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

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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 outcomes of the youth 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 were 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 do not find strong buffering effects for other social organizations.

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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 partially to 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 children whose parents were involved with religious and social organizations suffered less harm by adulthood (13 to 15 years later) 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 non-white 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

[1] While we do not consider being non-white to be a disadvantage, 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 we could get this many significant effects 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. We do not find compelling evidence that social organizations also provide buffering against youth disadvantage, but this lack of findings could be due to the fact that the buffering effects of social organizations are less precisely estimated. 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) and to what extent by religious organizations providing the youth with a motivation, values, or attitudes that lead to better outcomes.

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 disadvantage, leading our estimated buffering effect to capture the combined effect of all

[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.

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 more limited 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, Devaraux, and Salvanes 2003 and Oreopoulos, Page, and Stevens 2006), having a parent on public assistance (Antel 1992, Page 2004), 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.

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 lower 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 child. These strategies to mitigate the negative impact of disadvantage may or may not have value in and of themselves. While some adoptive 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.

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 the immune system). 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 1 (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 kindly 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 household poverty rate as tract level measures of disadvantage.

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 non-white). 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. These are presented in Table 2. Our first set of measures is based on family resources or poverty: log household income relative to the poverty line, an indicator for log household income less than 200 percent of the poverty line (21 percent of the sample), log median household income in the census tract, the poverty rate at the census-

tract level (11 percent of the sample), and an indicator for the household receiving public assistance in wave one (5 percent of the sample). The second set of disadvantage measures is based on family characteristics, namely indicators for: non-white parents (14 percent of the sample), an unmarried parent (13 percent of the sample), a break-up of the parents' marriage (divorce or separation) occurring between wave 1 and wave 2 (10 percent of the sample, conditional on having married parents at wave 1), a mother with less than a high school education (11 percent of the sample), and a mother with high school education or less (52 percent) of the 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

[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.

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 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 indictor 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 him- or herself to be in control of his or her environment).

[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. Empirical Strategy

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

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:

$$(1) \quad Outcome_{it} = Disadvantaged_{i,t\text{-}1}\,\beta_1 + Religious_{i,t\text{-}1}\,\beta_2 + Disadvantaged_{i,t\text{-}1} \times Religious_{i,t\text{-}1}\,\beta_3 + X_{i,t\text{-}1}\,\beta_4 + \alpha_{it} + \delta_t + \varepsilon_{it}$$

where $Outcome_{it}$ is a particular youth outcome in wave three, $Disadvantaged_{i,t\text{-}1}$ is an indicator of a disadvantaged household in wave one of the survey, and $Religious_{i,t\text{-}1}$ is a measure of parents' religiosity in wave one (and, alternatively, a measure of the parents' participation in other social organizations). $X_{i,t\text{-}1}$ 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 3 interview; δ_t is a set of year-of-interview dummies for the wave 1 and wave 3 interview; 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.

We interpret the estimates of β_3 as associations rather than as causal evidence of buffering because we are concerned about omitted variable bias. 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 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.

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

[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. Unfortunately, the NSFH does not contain information on ethnic background for most respondents.

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. Among risky behaviors, we find some significant effects for 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 (esp. 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 us.

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 25^{th} to the 75^{th} 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 bottom rows of the table express 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.

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.

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 that 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.[7] 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 grade. In Table 9a, we see that among disadvantages associated with child characteristics, the significant buffering effects range from 35 to 130 percent, with values typically between 40 and 70 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

[7] 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.

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 approximately between 70 and 145 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.[8] Comparing the actual with the expected distribution confirms that we observe significantly more significant buffering effects than would be expected by chance. In particular, at the

[8] 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-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.

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. More over, all t-statistics greater than 0.5 lie above the 99% confidence interval for order t-statistics. Thus, some of the buffering effects that are insignificant in a single test are significantly different from what we would have observed if in truth there were no buffering effects at all. This is an indication that there is also a buffering effect for these outcomes, even if it is not picked up by a single test.

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 23 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 effect by youth demographics. Space constrains us from showing the buffering effects for all 168 disadvantage-outcome combinations for these 23 additional specifications. Instead, we opted to present five disadvantage-outcome combinations for the additional specifications. We selected these five combinations from the set of

combinations that showed significant buffering effects in the baseline specification such that the combinations spanned a range of types of disadvantage and a range of outcomes. We selected these five combinations before running the additional specifications.

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 parents' 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.

While the estimates suggest that there might be some buffering effect associated with participating in community, work-related, and leisure groups, those effects are only statistically significant in two of the fifteen cases. However, given the relatively large standard errors on our estimates, we cannot rule out that these groups also provide sizeable buffering effects for the insignificant cases.

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 most consistent buffering effects that we find are from religious worship and church-based social organizations.

5.5 Robustness Checks and Attrition

Table 11 presents a range of robustness checks of our main specification. In the first 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 (2), 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. In row (3) we use a probit specification rather than a linear probability model, and continue to find significant buffering effects for most outcomes. Finally, in row (4) we add additional controls for Census region, maternal education and household size; our results remain robust.

Since just over half the sample of focal children in wave 1 are not re-interviewed in wave 3, 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 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 bias 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.[9] 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 probably explains why we only find a significant buffering effect in one of the five cases. 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

[9] In wave 2, the NSFH randomly selected one of the parents of the main responder for a telephone interview. Thus, the grandparent's religious attendance is measured at wave 2 rather than at wave 1.

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 and continue to find significant buffering effects of actual attendance. This suggests that the effects of religiosity we obtain 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.[10] 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 mean tract income. 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 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.

[10] 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.

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, 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, 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, but we hardly find any significant buffering effects for Catholics or mainline protestant denominations. However, this finding is only suggestive of evangelical protestant denominations providing stronger buffering effects because the difference in buffering effects across denominations is not statistically significant at the 5% level for any of the five disadvantage-outcome combinations.

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.

References

Aaronson, Daniel (1997). "Sibling Estimates of Neighborhood Effects" in *Neighborhood Poverty, Vol. II*, Brooks-Gunn, J., Duncan, G. and Aber, L. (eds.), Russell Sage Foundation: New York, pp. 80-93.

Anderson, Patricia, Phillip Levine, and Kristin Butcher (2003). "Maternal Employment and Overweight Children," *Journal of Health Economics*, 22: 477 - 504.

Antel, John J. (1992). "The Intergenerational Transfer of Welfare Dependency: Some Statistical Evidence," *The Review of Economics and Statistics*, 74(3): 467-477.

Brooks-Gunn, Jeanne and Greg Duncan (1997). "The Effects of Poverty on Children," *The Future of Children*, 7(2): 55-71.

Brooks-Gunn, Jeanne, Greg Duncan, and J. Lawrence Aber (1997). *Neighborhood Poverty Volume II*, Russell Sage Foundation: New York.

Bitler, Marianne, and Janet Currie (2004). "Does WIC Work? The Effect of WIC on Pregnancy and Birth Outcomes," *Journal of Policy Analysis and Management*, 23(4): 73-91.

Black, Sandra, Paul J. Devereux, and Kjell G. Salvanes (2005). "Why the Apple Doesn't Fall Far: Understanding Intergenerational Transmission of Human Capital," *American Economic Review*, 95 (1): 437-449.

Case, Anne and Laurence F. Katz (1991). "The Company You Keep: The Effects of Family and Neighborhood Effects on Disadvantaged Youths," NBER Working Paper 3705.

Clark, Andrew and Orsolya Lelkes (2005). "Deliver us from Evil: Religion as Insurance," Manuscript, PSE, Paris.

Currie, Janet (1997). "Choosing among Alternative Programs for Poor Children," *The Future of Children*, 7(2): 113-131.

Currie, Janet, and Rosemary Hyson (1999). "Is the Impact of Health Shocks Cushioned by Socioeconomic Status?: The Case of Birth Weight," *American Economic Review*, 89(2): 245-250.

Currie, Janet and Enrico Moretti (2003). "Mother's Education and the Intergenerational Transmission of Human Capital: Evidence From College Openings," *Quarterly Journal of Economics*, 118(4): 1495-1532.

Dehejia, Rajeev, Thomas DeLeire, and Erzo F.P. Luttmer (2007). "Insuring Consumption and Happiness through Religious Organizations," *Journal of Public Economics*, 91(1-2): 259-279.

DeLeire, Thomas and Ariel Kalil (2002). "Good Things Come in Threes: Single-parent Multigenerational Family Structure and Adolescent Adjustment," *Demography*, 39(2): 393-412.

Diener, Ed, Daniel Kahneman, and Norbert Schwarz (Eds.) (1999). *Well-being: The foundations of hedonic psychology.* Russell Sage Foundation: New York.

Duncan, Greg J. and Jeanne Brooks-Gunn (1997). *Consequences of Growing Up Poor.* Russell Sage Foundation: New York.

Duncan Greg J., W. Jean Yeung, Jeanne Brooks-Gunn, and Judith R. Smith (1998). "How Much Does Childhood Poverty Affect the Life Chances of Children?" *American Sociological Review*, 63(3): 406-423.

Ellison, Christopher G. (1991). "Religious Involvement and Subjective Well-Being." *Journal of Health and Social Behavior*, 32(1): 80-99.

Evans, William N., Wallace E. Oates, and Robert M. Schwab (1992). "Measuring Peer Group Effects: A Study of Teenage Behavior," *Journal of Political Economy*, 100(5): 966-991.

Freeman, Richard B. (1986). "Who Escapes? The Relation of Churchgoing and Other Background Factors to the Socioeconomic Performance of Black Male Youths From Inner-City Tracts." in Richard B. Freeman and Harry J. Holzer (Eds.), *The Black Youth Employment Crisis*, University of Chicago Press: Chicago: 353-376.

Gruber, Jonathan (2005). "Religious Market Structure, Religious Participation, and Outcomes: Is Religion Good for You?" *Advances in Economic Analysis and Policy*, 5(1): 1-30.

Guralnick, Michael J. (2004). "Family Investments in Response to the Developmental Challenges of Young Children with Disabilities" in Kalil, Ariel and Thomas DeLeire (Eds.), *Family Investments in Children's Potential: Resources and Parenting Behaviors That Promote Success*, Lawrence Erlbaum: Mahwah, New Jersey: 119-139.

Hanson, Thomas L., Sara McLanahan, and Elizabeth Thomson (1997). "Economic Resources, Parental Practices, and Children's Well-Being" in Duncan, Greg J. and Jeanne Brooks-Gunn (Eds.), *Consequences of Growing Up Poor,* Russell Sage Foundation: New York: 190-238.

Iannaccone, Laurence R. (1998). "Introduction to the Economics of Religion," *Journal of Economic Literature*, 36(3): 1465-1495.

Korenman, Sanders and Jane E. Miller (1997). "Effects of Long-term Poverty on Physical Health of Children in the National Longitudinal Survey of Youth," in Duncan, Greg J. and Jeanne Brooks-Gunn (Eds.), *Consequences of Growing Up Poor,* Russell Sage Foundation: New York: 70-99.

Mayer, Susan E. (1997). *What Money Can't Buy: Family Income and Children's Life Chances*. Harvard University Press: Cambridge, MA.

McCullough, Michael E., William T. Hoyt, David B. Larson, Harold G. Koenig, and Carl Thoresen (2000). "Religious Involvement and Mortality: A Meta-Analytic Review," *Health Psychology*, 19(3): 211-222.

McLanahan, Sara and Gary Sandefur (1994). *Growing Up with a Single Parent.* Harvard University Press: Cambridge, MA.

Oreopoulos, Phillip, Marianne E. Page, and Ann Huff Stevens (2006). "The Intergenerational Effects of Compulsory Schooling," *Journal of Labor Economics,* 24(4): 729-60.

Page, Marianne E. (2004). "New Evidence on Intergenerational Correlations in Welfare Participation," in *Generational Income Mobility in North America and Europe*, Miles Corak (Ed.), Cambridge University Press: 226-244.

Pargament, Kenneth I. (2002). "The Bitter and the Sweet: An Evaluation of the Costs and Benefits of Religiousness," *Psychological Inquiry*, 13(3): 168-181.

Smith, Judith R., Jeanne Brooks-Gunn and Pamela K. Klebanov (1997). "Consequences of Living in Poverty for Young Children's Cognitive and Verbal Ability and Early School Achievement" in Duncan, Greg J. and Jeanne Brooks-Gunn (Eds.), *Consequences of Growing Up Poor.* Russell Sage Foundation: New York: 132-189.

Smith, Timothy B., Michael E. McCullough, and Justin Poll (2003). "Religiousness and Depression: Evidence for a Main Effect and the Moderating Influence of Stressful Life Events," *Psychological Bulletin*, 129(4): 614-636.

Sweet, James A., and Larry L. Bumpass (1996). "The National Survey of Families and Households - Waves 1 and 2: Data Description and Documentation," Center for Demography and Ecology, University of Wisconsin-Madison (http://www.ssc.wisc.edu/nsfh/home.htm).

James A. Sweet and Larry L. Bumpass (2002). "The National Survey of Families and

Households - Waves 1, 2, and 3: Data Description and Documentation," Center for Demography and Ecology, University of Wisconsin-Madison (http://www.ssc.wisc.edu/nsfh/home.htm).

Sweet, James A., Larry L. Bumpass, and Vaughn Call (1988). "The Design and Content of the National Survey of Families and Households," Center for Demography and Ecology, University of Wisconsin-Madison, NSFH Working Paper No. 1.

Strawbridge, William J., Sarah J. Shema, Richard D. Cohen, Robert E. Roberts, and George E. Kaplan (1998). "Religiosity Buffers Effects of Some Stressors on Depression but Exacerbates Others," *Journal of Gerontology Series B: Psychological Sciences and Social Sciences*, 53(3): 118-126.

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 Non-white	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

	Mean	S.D.
Family Resources/Poverty (focal child all ages)		
Log Household Income / Poverty Line	1.17	0.82
Household Income Less than 200% of Poverty Line	0.21	0.41
Log Median Household Income in Census Tract	10.35	0.43
Poverty Rate in Census Tract	0.11	0.11
Received Public Assistance in Prior Year	0.05	0.21
Family Characteristics		
Nonwhite	0.14	0.34
Unmarried Parent	0.13	0.34
Marital Breakup Between Wave 1 and Wave 2*	0.10	0.30
Mother Is a High School Dropout	0.11	0.31
Mother Has High School Education or Less	0.52	0.50
Child Characteristics		
Parent Does Not Expect Child to Graduate from College**	0.34	0.47
Parent Says Focal Child is Difficult to Raise**	0.08	0.27
Focal Child Repeated a Grade**	0.08	0.26
Composite of Discipline Trouble** +	0.09	0.29

* 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.

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
Std. 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 is a dummy variable indicating any participation in fraternal groups, service clubs, veterans' groups, or political groups. Work-related organization 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)

	Mean	S.D.
Education, Income, Public Assistance		
High School Education or More (includes GED)	0.94	0.24
Some College or More*	0.65	0.48
College Graduate*	0.24	0.43
Percentile Household Income/Poverty Line*+	0.51	0.29
Household Income/Poverty Line Above 25th Percentile*+	0.76	0.43
Received Public Assistance in Prior Year	0.06	0.23
Behavior and Health		
Non-Smoker (smoked <1 cigarette per day in last month)	0.71	0.45
Age of First Sex 16 or over (includes never)	0.75	0.43
Normal Weight ($18.5 \leq$ Body Mass Index < 25.0)	0.51	0.50
Covered by Health Insurance	0.77	0.42
Subjective Happiness (scale from 1-10)	7.39	1.5
Composite Locus of Control (scale from 1-5)**	3.81	0.75

* Sample restricted to those age 25 or more 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.

Table 6a: Effect of Youth Disadvantage on Adult Outcomes: T-statistics for 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+)	HH Income/ Poverty Line Above 25th Percentile (age 25+)	Public Assistance
Family Resources/Poverty						
Log Household Income / Poverty Line	5.84***	6.67***	8.11***	6.32***	3.34***	-2.07**
HH Income Less than 200% of Poverty	-6.07***	-4.64***	-5.43***	-5.94***	-2.56***	2.27**
Log Median HH Income in Census Tract	4.76***	5.75***	6.51***	6.59***	4.77***	-2.42**
Poverty Rate in Census Tract	-4.29***	-4.03***	-3.83***	-5.11***	-4.40***	3.89***
Received Public Assistance	-4.54***	-3.74***	-3.28***	-3.24***	-2.26**	1.92*
Family Characteristics						
Nonwhite	-4.62***	-4.23***	-3.47***	-4.89***	-4.45***	3.07***
Unmarried Parent	-7.35***	-2.85***	-3.45***	-2.20**	-1.85*	2.62***
Marital Breakup Between Waves 1 & 2	-0.86	-0.49	-1.00	-1.21	-1.98**	2.89***
Mother Is a High School Dropout	-3.48***	-5.39***	-4.10***	-5.06***	-4.49***	1.39
Mother Has High School Education or Less	-4.24***	-8.28***	-10.16***	-6.50***	-3.82***	1.70*
Child Characteristics						
Not Expected to Graduate College	-7.65***	-7.75***	-5.92***	-1.52	-1.29	3.02***
Difficult to Raise	-3.26***	-2.67***	-1.80*	-0.84	-1.15	0.90
Repeated a Grade	-5.38***	-4.45***	-2.57***	-4.23***	-2.59***	4.44***
Composite of Discipline Trouble	-2.54**	-2.03**	-3.03***	-1.18	-0.45	1.64*

Note: Significance levels: *: 10 percent; ** 5 percent; *** 1 percent. Each cell contains t-statistic for coefficient of 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: T-statistics for 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	2.42**	3.30***	4.10***	5.95***	-1.04	3.16***
HH Income Less than 200% of Poverty	-1.91*	-2.77***	-2.12**	-6.15***	0.52	-1.74*
Log Median HH Income in Census Tract	2.25**	4.23***	2.50**	5.31***	0.54	4.80***
Poverty Rate in Census Tract	-0.78	-3.74***	-2.27**	-4.78***	-1.87*	-3.53***
Received Public Assistance	-2.57***	-3.09***	-1.00	-3.65***	-2.36**	-2.18**
Family Characteristics						
Nonwhite	2.50**	-1.98**	-3.63***	-4.28***	-1.58	-0.19
Unmarried Parent	-3.30***	-4.28***	-1.59	-5.21***	-1.15	-0.20
Marital Breakup Between Waves 1 & 2	-1.57*	-3.56***	-1.44	-3.02***	-2.41**	-1.41
Mother Is a High School Dropout	-0.91	-1.41	-3.41***	-5.20***	-0.72	-2.07**
Mother Has High School Education or Less	-2.55**	-3.73***	-4.78***	-4.55***	0.18	-4.23***
Child Characteristics						
Not Expected to Graduate College	-4.10***	-3.25***	-0.63	-5.43***	-1.94*	-4.58***
Difficult to Raise	-1.87*	-1.48	-3.20***	-2.65***	-1.37	0.33
Repeated a Grade	-1.64*	-2.44**	-2.71***	-3.26***	0.17	-2.48**
Composite of Discipline Trouble	-2.31**	-1.72*	-2.19**	-3.73***	-0.61	0.42

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	
	Coefficient	SE	Coefficient	SE	Marginal 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+)	HH Income/ 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	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, an 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 ≥ 16	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	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+)	HH Income/ Poverty Line Percentile (age 25+)	HH Income/ Poverty Line Above 25th Percentile (age 25+)	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	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 value of buffering effect when we regress outcome (column) on disadvantage (row), percentile of parent's religious attendance, an 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	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		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		Marital Break-Up b/w 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 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
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
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
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

Significance levels: *: 10 percent; ** 5 percent; *** 1 percent. Each specification measures the value and standard error of the buffering effect of social organization and is analagous to the baseline specification. We regress outcome on disadvantage, participation in social organization, an interaction of disadvantage and 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.

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		Marital Break-Up b/w Wave 1 and 2	
	Effect	SE	Effect	SE	Effect	SE	Effect	SE	Effect	SE
Baseline	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
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). 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 one household size dummies (three, four, five, six or more persons). All specifications also include the standard controls: percentile of parents' religious 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		Marital Break-Up b/w 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 Grandparents' 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	0.26**	0.10	0.37*	0.21	-0.38***	0.10	0.15	0.10	1.18**	0.51
Horserace Interaction	0.39	0.34	2.05***	0.66	-0.03	0.33	0.45	0.32	-0.44	1.57
Buffering Effect of Religious Participation	0.44***	0.15	0.53**	0.25	0.98***	0.22	0.85*	0.45	0.99***	0.33
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

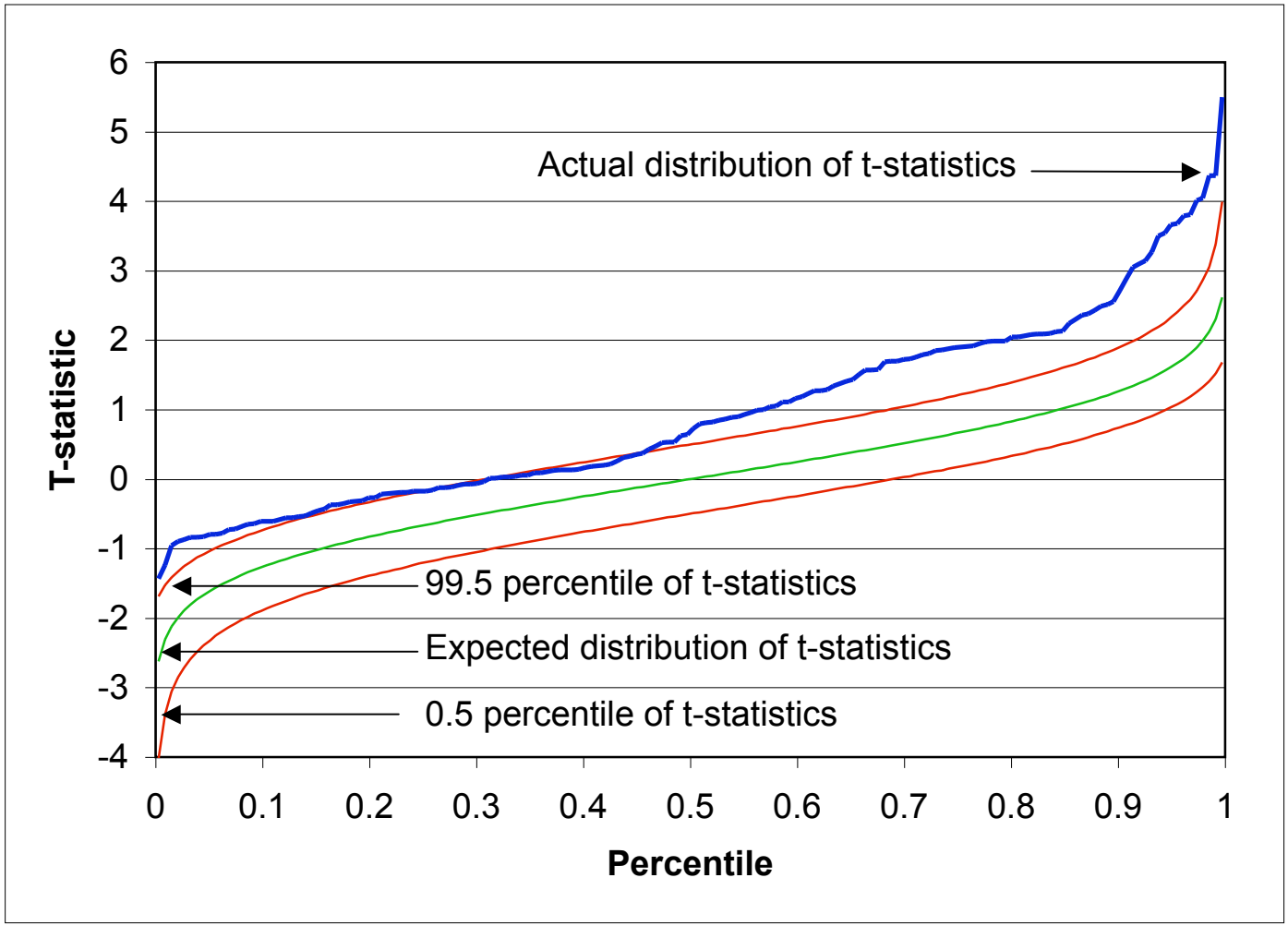
Significance levels: *: 10 percent; ** 5 percent; *** 1 percent. Horserace adds a direct effect (Predicted Attendance, Neighborhood Income, Belief) and its interaction with disadvantage to the baseline specification. Standard focal child controls along with maternal education, region, and household size used to predict religious attendance, with R-squared of 0.10. 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 mean of zero and standard deviation of one.

Table 13: Buffering Effects by Subpopulation

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		Marital Break-Up b/w Wave 1 and 2	
	Effect	SE	Effect	SE	Effect	SE	Effect	SE	Effect	SE
Baseline, from Table 9 (N=1952)	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
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

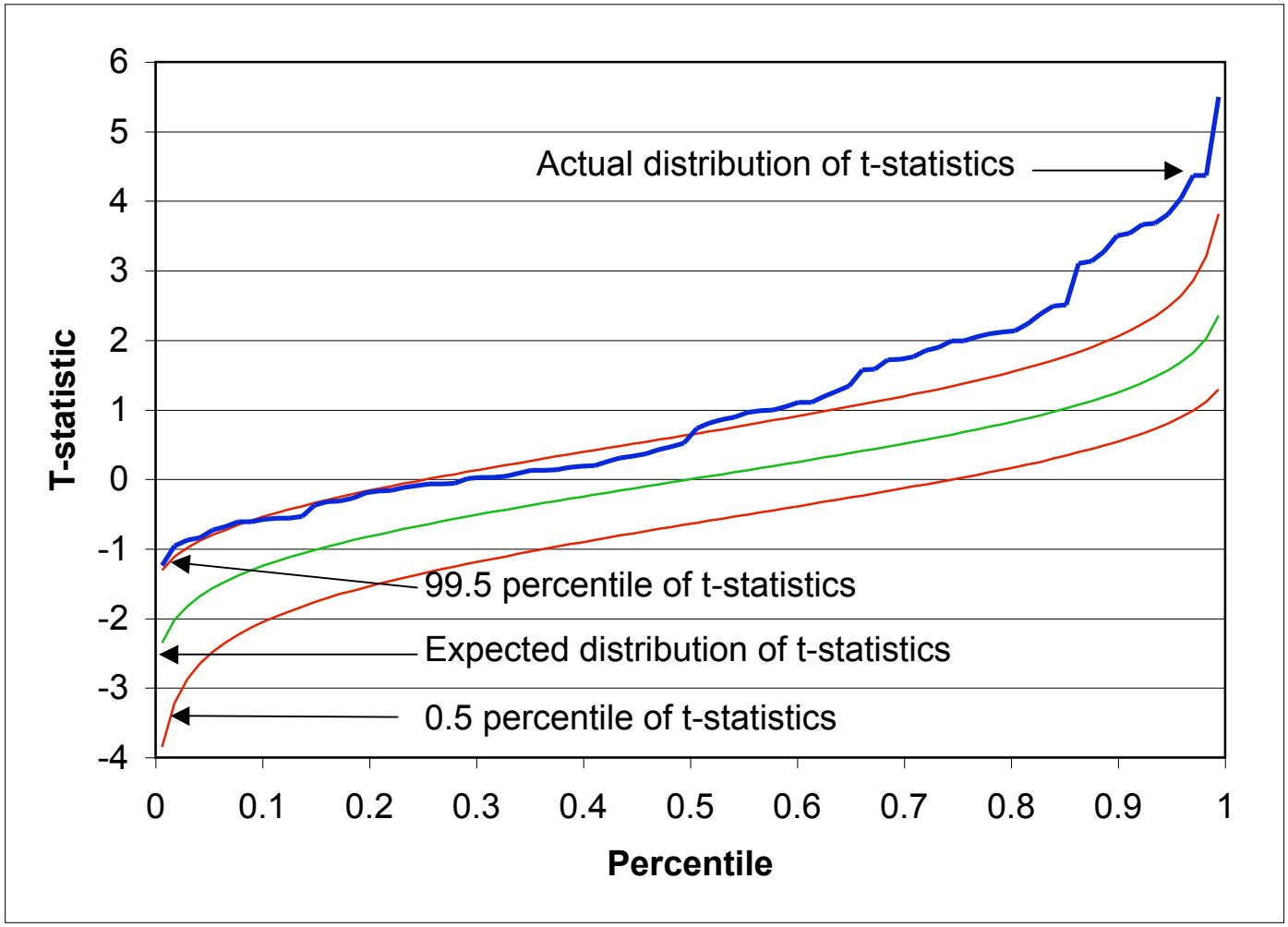
Significance levels: *: 10 percent; ** 5 percent; *** 1 percent. Dashes indicate sample cannot be or is already cut along those dimensions.
All regressions include the standard controls: percentile of parents' religious attendance, race, sex, and age dummies, an indicator of whether a biological child, and year of interview dummies.

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



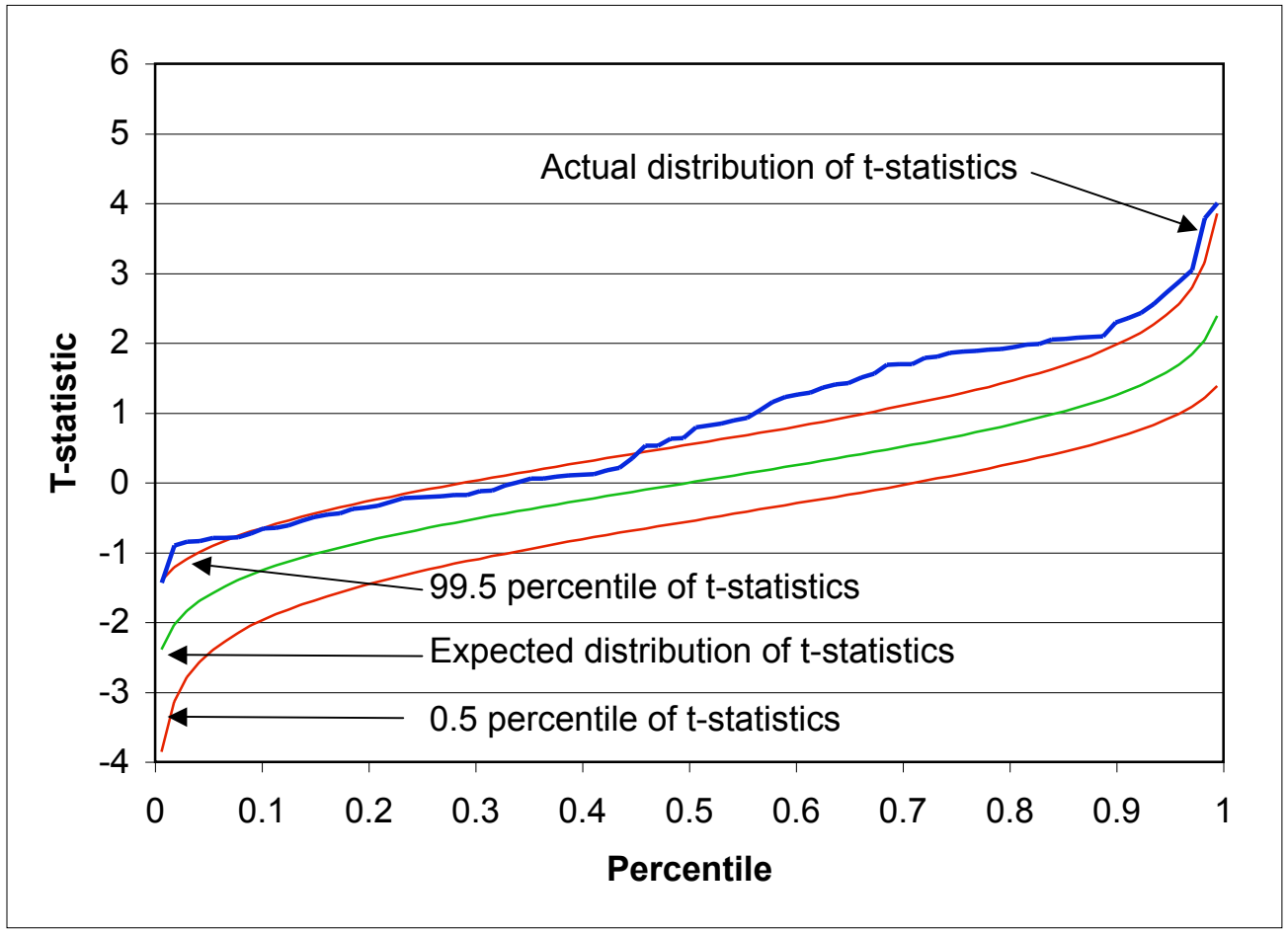
The figure shows the expected distribution and the 0.5th and 99.5th percentile of the ordered distribution of t-statistics.

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.