, and by an indicator for nonwhite households[1]); and child characteristics (parental assessments of the child, whether the child has repeated a grade, and an index of disciplinary problems). We consider 12 outcome measures in adulthood to capture whether these disadvantages had lasting detrimental consequences: the child's level of education, household income relative to the poverty line, whether the child receives public assistance, and measures of risky behavior (measured by smoking, age of first sex, and health insurance coverage) and psychological well-being (measured by subjective happiness and locus of control). Thus, in total, we test for buffering of religious participation in 168 (=14×12) possible combinations of a measure of youth disadvantage and a measure adult outcome.

We find that religious organizations provide buffering effects that are statistically significant at the 5 percent level for 38 out of a total of 168 disadvantage-outcome

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[1] While we do not consider being nonwhite to be a disadvantage *per se*, it may be associated with disadvantages (such as experiencing racism or discrimination) that we are unable to capture in our other measures.

combinations examined. We can formally reject at the 1% level that this number of significant effects could arise by pure chance, and we conclude that religious organizations play an important buffering role against disadvantage experienced during youth. Of course, it is quite plausible that religious organizations also provide buffering effects for many of the disadvantage-outcome combinations that were not significant in our analysis. In those cases, we simply do not have the statistical power to prove or disprove buffering effects.[2] The buffering effects of religious organizations are most often statistically significant when outcomes are measured by high school graduation or non-smoking and when disadvantage is measured by family resources or maternal education, but we also find statistically significant buffering effects for a number of other outcome-disadvantage pairs. Our data do not allow us to determine to what extent the buffering effects are driven by religious organizations actively intervening in the lives of disadvantaged youth (through tutoring, mentoring, or financial assistance) as opposed to providing the youth with motivation, values, or attitudes that lead to better outcomes. We find suggestive evidence that that leisure groups also provide some buffering against youth disadvantage. Other types of social organizations do not appear to provide buffering, but this lack of findings could be due to the fact that the buffering effects of social organizations are not very precisely estimated.

Because participation in a religious or social organization is a choice that a child's parents actively make, we must be cautious in interpreting the buffering effect of religion as a causal effect of religious participation. For example, the effect of participation could be confounded with other coping strategies that families adopt in response to

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[2] None of the 168 estimates of buffering effects is even marginally significantly negative, so we cannot reject the hypothesis of a positive buffering effect for any disadvantage-outcome combination at the 10% level.

disadvantage, leading our estimated buffering effect to capture the combined effect of all of these strategies. Reverse causality is less of a concern since outcomes for disadvantaged youth are observed 13 to 15 years after we measure involvement with religious and social organizations and whether the child had a disadvantaged upbringing.

We believe our results show that religious organizations play an important role in shaping the lives of disadvantaged youth by mitigating at least some of the long-term consequences of disadvantage. We view our research as a first step in the important task of understanding whether – and through what mechanisms – disadvantaged youth benefit from participating in religious organizations.

2. Literature Review

The consequences of growing up in disadvantaged circumstances have been extensively documented in the academic research literature. In this section, we provide a brief overview of three aspects of this literature: the sources of disadvantage, the consequences of growing up in disadvantaged circumstances, and adaptive behaviors that families may adopt to protect themselves, in part, from these disadvantages. Finally, we review the less extensive economic literature on the role of religion in the lives of youth.

2.1 Sources of Disadvantage for Youth

Children can be disadvantaged if they grow up in poverty or if they experience any one of a large number of other circumstances. Collectively, researchers have considered a large number of potential disadvantages when examining consequences for youth. These include low family income and poverty (e.g. Duncan and Brooks-Gunn 1997), growing

up in a single parent family (McLanahan and Sandefur 1994), having a less educated mother (Currie and Moretti 2003, Black, Devereux, and Salvanes 2005, and Oreopoulos, Page, and Stevens 2006), having a parent on public assistance (Antel 1992, Page 2004), having obese parents (Anderson et al. 2007), and poor parenting behaviors (Currie and Hyson 1999, Bitler and Currie 2004).

2.2 Consequences of Growing up Disadvantaged

Many studies have documented the correlation between poverty and youth outcomes (inter alia Brooks-Gunn and Duncan 1997, Duncan and Brooks-Gunn 1997). Growing up in poverty is related to having worse physical health (Korenman and Miller 1997), lower levels of cognitive ability, lower levels of school achievement, and a greater number of emotional or behavioral problems (Smith et al. 1997). Low income is unlikely to be causally responsible for all of these outcomes. Longitudinal analysis has suggested that omitted parental characteristics that are correlated with income are likely responsible for many of these negative outcomes (Mayer 1997). However, there is also evidence from social experiments (Currie 1997) and sibling fixed effects models (Duncan et al. 1998) suggesting that income does at least partially matter. Shea (2000), Dahl and Lochner (2005), Oreopoulos et al. (2005), Page et al. (2007) use plausibly exogenous income variation due to industry shocks, changes in EITC rules, and worker lay-offs. These studies generally find effects of parental income on subsequent educational and labor market outcomes for the youths, and in many cases the effects are strongest for disadvantaged youths.

Having an unmarried parent has also been found to be associated with a range of

negative outcomes for youth. McLanahan and Sandefur (1994, p. 3) argue that "growing up with only one biological parent frequently deprives children of important economic, parental, and community resources, and that these deprivations ultimately undermine their chances of future success".   Their analysis suggests that roughly one-half of the deficit associated with having a single parent is due to low income and one-half is due to inadequate parental guidance and a lack of ties to community resources. Other research has also suggested that parenting behavior is an important determinant of child outcomes (Hanson et al. 1997).

Parental education also matters. In addition to being associated with higher levels of family income, research has shown that parents' level of education has a strong, causal, effect on children's health (Currie and Moretti 2003) and children's educational attainment (Black, Devereux, and Salvanes 2005). Other parental behaviors can influence children's outcomes as well. Even otherwise positive behaviors can have negative consequences. For example, Anderson, Butcher, and Levine (2003) find a causal relationship between maternal employment and the likelihood that a child is overweight.

Growing up in a poor neighborhood may also have a negative effect on outcomes later in life. Identifying these effects is complicated by the likely correlation of neighborhood conditions with unobserved parental characteristics and behaviors. Moreover, it is difficult to even sign the bias stemming from this correlation as parents who live in poor neighborhoods may have unobservable characteristics that lead to worse outcomes for their children or, alternatively, parents in poor neighborhoods may invest more in compensating activities to partially alleviate those effects. A number of studies have sought to overcome these biases to identify the effects of growing up in a poor

neighborhood on children's outcomes using sibling fixed effects models (e.g. Aaronson 1997) or instrumental variables (Case and Katz 1991 and Evans, Oates, and Schwab 1992).

2.3 Strategies to Minimize the Consequences of Disadvantage

Families and children can adopt strategies to mitigate the negative impacts of their surroundings. For example, single mothers can improve the educational outcomes and reduce the delinquency of their children by living with their own parents in multi-generational households (DeLeire and Kalil 2002). Guralnick (2004) describes how parents of children with developmental challenges adopt strategies – including expanding their networks of social support – in order to best meet the needs of their children. These strategies to mitigate the negative impact of disadvantage may or may not have value in and of themselves. While some adaptive strategies may be intrinsically valuable, others, such as not venturing outdoors in response to living in a dangerous neighborhood, may not.

2.4 Economic Consequences of Religion

In an overview of the growing literature on the economics of religion, Iannaccone (1998) discusses a range of studies on the economic consequences of religious participation, for example Freeman's (1986) finding that black youth who attend church are less likely to smoke, drink, or engage in drug use. More recent studies have also focused on the consequences of religious participation, but it has been difficult to determine whether the consequences are causal or driven by omitted variables. Gruber (2005) succeeds in

credibly establishing causality by instrumenting own religious attendance by the religious market density of other ethnic groups sharing the same denomination. He finds that increased religious participation leads to higher educational attainment and income, less dependence on social insurance programs, and greater levels of marriage. Gruber and Hungerman (2006) use variation in "blue laws" to find causal evidence that religious attendance reduces drug use and heavy drinking. Lillard and Price (2007) show a strong association between religious participation among youth and criminal and delinquent behavior, smoking, drug use, and drinking. Moreover, they use a variety of methods including propensity score matching, instrumental variables (using the "blue laws" instrument described above), and Altonji et al.'s (2005) method of using selection on observables to infer the degrees of selection on unobservables to suggest that at least some of their observed associations between religious participation and outcomes are indeed causal relationships.

There is also a large literature showing that religiosity correlates with health outcomes and subjective well-being. Studies show a relationship between religion (variously measured by self-reported "religious coping" or religious activity including prayer) and a range of health outcomes (including depression, mortality, and immune system responses). These are exclusively correlation studies (see, for example, McCullough et al. 2000). Similarly, there is wide-spread evidence that religiosity is correlated with measures of subjective well-being (see inter alia Diener et al. 1999 and the meta-analyses by Parmagent 2002 and Smith et al. 2003).

A number of papers study the buffering effects of religion on subjective well-being in the context of traumatic life events. Using cross-sectional data from the General

Social Survey, Ellison (1991) finds that people with stronger religious beliefs have higher well-being and are less affected by traumatic events. Strawbridge et al. (1998) find non-uniform buffering effects using cross-sectional data from California. They find that religiosity buffers the effects of non-family stressors (e.g. unemployment) on depression but exacerbates the effects of family stressors (e.g. marital problems). This finding dovetails with Clark and Lelkes (2005) who find that religiosity may dampen or exacerbate the happiness effect of a major life shock depending on the denomination and the type of shock. Dehejia, DeLeire, and Luttmer (2007) find that religion buffers subjective well-being against income shocks. Moreover, in that paper we document that religious involvement also insures consumption against income shocks, i.e., religion provides more than spiritual support alone.

3. Data Description

3.1 The National Survey of Families and Households

We use three waves of the National Survey of Families and Households (NSFH), a panel data set collected by demographers (Sweet, Bumpass, and Call 1988, and Sweet and Bumpass 1996, 2002). The NSFH contains detailed information on participants' family structure, living arrangements, educational attainment, religiosity, and economic and psychological wellbeing.

The first wave of interviews took place in 1987-88 and was conducted in a face-to-face setting with respondents taking self-administered questionnaires for more sensitive topics. The sample consists of 13,007 individuals, and is nationally representative of individuals age 19 or older, living in households, and able to speak

English or Spanish. If these "main respondents" lived in a household with children age 19 or younger, one of these children was chosen at random to be the "focal child". The respondent answered a series of questions about this focal child, including questions about the child's behavior and school performance. Wave one contains information on 5,684 focal children. A second wave of interviews with the main respondents took place in 1992-94. This allows our analysis to consider changes in variables of interest over the first two waves, such as whether the household experienced a marital breakup.

The third wave of interviews took place in 2001-2003. This wave included interviews with both the main respondents and with people who were focal children in wave one (for convenience we continue to refer to them as "focal children" though by wave three they are adults). We use the information from these grown-up focal children to construct our outcome measures. The NSFH conducted telephone interviews with eligible focal children, namely those aged 18 to 34 in wave three (and who were age 3 to 19 in wave one). The NSFH originally identified 4,128 focal children as eligible but were only able to locate and successfully interview 1,952 of them; this raises issues of sample attrition, which we discuss section 5.5. These interviews asked about the focal child's educational attainment, income, risky behaviors, and subjective measures of well-being.

The NSFH granted us permission to use a limited-access version of the data set that contains characteristics of the respondent's neighborhood from the 1990 Census at the tract level. A census tract is a local area that is fairly homogenous and typically contains between 2,500 and 8,000 people. We use log median household income and the poverty rate as tract level measures of disadvantage.

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3.2 Data Description and Choice of Variables

The full sample of wave-three interviewees who were focal children in wave one includes

1,952 observations. In some specifications, we restrict the sample to individuals older

than 25 in wave three. This sample consists of 1,125 observations. The age restriction is

useful for outcomes that are best measured in adulthood (for example, education or

income). Table 1 provides a snapshot of the samples. Households are mostly white (with

8 percent black, 5 percent Hispanic, and 1 percent other nonwhite). Of the wave-one

adult respondents, 91 percent are biological parents (for convenience we refer to both

biological parents and guardians as "parents"). Parents' ages range from 19 to 71 in

wave one, with an average age of 39.

We use a range of variables to measure household disadvantage in wave one of

the data. Summary statistics for household disadvantage are presented in Table 2 for the

full sample as well as for parents who are above and below the median religious

attendance frequency in our sample. Our first set of measures is based on family

resources or poverty: log household income relative to the poverty line, an indicator for

household income less than 200 percent of the poverty line (21 percent of the full

sample), log median household income in the census tract, the poverty rate at the census-

tract level (11 percent of the full sample), and an indicator for the household receiving

public assistance in wave one (5 percent of the full sample). The second set of

disadvantage measures is based on family characteristics, namely indicators for:

nonwhite parents (14 percent of the full sample), an unmarried parent (13 percent of the

full sample), a break-up of the parents' marriage (divorce or separation) occurring

between wave one and wave two (10 percent of the sample, conditional on having married parents at wave one), a mother with less than a high school education (11 percent of the full sample), and a mother with high school education or less (52 percent of the full sample).

The third set of disadvantage measures is based on child characteristics: indicators for whether the parent thinks the focal child is unlikely to graduate from college or is difficult to raise; an indicator for the focal child having repeated a grade, and a composite measure of discipline difficulties. Some child characteristics reflect the parent's perception of the child, and as such must be interpreted with great care. For example, if religious parents systematically assess their children differently than non-religious parents, then our estimates of buffering could be spurious.[3]

Tables 3 and 4 summarize measures of participation in religious and social organizations and religious affiliation. Table 3 summarizes the measure of religious participation that we use in this paper: the parent's percentile rank in the wave-one distribution of attendance at religious services.[4] We see that the distribution is substantially skewed to the right: the parent at the 10th percentile never attends, the median parent attends twice per month (24 times per year), and the parent at the 90th percentile attends twice per week (104 times per year). We also examine the robustness of our results to alternative specifications of parental religious attendance. In Table 4, we see that most youth have parents that participate in a social organization (where such

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[3] If religious parents have a lower threshold for saying that the child is in trouble (e.g., skipping church qualifies as trouble), then "troubled" children of religious parents have on average less severe trouble than "troubled" children of non-religious parents. As a result, we would expect troubled children of religious parents to have better outcomes later in life even if religion does not directly help youth overcome the negative consequences of being in trouble.

[4] We use the religious attendance of the parent who was selected as the "main respondent" by the NSFH.

organizations include community, work-related, leisure, and religious groups; note that here religious groups refer to non-worship activities). Approximately 90 percent of the sample provides information about a religious denomination with the most common denominations being Catholic and Baptist.

Finally, Table 5 summarizes our wave-three outcome measures for the adult focal child. We examine measures of educational attainment (indicators for having a high school education or more, some college or more, and being a college graduate) and income (the age-specific percentile rank of a household's income to poverty line ratio, an indicator for a household's being above the 25th percentile in the age-specific distribution of the income to poverty line ratio, and an indicator for receiving public assistance). We also include measures of behavior and psychological well-being: an indicator for being a non-smoker, an indicator for whether the child's age at first having sex was 16 or older, an indicator for a normal body mass index[5], an indicator for being covered by health insurance, a measure of overall happiness, and a composite measure of locus of control (i.e., the extent to which someone perceives himself or herself to be in control of his or her environment).

4. Empirical Strategy

In this section we present our empirical strategy, and discuss related identification and econometric issues.

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[5] Body mass index (BMI) is defined as weight in kilograms divided by height in meters squared. We followed the National Heart, Lung and Blood Institute (part of the National Institutes of Health) in defining a healthy body weight as $18.5 \leq BMI < 25.0$.

4.1 Specification

To examine whether religious and other organizations help to attenuate the effect of a

disadvantaged upbringing, we estimate models of the form:

(1) $Outcome_{it} = Disadvantaged_{i,t-1} \, \beta_1 + Religious_{i,t-1} \, \beta_2 +$

$$Disadvantaged_{i,t-1} \times Religious_{i,t-1} \, \beta_3 + X_{i,t-1} \, \beta_4 + \alpha_{it} + \delta_t + \varepsilon_{it}$$

where $Outcome_{it}$ is a particular youth outcome in wave three, $Disadvantaged_{i,t-1}$ is an

indicator of a disadvantaged household in wave one of the survey, and $Religious_{i,t-1}$ is a

measure of parents' religiosity in wave one (or a measure of the parents' participation in

other social organizations). $X_{i,t-1}$ is a set of controls for the characteristics of the

household in which the youth grew up as well as the race/ethnicity and gender of the

youth; α_{it} is a set dummies for the age of the youth at the time of the wave three

interview; δ_t is a set of year-of-interview dummies for the wave one and wave three

interview; and ε_{it} are error terms.

Based on the literature, we expect to find a negative β_1 (disadvantage leads to

worse outcomes in adulthood) and a positive β_2 (growing up with religious parents is

generally associated with better outcomes). However, since any measure of disadvantage

is likely correlated with several omitted measures of disadvantage, β_1 merely measures an

association. Similarly, since parental religious participation is a choice and is likely to be

correlated with many other omitted characteristics that have a beneficial effect on later

outcomes, the effect of parental religious participation is unlikely to be causal. Our main

coefficient of interest is β_3, which measures the extent to which children of religious

parents are less affected by growing up under disadvantaged conditions. Thus, we take a positive β_3 as suggestive evidence of the buffering effect of religion.

Despite omitted variables problems that bias β_1 and β_2, it is possible, under strong assumptions, to give a causal interpretation to β_3. The key condition for identification is that omitted characteristics are correlated with religious attendance to the same degree for disadvantaged and non-disadvantaged households. However, we prefer to interpret the estimates of β_3 as associations rather than as causal evidence of buffering because we are concerned that this identification condition does not hold in practice. In particular, it is possible that parental religious involvement is more strongly associated with omitted characteristics that affect later outcomes for disadvantaged children than it is for non-disadvantaged children. For example, it is possible that parents who participate in religious activities out of concern for their children growing up in a disadvantaged environment might also decide to enroll their children in after-school activities that could mitigate the effects of disadvantage. We could fully address this issue if we had an instrument for parental participation in religion, but unfortunately no such variable is available in our data.[6] We also acknowledge that the disadvantaged religious families form a selected sample for which religious participation did not succeed in overcoming their disadvantage in the first wave of our data. Thus, our estimated buffering effect should be interpreted as the average buffering given the selected nature of the sample in wave 1. We are less worried about reverse causation because we measure disadvantage in wave one of the survey and outcomes in wave three, 13 to 15 years later.

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[6] An instrumental variable for religion has been suggested by Gruber (2005), namely the percent of individuals in the same locality who, based on their ethnic background, are predicted to share the respondent's religious denomination. For our relatively small sample, however, this instrument yielded estimates that were so imprecise that they did not provide evidence either way on whether our main results can be interpreted causally.

4.2 Joint Significance of the Buffering Effects

Given the large number of effects we investigate (14 measures of disadvantage and 12 outcomes), we would expect to find some statistically significant buffering effects of religion simply as a matter of chance. It would be problematic, indeed data mining, only to present the significant effects. Furthermore, there is a danger of ex-post theorizing to justify the particular pattern of effects we find. We deal with this issue in two ways. First, we present our results – both significant and insignificant – for a range of disadvantage and outcome measures that we believe reasonably spans the data available to us. Second, we show the whole distribution of t-statistics on the buffering effects of all disadvantage-outcome pairs and compare this with a simulated distribution of t-statistics under the null hypothesis of no true buffering effect, i.e., we test whether we observe more statistically significant effects than would be expected by chance if religious organizations did not buffer at all against disadvantage.

5. Results

5.1 Direct Effects of Wave-One Disadvantage on Wave-Three Outcomes

We begin by examining the direct effect of our measures of disadvantage in wave one on outcomes in wave three. These results are present in Tables 6a and 6b. With the exception of the log of the ratio of household income to the poverty line, log median household income in the census tract, and the indicator for public assistance (the first and third rows and the sixth column, which are shaded), disadvantage measures and outcomes are scaled so that a negative coefficient corresponds to a worse outcome for the child.

Table 6a depicts the effects of our disadvantage measures on education, income, and public assistance in wave three. Regressions include controls for parental religious participation, parental race-ethnicity dummies, a dummy for whether the guardian is a biological parent, a dummy for the gender of the focal child, age dummies for the focal child, and year of interview dummies. In columns (1) and (2), we see that each measure of disadvantage (other than parents' marital breakup) has a negative and significant effect (at the 1 or 5 percent levels) on a dummy for high school or more education as well as on the dummy for some college or more education. The same holds for the college graduation variable, except that the effect of "difficult to raise" is now only marginally significant. The next two columns examine the effect of disadvantage on two measures of income. As with education, we find uniformly significant effects of family income and resource measures of disadvantage, and many significant effects among family characteristics. The effects of child characteristics are more equivocal. Finally in column (6) we note that most measures of disadvantage have a significant positive effect on an indicator for receiving public assistance in wave three.

Table 6b depicts the effects of wave-one disadvantage on wave-three behavior, wellbeing, and health-related outcomes. We find the most uniform effects for the health insurance indicator, followed by the normal weight indicator, smoking, and age at first sex. We find fewer significant effects for subjective wellbeing and locus of control.

Overall, these results show a significant ongoing association between childhood disadvantage and outcomes in adulthood. It must be emphasized that, although it is appealing to interpret these results causally, they are fundamentally correlations. From other studies (especially Currie 1997, Duncan et al. 1998, Currie and Moretti 2003, and

Black et al. 2005) we know that at least part of the effect of the family resource and poverty measures is causal. For child characteristics – particularly parental assessments of whether the child is expected to graduate from college or is difficult to raise – the scope for omitted variable bias is higher because both these assessments and the future outcome may depend on factors that are known to the parents but not to the researcher.

5.2 Religion and Buffering

Before examining the full set of religion-disadvantage interactions, we begin by examining in detail the results for a single specification, the effect of having a mother with a high school degree or less (measured in wave one) on the adult child's having some college or more education in wave three. In Table 7, we present both ordinary least squares (linear probability model) and probit results. Columns (1) and (3) show the direct effect of having a mother with no more than a high school education on the adult child's level of education in wave three. In both specifications, there is a negative effect that is significant at the one percent level. In the OLS specification, having a mother with no more than a high school education reduces the probability that the adult child has at least some college in wave three by 23 percentage points relative to a mean of 65 percent. The direct effect of religious participation is positive and significant at the one percent level in both specifications. Moving from the 25th to the 75th percentile of parental religious participation is associated with an 8 percentage point increase in the adult child's probability of having some college or more education in wave three.

In columns (2) and (4), we see that the interaction of religious participation and mother's education is positive and significant at the one percent level for OLS and at the

5 percent level for the probit specification. The lower half of the table expresses this interaction coefficient in terms of the buffering effect that religious participation provides against the measure of disadvantage. Row (A) shows that having a mother with no more than a high school degree reduces the probability that the child has at least some college by 31 percentage points if the parent was at the 25th percentile of religious participation, i.e., the typical non-participant. Row (B) shows that this effect is reduced to 16 percentage points if the parent was at the 75th percentile of religious attendance, i.e., the typical active participant. The difference between rows (A) and (B), 15 percentage points, is shown in row (C). We refer to this difference, expressed as a fraction of row (A), as the buffering effect of religion. In this case, we find that religious involvement buffers $(31-16)/31 = 48$ percent of the negative effect of having a mother with no more than a high school degree on the adult child's probability of having some college or more education in wave three. The results for the probit specification are very similar.[7]

We next examine the extent to which religious participation can buffer the long-term effects of a disadvantaged childhood for our full set of measures of disadvantage and our full set of outcome variables. For simplicity, we present the results for the OLS specifications, but we show that results are similar for probit specifications when we check the robustness of the results in Table 11 below. Tables 8a and 8b present the t-statistics of the buffering effects of religion while Tables 9a and 9b present the magnitude of the buffering effects.

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[7] It is also clear from Table 7 that the direct effect of religious participation declines in magnitude and loses significance when moving from specifications (1) and (3) to (2) and (4). However, we stress again that our hypothesis does not concern whether greater religious participation itself leads to better outcomes but whether it alleviates the effects of disadvantage on those outcomes. Furthermore, the direct effect cannot be interpreted causally due to the likely presence of omitted variables. Nevertheless, we have examined what happens to the direct effect of religion for all 168 outcome-disadvantage combinations and have found that, unlike the example given in Table 7, the coefficient on religious participation remains positive and significant roughly 75 percent of the time.

Table 8a, column (1), shows whether measures of youth disadvantage have less of a detrimental impact on the high school graduation rates of youths with religious parents than on youth whose parents do not frequently attend religious services. For all measures of family resources and poverty and for most measures of family characteristics, we find statistically significant buffering effects. However, we find no significant buffering effects with respect to any of the child characteristics. Table 9a, column (1), shows that the magnitude of the buffering effect ranges between 42 and 113 percent for the significant effects.[8] It is notable that we do not find many significant effects when education is measured using an indicator for having some college or more or using an indicator for being a college graduate in columns (2) and (3). This suggests that the buffering effects of religion are concentrated on the high school dropout margin. It is also notable that we do not find a uniformly statistically significant buffering effect for any of our income measures, including those that might be expected to pick up the effect of high school or more versus less than high school education (such as the indicators for being above the 25th percentile of the ratio of household income to the poverty line and for being on public assistance). One potential explanation for this puzzling result is that annual income is a noisy measure of permanent income in the age range at which we observe respondents in wave three.

The most uniformly significant buffering effect of religion against disadvantage as measured by child characteristics is for the public assistance indicator, with significant buffering effects for "not expected to go to college", "difficult to raise", and repeated a

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[8] The magnitude of the buffering effects is generally reasonable (between 0 and 1) for the significant buffering effects. However, estimates of buffering effects sometimes become unreasonably large when the direct effect of disadvantage on the outcome measure is small because this direct effect enters in the denominator of the formula for buffering effects. However, the resulting unreasonably large buffering effects are never statistically significant.

grade. In Table 9a, we see that among disadvantages associated with child characteristics, the significant buffering effects range from 35 to 130 percent.

Tables 8b and 9b present the t-statistics and the magnitudes of the buffering effects for behavior and psychological well-being. We find the most uniform buffering effects for the indicator for being a non-smoker. We find buffering effects of religiosity for all family resource measures of disadvantage, some family characteristic measures of disadvantage, and one of the child characteristics. For the significant effects, the degree of buffering ranges between 71 and 181 percent. For other behavior and psychological well-being outcomes we do not find any uniformly significant buffering effects.

5.3 Joint Significance of the Buffering Hypothesis

Although our discussion thus far has examined the buffering effect of religion for each disadvantage-outcome combination, we have not yet addressed the overarching hypothesis of the paper, that participation in religious activities buffers disadvantaged youth later in life. Overall we find that just over 20 percent of the buffering effects from all disadvantage-outcome combinations are significant at the 5% level and we find no cases of a significantly negative buffering effect. Given the number of coefficients in question, is this statistically significantly more than we would expect by chance?

Figures 1 to 3 test this formally. Figure 1 plots the percentiles of the distribution of the 168 t-statistics of the buffering effects we estimate in Tables 8a and 8b, along with the expected value (and the 99% confidence interval) of each percentile under the null hypothesis of no buffering effect in any disadvantage-outcome pair.[9] Comparing the

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[9] Under the null hypothesis of no effect, the observed t-statistics are a draw from a distribution with zero mean and unknown covariance structure. By bootstrapping our sample 10,000 times and recalculating the t-

actual with the expected distribution confirms that we observe significantly more

significant buffering effects than would be expected by chance. In particular, at the

critical values for the 5 percent and 1 percent levels of significance (1.96 and 2.57) the

observed distribution of t-statistics lies not only above the expected distribution of t-

statistics, it also lies above the 99% confidence interval for the expected distribution of t-

statistics. Moreover, all t-statistics greater than 0.5 lie above the 99% confidence interval

for ordered t-statistics. Thus, we are able to reject the joint null hypothesis of no

buffering effect of religion across all outcomes.

Figures 2 and 3 present the same test for the subsets of education and income t-

statistics and for behavior and mental and physical health t-statistics. In both cases, we

can also reject the null hypothesis of no significant effects at the 1% level, but the

distribution for the education and income t-statistics lies further above the confidence

interval than the distribution for the behavior and mental and physical health t-statistics.

Thus, the evidence for buffering is stronger for education and income outcomes. Overall,

we observe significantly more significant effects than would be expected by chance

alone, which allows us to reject the hypothesis of no overall buffering effect.

In Tables 10 to 13, we present additional specifications that explore whether

social organizations also provide buffering effects, the robustness of the buffering results

to changes in specification, likely mechanisms for buffering effects, and heterogeneity in

the buffering effects by youth demographics. Space constrains us from showing the

buffering effects for all 168 disadvantage-outcome combinations for these additional

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statistics of our 168 disadvantage-outcome combinations, we obtain the correlation matrix of our t-
statistics. We then draw 100,000 vectors of 168 t-statistics from a distribution with mean zero and this
correlation matrix. This creates a probability distribution for each percentile of the distribution of t-
statistics, which we summarize by the mean and 0.5 and 99.5 percentiles.

specifications. Instead, we present five disadvantage-outcome combinations for the additional specifications that are broadly representative of the significant buffering effects in the baseline specification.

5.4 Buffering Effects of Social Organizations

In Table 10 we consider whether other social organizations provide buffering effects that are comparable to those associated with religious participation. In particular, we examine the effects of parental involvement with community groups, work-related organizations, leisure clubs, and church-related social organizations. This last category refers to church-related social groups rather than worship *per se*. For the five selected adult outcome-disadvantage combinations, we measure the effects of indicators for each of these additional measures of social ties, both directly and interacted with the selected disadvantage measures. In the final column, we examine all 168 possible outcome-disadvantage combinations and report the number that show statistically significant buffering. We compare this to the religious participation baseline where we find significant positive buffering in 38 of the 168 outcome-disadvantage combinations.

While the point estimates suggest that there might be some buffering effect associated with participating in community and work-related organizations, those effects are typically not statistically significant. For community organizations, only 10 out of 168 outcome-disadvantage combinations show significant positive buffering, while for work-related organizations, there are zero instances of positive buffering and four instances of negative buffering. However, given the relatively large standard errors on our estimates, we cannot rule out that these groups do provide sizeable buffering in many

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of the insignificant cases. For leisure clubs, on the other hand, we find significant positive buffering for 27 of the outcome-disadvantage combinations and no significant negative buffering for any of the outcome-disadvantage combinations. This suggests that parental involvement with leisure groups may also mitigate the effects of growing up in a disadvantaged environment.

The buffering effects of church-based social organizations are similar to the buffering effects of religious attendance. While participation in religious worship and other social groups are sufficiently correlated that it would be difficult to identify both effects simultaneously, it is striking that the consistent buffering effects that we find are from religious worship and church-based social organizations, with the important caveat that leisure clubs also seem to confer substantial buffering.

5.5 Robustness Checks and Attrition

Table 11 presents a range of robustness checks of our baseline specification, which is reproduced in the first row. In the second row, we use an alternative measure of religiosity, the raw attendance scale rather than the percentile of religious attendance. We continue to find significant buffering effects. In row three, we instead use an indicator for attendance greater than the median. Again, in most specifications, we continue to find significant effects at the 5% level, and, in the one case where we do not, our estimate loses precision but continues to correspond to plausible buffering effects.

We are also concerned that our measure of religious participation of the main parent may not reflect the level of involvement of the entire family. For households where a spouse is present we try alternative measures of religious participation: the

average, the maximum, and the minimum attendance of both parents (again expressed as percentile in the attendance distribution). If there is no spouse present or if religious participation information is missing for the spouse, we use the main parent information alone. Results in rows four, five, and six indicate that buffering effects are robust to these alternative family religious participation measures.[10]

In row seven, we run separate regressions for those with an attendance frequency above and below the median. This is equivalent to adding interaction terms between the indicator of attendance above the median and each of the controls to our row three specification. We again find substantial buffering in most cases and this suggests that our baseline results are not simply picking up omitted effects of our controls that differ by degree of religious participation. In row eleven, we use a probit specification rather than a linear probability model, and continue to find significant buffering effects for most outcomes. Finally, in row twelve we add additional controls for Census region, maternal education and household size to our baseline specification; our results remain robust.

Since just over half the sample of focal children in wave one are not re-interviewed in wave three, we explore whether attrition might bias our estimates of buffering effects. We find that attrition is not random – youth from disadvantaged backgrounds are more likely to attrit, and this effect is significant for all measures of disadvantage except those based on child characteristics. Moreover, treating attrition as an outcome variable, we find evidence of differential attrition by religious attendance: religious organizations buffer against attrition when disadvantage is measured by neighborhood income, the neighborhood poverty rate or the mother having a high school

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[10] Ultimately, we chose the main parent measure of attendance for our baseline specification because the religious attendance survey question for the main parent allows a more detailed response than does the corresponding survey question for the spouse.

degree or less. Since disadvantaged youth are less likely to attrit if their parents have high attendance, disadvantaged youth will be overrepresented in the high attendance group relative to the low attendance group. To the extent disadvantage is fully measured by our variables, our control for the direct effect of disadvantage will correct for this and our estimate of buffering effects will not be biased by this differential attrition. However, to the extent that there are also unobservable components of disadvantage and there is also differential attrition on the unobservable component, unobservably disadvantaged youth will be overrepresented in the high attendance group and the estimates of the buffering effect of religious organizations will therefore be biased down. Thus, it seems plausible that bias introduced by differential attrition causes our estimates to understate the true buffering effects provided by religious organizations.

5.6 Buffering Mechanisms

In Table 12, we examine mechanisms that could plausibly account for the buffering effects of religion that we find. The first row reproduces our baseline estimates. In the second row, we use the grandparent's attendance of religious services as our measure of religiosity instead of using the parent's attendance.[11] If we were to continue to find significant effects, then it would bolster a causal interpretation of our results since the grandparent's religious attendance is more likely to be exogenous with respect to the child's outcomes. However, since the grandparent's religious attendance is only available for about 40% of our sample, the resulting estimates are much less precise. This plausibly explains why we find a significant buffering effect in only one of the five

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[11] In wave two, the NSFH randomly selected one of the parents of the main respondent for a telephone interview. Thus, the grandparent's religious attendance is measured at wave two rather than at wave one.

disadvantage-outcome combinations we examine. However, in no case can we rule out that the buffering effect is as large as in the baseline specification.

In the remaining rows, we run "horse races" between additional variables and religious attendance, i.e., we add both the direct effect of these variables and their interaction with the measure of disadvantage to our main specification. In the third row, we run a horse race between actual attendance and attendance as predicted by covariates. The point estimates of buffering remain similar to those in the baseline specification, but only one estimate remains significant at the 5% level while the other four are now merely significant at the 10% level. Despite this decline in statistical significance, the robustness of the point estimates suggests that our estimates of buffering in our main specifications are due to actual religious attendance rather than the underlying covariates associated with religious attendance.

In the fourth row, we address the concern that people with higher levels of religious attendance might be living in neighborhoods that have peers, schools, or other institutions that provide buffering effects.[12] To disentangle the buffering effects of religious attendance from the potential buffering effects of living in a better neighborhood, we run a horse race with neighborhood quality as measured by log median income in the Census tract. We find that religious attendance continues to have significant buffering effects, suggesting that our findings are not driven by selection of religiously active parents into higher income neighborhoods.

Finally, we run a horse race between religious attendance and religious beliefs (as measured by belief in religious doctrine and in the literal truth of the Bible). We continue

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[12] However, the raw correlation between attendance and neighborhood quality (as measured by log median household income in the Census tract) is negative but not statistically significant.

to find a significant buffering effect of religious attendance, suggesting that attendance over and above belief buffers children against a disadvantaged upbringing. Taken together, the results from Table 12 suggest that it is religious participation itself, rather than a likely correlate of religious participation, that provides the buffering effect against growing up in a disadvantaged environment.

5.7 Buffering Effects by Sub-population

Table 13 displays how our baseline results for the five selected disadvantage-outcome combinations vary by the age, race, and sex of the child, the mother's level of education, the marital status of the parent, and religious denomination. While the estimates are not nearly as precise for these subpopulations, we generally find buffering effects of similar magnitude independently of the youth's sex, age, race, parental marital status, or maternal education. In fact, for none of the 5 disadvantage-outcome combinations, do we find significant differences between the subpopulations defined by these demographic characteristics.

When we cut the results by religious denomination, we consistently find significant buffering effects for those belonging to evangelical Protestant denominations. Although we find almost no significant buffering effects for Catholics or mainline Protestant denominations, the difference in buffering effects across denominations is not statistically significant at the 5% level for any of the five disadvantage-outcome combinations.

A large literature (Altonji, Elder, and Taber 2005, Evans and Schwab 1995, Grogger and Neal 2000, Neal 1997) has examined whether Catholic school attendance

increases educational attainment; many of these papers use self-reported Catholic denomination as an instrument for Catholic school attendance. The fact that we find relatively weak buffering effects among Catholics suggests that Catholic schooling is unlikely to account for the buffering effects we observe.

6. Conclusions and Discussion

We draw two conclusions from our results. First, there are significant long-term effects of childhood disadvantages on subsequent outcomes in adulthood. This is not surprising given the large and expanding literature on intergenerational correlations in income, health, and education. Second, we find a substantial buffering effect of religion for a significant subset of outcomes. In particular, we find that religion buffers against a broad range of measures of disadvantage along the high school or more dimension. The buffering effect of religion on education, however, does not seem to translate into a buffering effect for income. In looking at behavior outcomes, we find some significant buffering effects for the likelihood of smoking. Finally, for health, health insurance, and psychological outcomes we find few systematic buffering effects of religion.

Overall, we believe that our results support the notion that religion plays an important role in how households respond to the disadvantages they face. Our results are especially strong when disadvantage is measured by maternal education and outcomes are measured by the youth's educational attainment. Given that education has been shown to have far-reaching consequences for a range of outcomes, including mortality, voting, and crime, we believe our results shed light on a potentially important mechanism that can mitigate the intergenerational transmission of disadvantage.

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Table 1. Characteristics of Parents and Children in our Sample

	Children: All Ages				Children: Ages 25+ in Wave 3			
	Mean	S.D.	Minimum	Maximum	Mean	S.D.	Minimum	Maximum
Characteristics of Children								
Age at Wave 1	11.02	4.51	3	19	14.38	2.58	9	19
Age at Wave 3	25.95	4.54	18	34	29.34	2.55	25	34
Black	0.08	0.27	0	1	0.07		0	1
Hispanic	0.05	0.21	0	1	0.04		0	1
Other Nonwhite	0.01	0.11	0	1	0.01		0	1
Female	0.53	0.50	0	1	0.51		0	1
Wave 3 Interview in 2001	0.07	0.25	0	1	0.06		0	1
Wave 3 Interview in 2002	0.76	0.43	0	1	0.75		0	1
Characteristics of Parent Respondent								
Age at Wave 1	38.96	8.05	19	71	42.19	7.56	24	71
Biological Parent	0.91	0.29	0	1	0.88		0	1
Female	0.55	0.50	0	1	0.56		0	1
Married at Wave 1	0.87	0.34	0	1	0.86		0	1
Wave 1 Interview in 1987	0.90	0.30	0	1	0.91		0	1
N		1,952				1,125		

Table 2. Measures of Childhood Disadvantage

	All		Attendance > Median		Attendance < Median	
	Mean	S.D.	Mean	S.D.	Mean	S.D.
Family Resources/Poverty						
Log Household Income / Poverty Line	1.17	0.82	1.19	0.77	1.16	0.86
Household Income Less than 200% of Poverty Line	0.21	0.41	0.21	0.40	0.21	0.41
Log Median Household Income in Census Tract	10.35	0.43	10.34	0.43	10.35	0.42
Poverty Rate in Census Tract	0.11	0.11	0.11	0.11	0.11	0.10
Received Public Assistance in Prior Year	0.05	0.21	0.04	0.19	0.06	0.12
Family Characteristics						
Nonwhite	0.14	0.34	0.16	0.36	0.12	0.32
Unmarried Parent	0.13	0.34	0.10	0.30	0.16	0.37
Marital Breakup Between Wave 1 and Wave 2*	0.10	0.30	0.09	0.28	0.12	0.32
Mother Is a High School Dropout	0.11	0.31	0.08	0.27	0.14	0.34
Mother Has High School Education or Less	0.52	0.50	0.48	0.50	0.55	0.50
Child Characteristics						
Parent Does Not Expect Child to Graduate from College**	0.34	0.47	0.29	0.45	0.40	0.49
Parent Says Focal Child is Difficult to Raise**	0.08	0.27	0.07	0.25	0.09	0.29
Focal Child Repeated a Grade**	0.08	0.26	0.05	0.21	0.10	0.31
Composite of Discipline Trouble** +	0.09	0.29	0.10	0.30	0.09	0.28

* Sample restricted to children age 3-12 with married parents at Wave 1

** Sample restricted to children age 3-12

\+ Parental reports any of the following: disciplinary meeting with teacher or principal, child suspended or expelled from school, child in trouble with police.

Attendance measures the number of times per year the parent attends religious services (expressed as percentile).

Table 3. Distribution of Parent Religious Attendance

Percentile	Times / Year
1%	0
5%	0
10%	0
25%	1
50%	24
75%	52
90%	104
95%	156
99%	156
Mean	36.5
Standard deviation	46.7
N	1911

Based on the self-reported frequency of attendance of the parent respondent in Wave 1.

Table 4. Religious Affiliation and Participation in Non-Profit Organizations

	Mean	S.D.
Participation in the Following Types of Social Organizations		
Community Organizations	0.28	0.45
Work-related Organizations	0.35	0.48
Leisure Groups	0.66	0.47
Church-based Social Organizations	0.53	0.50
Religious Affiliation		
No Religion	0.08	0.27
Catholic	0.25	0.44
Jewish	0.02	0.15
Baptist	0.18	0.38
Episcopalian	0.02	0.14
Lutheran	0.06	0.24
Methodist	0.11	0.31
Mormon	0.05	0.21
Presbyterian	0.04	0.19
Congregational	0.02	0.13
Protestant, No Denomination	0.05	0.23
Other Christian	0.10	0.30
Other Religions / Missing	0.02	0.14

Community organizations is a dummy variable indicating any participation in fraternal groups, service clubs, veterans' groups, or political groups. Work-related organizations is a dummy variable indicating any participation in labor unions, farm organizations, or professional/academic societies. Leisure groups is a dummy variable indicating any participation in sports groups, youth groups, hobby or garden clubs, or literary/art groups. Church-based social organizations is a dummy variable indicating any participation in church-affiliated groups (other than attending religious service). Religious affiliation is the self-reported religious affiliation of the parent respondent in Wave 1.

Table 5. Adult Outcomes Measures (Wave 3)

	All		Attendance > Median		Attendance < Median	
	Mean	S.D.	Mean	S.D.	Mean	S.D.
Education, Income, Public Assistance						
High School Education or More (includes GED)	0.94	0.25	0.96	0.19	0.91	0.29
Some College or More*	0.65	0.48	0.71	0.45	0.59	0.49
College Graduate*	0.24	0.43	0.39	0.49	0.29	0.46
Percentile Household Income/Poverty Line*+	0.51	0.29	0.52	0.28	0.49	0.30
Household Income/Poverty Line Above 25th Percentile*+	0.76	0.43	0.77	0.42	0.73	0.44
Received Public Assistance in Prior Year	0.06	0.23	0.05	0.22	0.07	0.26
Behavior and Health						
Non-Smoker (smoked <1 cigarette per day in last month)	0.71	0.45	0.77	0.42	0.65	0.48
Age of First Sex 16 or over (includes never)	0.75	0.43	0.83	0.38	0.68	0.47
Normal Weight (18.5 ≤ Body Mass Index < 25.0)	0.51	0.50	0.52	0.50	0.50	0.50
Covered by Health Insurance	0.77	0.42	0.79	0.40	0.74	0.44
Subjective Happiness (scale from 1-10)	7.39	1.50	7.46	1.44	7.32	1.56
Composite Locus of Control (scale from 1-5)**	3.81	0.75	3.85	0.73	3.78	0.76

* Sample restricted to those age 25+ in Wave 3.

+ Percentiles are within age categories.

**Composite Locus of Control is average of responses to three questions (each on scale from 1-5): whether or not focal child feels pushed around, whether or not focal child can solve problems, and whether or not focal child has control over situation.

Attendance measures the number of times per year the parent attends religious services (expressed as percentile).

Table 6a. Effect of Youth Disadvantage on Adult Outcomes: Coefficient on Disadvantage

Outcomes in Wave 3: Education, Income, and Public Assistance

	High School or More	Some College or More (age 25+)	College Graduate (age 25+)	HH Income/ Poverty Line Percentile (age 25+)	Poverty Line Above 25th Percentile (age 25+)	Public Assistance
Family Resources/Poverty						
Log Household Income / Poverty Line	0.04***	0.13***	0.15***	0.08***	0.06***	-0.02**
HH Income Less than 200% of Poverty Line	-0.09***	-0.19***	-0.22***	-0.15***	-0.10***	0.03**
Log Median HH Income in Census Tract	0.06***	0.19***	0.22***	0.14***	0.16***	-0.03**
Poverty Rate in Census Tract	-0.25***	-0.62***	-0.59***	-0.50***	-0.65***	0.23***
Received Public Assistance	-0.12***	-0.28***	-0.25***	-0.16***	-0.17**	0.05*
Family Characteristics						
Nonwhite	-0.07***	-0.19***	-0.16***	-0.15***	-0.20***	0.05***
Unmarried Parent	-0.12***	-0.12***	-0.15***	-0.06**	-0.08*	0.04***
Marital Breakup Between Waves 1 & 2	-0.02	-0.03	-0.07	-0.05	-0.12**	0.06***
Mother Is a High School Dropout	-0.07***	-0.26***	-0.20***	-0.16***	-0.21***	0.03
Mother Has High School Education or Less	-0.05***	-0.23***	-0.29***	-0.12***	-0.11***	0.02*
Child Characteristics						
Not Expected to Graduate College	-0.12***	-0.40***	-0.30***	-0.06	-0.07	0.04***
Difficult to Raise	-0.10***	-0.21***	-0.14*	-0.04	-0.09	0.02
Repeated a Grade	-0.17***	-0.34***	-0.19***	-0.22***	-0.20***	0.13***
Composite of Discipline Trouble	-0.07**	-0.16**	-0.22***	-0.06	-0.03	0.04*

Note: Significance levels: * 10 percent; ** 5 percent; *** 1 percent. Each cell contains the coefficient on disadvantage when we regress outcome (column) on disadvantage (row), percentile of parent's religious attendance, and controls. Controls include race, sex, and age dummies, an indicator of whether the focal child is a biological child, and year of interview dummies. Shaded cells indicate entries where we expect the value to be positive (due to reverse coding of the measure of disadvantage or the outcome).

Table 6b. Effect of Youth Disadvantage on Adult Outcomes: Coefficient on Disadvantage

Outcomes in Wave 3: Absence of Problem Behavior

	Non-Smoker	Age 1st Sex ≥ 16	Normal Weight	Health Insurance	Subjective Happiness	Locus of Control
Family Resources/Poverty						
Log Household Income / Poverty Line	0.04**	0.04***	0.06***	0.08***	-0.05	0.08***
HH Income Less than 200% of Poverty Line	-0.06*	-0.08***	-0.07**	-0.17***	0.05	-0.09*
Log Median HH Income in Census Tract	0.06**	0.10***	0.07**	0.12***	0.05	0.20***
Poverty Rate in Census Tract	-0.09	-0.39***	-0.28**	-0.49***	-0.70*	-0.66***
Received Public Assistance	-0.13***	-0.15***	-0.06	-0.17***	-0.41**	-0.19**
Family Characteristics						
Nonwhite	0.08**	-0.06**	-0.12***	-0.12***	-0.16	-0.01
Unmarried Parent	-0.10***	-0.13***	-0.05	-0.15***	-0.12	-0.01
Marital Breakup Between Waves 1 & 2	-0.07*	-0.14***	-0.07	-0.12***	-0.34**	-0.10
Mother Is a High School Dropout	-0.03	-0.05	-0.13***	-0.17***	-0.09	-0.12**
Mother Has High School Education or Less	-0.05**	-0.07***	-0.11***	-0.09***	0.01	-0.15***
Child Characteristics						
Not Expected to Graduate College	-0.12***	-0.09***	-0.02	-0.15***	-0.19*	-0.22***
Difficult to Raise	-0.10*	-0.08	-0.19***	-0.14***	-0.25	0.03
Repeated a Grade	-0.10*	-0.13**	-0.17***	-0.18***	0.03	-0.24**
Composite of Discipline Trouble	-0.12**	-0.08*	-0.12**	-0.18***	-0.10	0.03

See notes to Table 6a.

Table 7. The Effect of Wave-One Maternal Education (High School Graduate or Less) on Focal Child's Wave-Three Education (Some College or More)

Specification	OLS		OLS		Probit		Probit	
					Marginal Effect			
	Coefficient	SE	Coefficient	SE	Effect	SE	Coefficient	SE
Mother a High School Graduate or Less	-0.23***	0.03	-0.38***	0.06	-0.25***	0.03	-1.08***	0.21
Parental Religious Participation	0.16***	0.05	0.01	0.07	0.17**	0.07	0.03	0.28
H.S. Grad or Less×Religious Participation			0.29***	0.10			0.78**	0.37
Parent Black	-0.10*	0.06	-0.10*	0.06	-0.11*	0.06	-0.31**	0.15
Parent Hispanic	-0.20***	0.07	-0.22***	0.07	-0.21***	0.08	-0.59***	0.20
Parent Other Race	-0.33*	0.17	-0.34	0.17	-0.40**	0.19	-1.04*	0.56
Focal Child Male	-0.11***	0.03	-0.12***	0.03	-0.12***	0.04	-0.35***	0.10
Guardian is Biological Parent	0.18***	0.04	0.17***	0.04	0.20***	0.06	0.51***	0.14
Age Dummies for Focal Child	Yes		Yes		Yes		Yes	
Interview Year Dummies	Yes		Yes		Yes		Yes	
(Pseudo) R-squared	0.14		0.14		0.11		0.11	
Buffering Effect								
(A) Effect of Parent a H.S. Grad or Less at 25th Percentile of Religious Participation			-0.31***	0.04			-0.89***	0.13
(B) Effect of Parent a H.S. Grad or Less at 75th Percentile of Religious Participation			-0.16***	0.04			-0.50***	0.14
(C) Difference (A-B)			-0.15***	0.05			-0.39**	0.19
(D) Buffering (C/A)			0.48***	0.13			0.44***	0.17

Note: Significance levels: * 10 percent; ** 5 percent; *** 1 percent. The buffering effects for the Probit in column (4) refer to effects in "latent variable space," not to effects expressed in terms of probabilities. Parent White is omitted race category.

Table 8a. Buffering Effect of Religious Participation

Outcomes in Wave 3: Education, Income, and Public Assistance

t-statistics for Buffering Effect	High School or More	Some College or More (age 25+)	College Graduate (age 25+)	HH Income/ Poverty Line Percentile (age 25+)	Poverty Line Above 25th Percentile (age 25+)	Public Assistance
Family Resources/Poverty						
Log Household Income / Poverty Line	1.99**	0.19	0.81	-1.24	-0.87	-0.61
HH Income Less than 200% of Poverty Line	3.54***	1.72*	-0.07	-0.96	-0.61	-0.37
Log Median HH Income in Census Tract	3.68***	0.89	0.47	0.96	1.58	1.11
Poverty Rate in Census Tract	4.04***	0.09	-0.84	0.31	1.11	1.57
Received Public Assistance	5.50***	2.24**	-0.17	0.52	0.99	0.03
Family Characteristics						
Nonwhite	3.81***	0.03	-0.56	-0.27	-0.31	1.27
Unmarried Parent	1.00	0.73	0.04	0.13	-0.53	1.76*
Marital Breakup between Wave 1 & 2	0.14	-0.07	0.43	2.38**	3.50***	-0.09
Mother Is a High School Dropout	4.37***	-0.73	0.20	0.17	0.33	0.86
Mother Has High School Education or Less	3.10***	3.66***	2.12**	1.99**	0.37	-0.16
Child Characteristics						
Not Expected to Graduate College	1.19	2.13**	2.09**	1.85*	1.90*	2.49**
Difficult to Raise	-0.58	-0.68	0.13	1.73*	-0.19	2.05**
Repeated a Grade	1.34	3.27***	3.14***	1.05	2.51**	4.37***
Composite of Discipline Trouble	-0.56	0.26	-0.32	0.01	-0.06	-0.12

Note: Significance levels: * 10 percent; ** 5 percent; *** 1 percent. Each cell contains the t-statistic for the buffering effect when we regress outcome (column) on disadvantage (row), percentile of parent's religious attendance, the interaction of disadvantage and religious attendance, and controls. Controls include race, sex, and age dummies, an indicator for whether the focal child is a biological child, and year of interview dummies.

Table 8b. Buffering Effect of Religious Participation

Outcomes in Wave 3: Absence of Behavioral Problems

t-statistics for Buffering Effect	Non-Smoker	Age 1st Sex	Normal Weight	Health Insurance	Subjective Happiness	Locus of Control
Family Resources/Poverty						
Log Household Income / Poverty Line	2.43**	1.88*	-0.72	-1.43	1.69*	-0.79
HH Income Less than 200% of Poverty Line	2.56**	2.30**	0.63	0.82	1.41	-0.22
Log Median HH Income in Census Tract	3.79***	-0.54	-0.65	0.90	1.86*	-0.19
Poverty Rate in Census Tract	2.36**	-0.33	-0.61	-0.20	2.72***	-0.17
Received Public Assistance	1.99**	-0.79	-0.27	0.53	0.06	1.51
Family Characteristics						
Nonwhite	-0.37	0.53	-0.12	-0.83	0.18	3.05***
Unmarried Parent	2.05**	-0.43	-0.49	0.13	1.27	0.09
Marital Breakup between Wave 1 & 2	0.22	-0.90	-0.17	2.06**	2.89***	0.80
Mother Is a High School Dropout	1.92*	1.23	0.06	-0.78	-0.04	-0.45
Mother Has High School Education or Less	2.08**	1.16	0.01	1.43	1.57	1.29
Child Characteristics						
Not Expected to Graduate College	1.70*	1.37	0.12	0.85	-0.21	0.11
Difficult to Raise	1.91*	1.79*	-0.64	0.64	4.01***	0.35
Repeated a Grade	1.81*	2.10**	-0.84	0.93	1.70*	1.89*
Composite of Discipline Trouble	2.09**	1.98**	-0.35	-0.11	1.95*	1.04

See notes to Table 8a.

Table 9a. Buffering Effect of Religious Participation

Outcomes in Wave 3: Education, Income, and Public Assistance

Value of Buffering Effect	High School or More	Some College or More (age 25+)	College Graduate (age 25+)	Income/ Poverty Line Percentile (age 25+)	Income/ Poverty Line Above 25th Percentile	Public Assistance
Family Resources/Poverty						
Log Household Income / Poverty Line	0.42**	0.05	0.15	-0.57	-1.14	-1.72
HH Income Less than 200% of Poverty Line	0.56***	0.41*	-0.02	-0.39	-0.87	-0.39
Log Median HH Income in Census Tract	0.69***	0.22	0.11	0.21	0.40	0.49
Poverty Rate in Census Tract	0.78***	0.04	-0.70	0.10	0.33	0.45
Received Public Assistance	0.99***	0.62**	-0.10	0.24	0.53	0.03
Family Characteristics						
Nonwhite	0.68***	0.02	-0.70	-0.14	-0.18	0.46
Unmarried Parent	0.22	0.36	0.02	0.10	-1.21	0.75*
Marital Breakup between Wave 1 & 2	13.8	-10.2	0.53	1.51**	1.42***	-0.06
Mother Is a High School Dropout	1.13***	-0.29	0.08	0.06	0.12	0.70
Mother Has High School Education or Less	0.66***	0.48***	0.28**	0.37**	0.15	-0.20
Child Characteristics						
Not Expected to Graduate College	0.22	0.35**	0.42**	0.99*	1.11*	0.74**
Difficult to Raise	-5.41	-1.30	0.13	1.38*	-0.48	1.30**
Repeated a Grade	0.35	0.78***	1.13***	0.34	0.94**	0.99***
Composite of Discipline Trouble	-1.54	0.20	-0.25	0.02	-0.35	-0.15

Note: Significance levels: * 10 percent; ** 5 percent; *** 1 percent. Each cell contains the value of the buffering effect when we regress outcome (column) on disadvantage (row), percentile of parent's religious attendance, the interaction of disadvantage and religious attendance, and controls. Controls include race, sex, and age dummies, an indicator of whether the focal child is a biological child, and year of interview dummies.

Table 9b: Buffering Effect of Religious Participation

Outcomes in Wave 3: Absence of Behavioral Problems

Value of Buffering Effect	Non-Smoker	Age 1st Sex ≥ 16	Normal Weight	Health Insurance	Subjective Happiness	Locus of Control
Family Resources/Poverty						
Log Household Income / Poverty Line	0.90**	0.61*	-0.43	-0.75	1.23*	-0.83
HH Income Less than 200% of Poverty Line	0.96**	0.70**	0.35	0.19	1.38	-0.27
Log Median HH Income in Census Tract	1.08***	-0.29	-1.34	0.23	1.50*	-0.07
Poverty Rate in Census Tract	1.45**	-0.18	-1.39	-0.08	1.02***	-0.09
Received Public Assistance	0.74**	-0.97	-1.10	0.21	0.04	0.70
Family Characteristics						
Nonwhite	-0.51	6.48	-0.07	-1.12	12.0	1.81***
Unmarried Parent	0.71**	-0.22	-2.18	0.04	1.06	8.67
Marital Breakup between Wave 1 & 2	15.8	-1.00	-11.7	0.67**	0.97***	0.60
Mother Is a High School Dropout	1.66*	0.87	0.03	-0.32	-0.11	-0.57
Mother Has High School Education or Less	0.71**	0.37	0.00	0.38	1.80	0.37
Child Characteristics						
Not Expected to Graduate College	0.47*	0.47	12.1	0.22	-0.24	0.04
Difficult to Raise	0.86*	0.95*	-0.72	0.35	1.43***	3.86
Repeated a Grade	1.06*	0.90**	-3.33	0.39	3.16*	0.81*
Composite of Discipline Trouble	0.71**	0.81**	-0.48	-0.06	1.27*	2.47

See notes to Table 9a.

Table 10. The Buffering Effect of Social Organizations

Outcome Measure:	Some College or More		HS Graduate or More		Received Public Assistance		Non-Smoker		Subjective Happiness		All Outcome-Disadvanage Pairs	
							HH Income Below 200% Poverty Line		Marital Break-Up between Wave 1 and 2			
Measure of Disadvantage:	Mother HS Graduate or Less		Poverty Rate in Census Tract		Focal Child Repeated Grade						Stat. Significant Buffering	
	Effect	SE	Effect	SE	Effect	SE	Effect	SE	Effect	SE	# Positive	#Negative
Baseline Buffering Effect of Religious Participation (From Table 9)	0.48***	0.13	0.78***	0.19	0.99***	0.23	0.96**	0.38	0.97***	0.34	38	0
Buffering Effect of Participation in Community Organizations	-0.22	0.31	0.96***	0.30	0.05	0.24	1.01	0.92	0.67	0.51	10	1
Buffering Effect of Participation in Work-related Organizations	0.19	0.27	0.70*	0.37	-0.30	0.24	1.35	1.08	-0.52	0.93	0	4
Buffering Effect of Participation in Leisure Groups	0.04	0.25	0.38	0.28	0.33***	0.12	-0.38	1.65	0.29	0.44	27	1
Buffering Effect of Participation in Church-based Social Organizations	0.50***	0.14	0.80***	0.17	0.64***	0.17	0.74	0.48	0.63**	0.32	27	0

Significance levels: * 10 percent; ** 5 percent; *** 1 percent. Each specification measures the value and standard error of the buffering effect of participating in the social organization and is analogous to the baseline specification. We regress outcome on disadvantage, participation in the social organization, the interaction of disadvantage and the social organization, and controls. Controls include percentile of parents' religious attendance, race, sex, and age dummies, an indicator of whether the focal child is a biological child, and year of interview dummies. The rightmost column, "All Outcome-Disadvantage Pairs," counts the number of statistically significant (at 5 percent level) positive and negative buffering effects of social organizations found for the full set of outcome-disadvantage pairs (total of 168 pairs).

Table 11. Robustness Checks on Buffering Effects

Outcome Measure:	Some College or More		High School Graduate or More		Received Public Assistance		Non-Smoker		Subjective Happiness	
Measure of Disadvantage:	Mother HS Graduate or Less		Poverty Rate in Census Tract		Focal Child Repeated Grade		HH Income Below 200% Poverty Line		Marital Break-Up between Wave 1 and 2	
	Effect	SE	Effect	SE	Effect	SE	Effect	SE	Effect	SE
Baseline (From Table 9)	0.48***	0.13	0.78***	0.19	0.99***	0.23	0.96**	0.38	0.97***	0.34
Attendance Scale	0.44***	0.12	0.78***	0.18	0.63*	0.35	1.02***	0.37	0.87***	0.33
Attendance > Median	0.55***	0.13	0.76***	0.19	0.75***	0.22	0.80*	0.42	0.77**	0.39
Avg. of Parents' Attendance	0.44***	0.13	0.70***	0.20	0.99***	0.23	0.82**	0.41	0.92**	0.36
Max. of Parents' Attendance	0.44***	0.13	0.72***	0.21	0.98***	0.22	0.87*	0.67	1.00***	0.34
Min. of Parents' Attendance	0.44***	0.13	0.62***	0.21	0.94***	0.23	0.77**	0.37	0.44	0.52
Cut by Median Attendance										
(A) Effect of Disadvantage (Attendance < Median)	-0.33***	0.04	-0.42***	0.10	0.20***	0.04	-0.08**	0.04	-0.55***	0.20
(B) Effect of Disadvantage (Attendance > Median)	-0.14***	0.04	-0.07***	0.07	0.00	0.04	-0.03	0.04	-0.13	0.20
Buffering (A-B)/A	0.57***	0.13	0.83***	0.16	0.98***	0.22	0.61	0.53	0.76**	0.38
Probit	0.44**	0.17	0.45	0.36	1.01**	0.51	0.97**	0.45	-	-
Additional Controls	0.31***	0.10	1.02***	0.29	1.09***	0.23	0.84**	0.41	0.97***	0.35

Significance levels: * 10 percent; ** 5 percent; *** 1 percent. Attendance Scale measures attendance on a six-point scale (never, few times a year, once a month, two to three times a month, once a week, two or more times a week). Average Parents' Attendance, Max. of Parents' Attendance, and Min. of Parents' Attendance uses both main parent and spousal responses. If the spouse is absent, the main parent's value is used alone. Cut by Median Attendance takes the standard specification but runs separate regressions conditioning on parent percentile attendance being above and below the median. Additional Controls consist of three maternal education dummies (high school grad, some college, college grad), three region dummies (northeast, north central, south) and four Wave 1 household size dummies (three, four, five, six or more persons). All specifications also include the standard controls: percentile of parent's religious attendance (or one of the above alternative measures of attendance), race, sex, and age dummies, an indicator of whether a biological child, and year of interview dummies.

Table 12. Possible Mechanisms for the Buffering Effect

Outcome Measure:	Some College or More		High School Graduate or More		Received Public Assistance		Non-Smoker		Subjective Happiness	
Measure of Disadvantage:	Mother HS Graduate or Less		Poverty Rate in Census Tract		Focal Child Repeated Grade		HH Income Below 200% Poverty Line		Marital Break-Up between Wave 1 and 2	
	Effect	SE	Effect	SE	Effect	SE	Effect	SE	Effect	SE
Baseline Buffering Effect of Religious Participation (From Table 9)	0.48***	0.13	0.78***	0.19	0.99***	0.23	0.96**	0.38	0.97***	0.34
Buffering Effect if Participation is Measured by Grandparent's Attendance (N=763)	-0.28	0.57	0.68**	0.27	0.70*	0.39	1.34	1.28	98	6841
Horserace with Predicted Attendance										
Main Interaction	0.18**	0.12	0.61**	0.23	-0.20	0.12	0.14	0.11	0.80	0.60
Horserace Interaction	0.07**	0.29	-1.32**	0.57	-0.62***	0.26	0.25	0.27	1.71	1.50
Buffering Effect of Religious Participation	0.36*	0.21	0.82***	0.24	0.90*	0.46	0.78*	0.48	0.72*	0.42
Horserace with Neighborhood Income										
Main Interaction	0.15**	0.07	0.66***	0.20	-0.38***	0.10	0.19**	0.10	1.11**	0.50
Horserace Interaction	0.05	0.05	-0.24**	0.11	0.24***	0.07	-0.01	0.08	-0.72**	0.33
Buffering Effect of Religious Participation	0.34**	0.14	0.73***	0.27	0.90***	0.21	1.07**	0.48	0.89***	0.32
Horserace with Belief										
Main Interaction	0.22*	0.12	0.52**	0.22	-0.33***	0.11	0.28**	0.11	1.18**	0.56
Horserace Interaction	0.03	0.03	0.05	0.06	-0.07**	0.03	-0.07**	0.03	0.11	0.15
Buffering Effect of Religious Participation	0.42**	0.18	0.68***	0.23	0.94***	0.26	1.61**	0.64	0.88***	0.32

Significance levels: * 10 percent; ** 5 percent; *** 1 percent. Horserace adds a direct effect (Predicted Attendance, Neighborhood Income, Belief) and its interaction with disadvantage to the baseline specification. Standard focal child controls along with maternal education, parent gender, region, household size, log of household income to poverty ratio, and four dummies for degree of agreement (scale from 1-5) for each response to four values statements are used to predict religious attendance, with R-squared of 0.17. These four statements are: (1) It is much better for everyone if the man earns the main living and the woman takes care of the home and family. (2) It's better for a person to get married than to go through life being single. (3) Preschool children are likely to suffer if their mother is employed. (4) In a successful marriage, the partners must have freedom to do what they want individually. Neighborhood Income is the log of median household income in the Census Tract. Belief is strength of religious belief as measured by degree of agreement (scale from 1-5) with following two statements: (1) The Bible is God's word and everything happened or will happen exactly as it says. (2) The Bible is the answer to all important human problems. Responses to these statements are averaged and standardized to have a mean of zero and standard deviation of one.

Table 13. Buffering Effects by Subpopulation

Outcome Measure:	Some College or More		HS Graduate or More		Received Public Assistance		Non-Smoker		Subjective Happiness	
Measure of Disadvantage:	Mother HS Graduate or Less		Poverty Rate in Census Tract		Focal Child Repeated Grade		HH Income Below 200% Poverty Line		Marital Break-Up between Wave 1 and 2	
	Effect	SE	Effect	SE	Effect	SE	Effect	SE	Effect	SE
Baseline, from Table 9	0.48***	0.13	0.78***	0.19	0.99***	0.23	0.96**	0.38	0.97***	0.34
Gender of Focal Child										
Male (N=1037)	0.44***	0.15	-0.40	2.11	1.12***	0.21	1.09**	0.51	1.04***	0.35
Female (N=894)	0.44	0.29	0.99***	0.15	1.15	0.77	0.82	0.63	1.04	0.78
Race										
Whites (N=1563)	0.49***	0.14	0.57***	0.22	1.19***	0.28	0.68*	0.39	0.91**	0.41
Nonwhites (N=386)	0.44	0.32	1.34**	0.63	0.37	0.67	2.00**	0.81	1.11**	0.53
Maternal Education										
HS Graduate or Less (N=889)	-	-	1.15***	0.38	0.94***	0.33	-0.14	0.93	0.84	0.53
Some College or More (N=1059)	-	-	0.02	0.67	1.38***	0.52	1.57**	0.72	1.00**	0.47
Wave One Age of Focal Child										
Age <= 12 (N=792)	0.30	0.37	0.79***	0.30	-	-	0.93	0.64	0.87**	0.43
Age > 12 (N=1160)	0.51***	0.14	0.91***	0.23	-	-	0.90**	0.41	1.08*	0.61
Marital Status of Parent										
Married (N=1197)	-0.46	0.52	0.63	0.41	1.35	1.96	1.28*	0.65	-	-
Not Married (N=555)	0.76*	0.46	0.84**	0.30	0.34	0.43	0.10	0.90	-	-
Religious Denomination										
Catholic (N=452)	1.48	3.79	-0.66	1.14	0.12	0.67	-0.38	1.23	0.29	0.60
Mainline Protestant (N=585)	-0.28	0.88	-0.40	0.60	0.48	1.20	-2.51	31.4	1.69**	0.71
Evangelical (N=671)	0.98***	0.23	0.79***	0.16	0.97***	0.18	1.24**	0.49	1.33**	0.62

Significance levels: * 10 percent; ** 5 percent; *** 1 percent. Dashes indicate that the sample cannot be or is already cut along those dimensions.

All regressions include the standard controls: percentile of parent's religious attendance, race, sex, and age dummies, an indicator of whether a biological child, and year of interview dummies.

Figure 1: The Actual and Predicted Percentiles of the Distribution of T-statistics
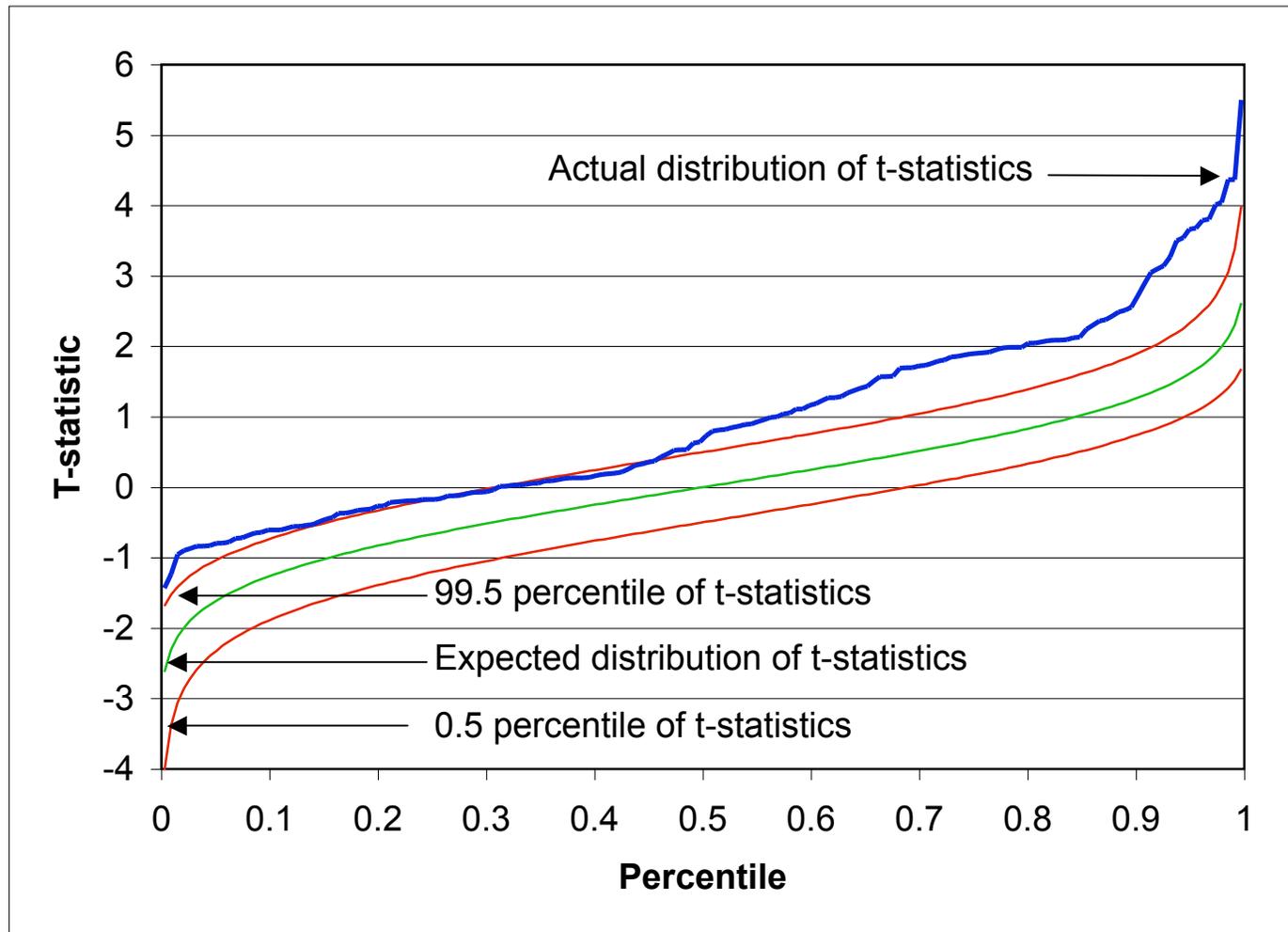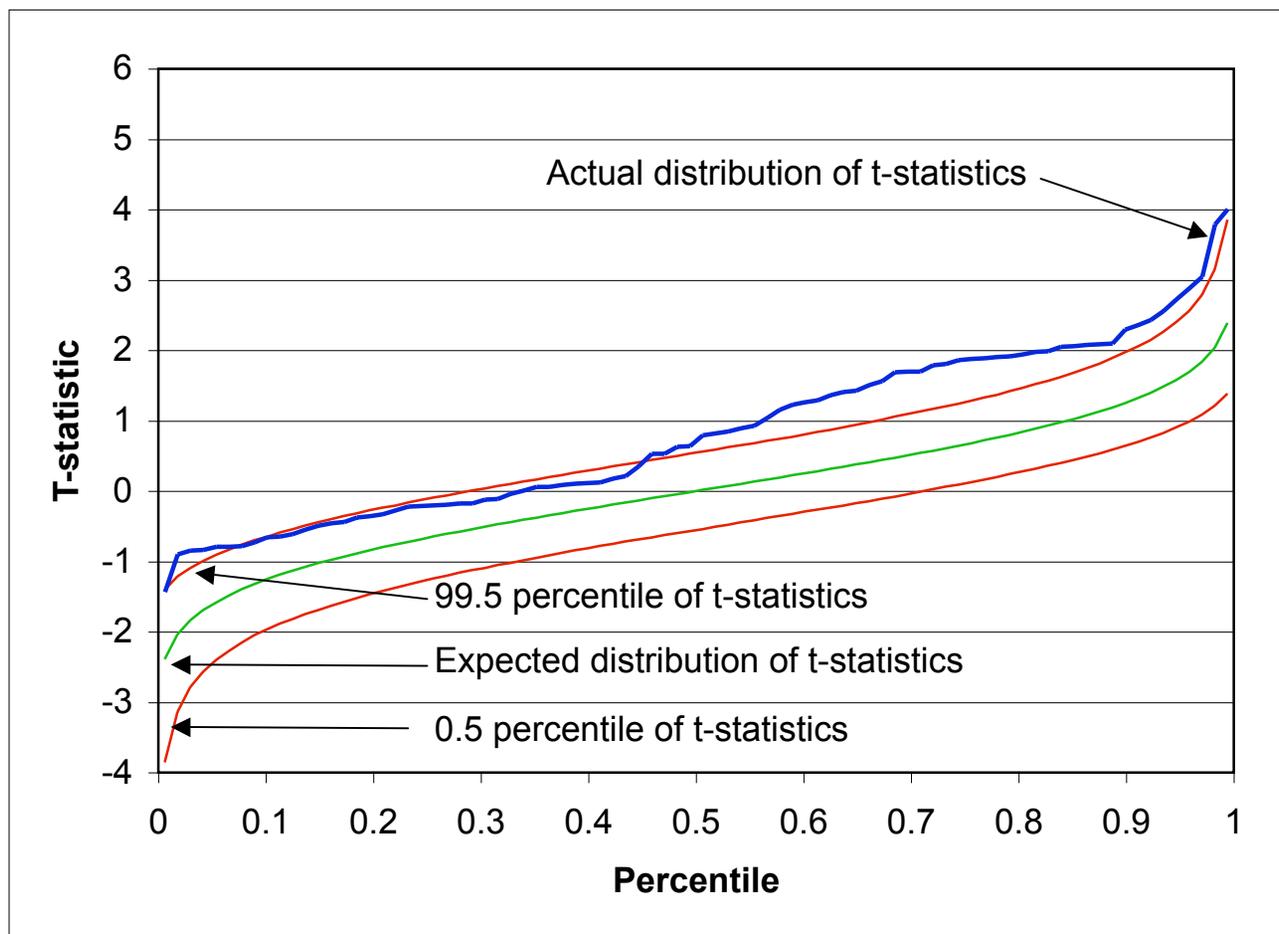

The figure shows the expected distribution and the 0.5th and 99.5th percentile of the ordered distribution of t-statistics.

Figure 2: The Actual and Predicted Percentiles of the Distribution of T-statistics for Buffering of Education and Income Outcomes
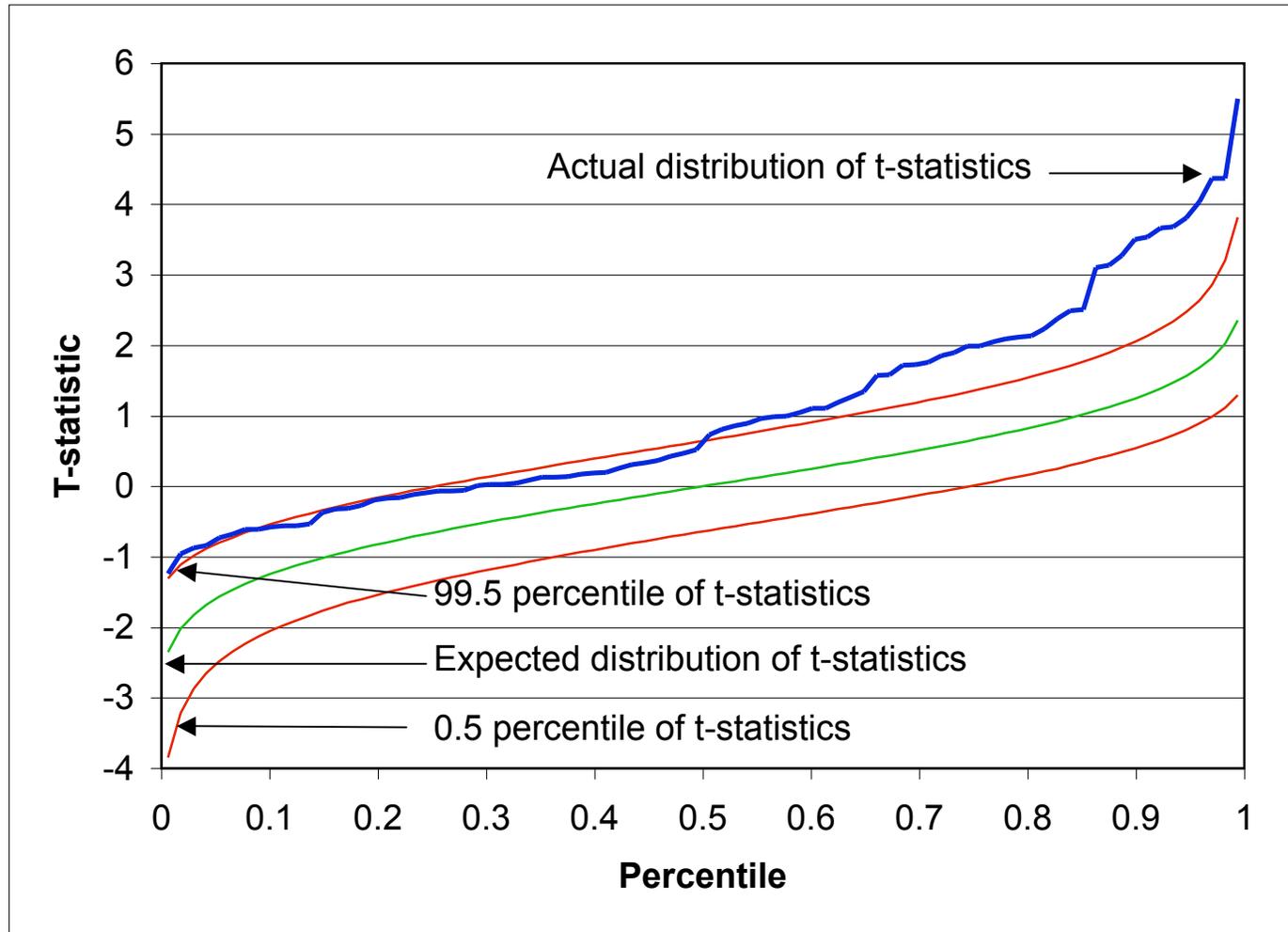
The figure shows the expected distribution and the 0.5th and 99.5th percentile of the ordered distribution of t-statistics.

Figure 3: The Actual and Predicted Percentiles of the Distribution of T-statistics for Behavior and Mental and Physical Health Outcomes.

The figure shows the expected distribution and the 0.5th and 99.5th percentile of the ordered distribution of t-statistics.