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The Effects of Child Sponsorship on Younger Sibling Confidence

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Abstract: Do spillover effects occur between siblings in sponsored families? With both the approach of human figure drawings and a survey, this paper aims at identifying the possible spillover effects to non-sponsored, younger siblings of sponsored children with regards to the child's confidence. Using the summary index method to create indices from the elements quantified in the child's drawings and an instrumental variable OLS with clustered standard errors, children from both families with sponsored children and families with waitlisted children are interviewed. The spillover effects are then tested by taking the difference between the younger and older siblings of the sponsored child then comparing the difference between the younger and older sibling of the waitlisted child. The results show that there exist only spillover effects with regards to the level of aggression in females.

1. Introduction

It has been shown that child sponsorship does have a positive affect on the sponsored child (Wydick, 2010; Ramirez, 2011; Ross, 2011). In particular, child sponsorship has a positive impact on the self-esteem of the sponsored child (Ross, 2011). It is said that self-esteem can affect one's life outcomes including life-span trajectories of affect, depression, relationship satisfaction, job satisfaction, and health (Orth 2011). If child sponsorship has a positive influence on the sponsored child with regards to the child's self-esteem, what effects might it have on the younger, non-sponsored sibling of the sponsored child? Given that "among socio-economic factors, family income seems to be most related to self-esteem among adolescents" (Veselska 2009), it could be conceived that child sponsorship may affect not only the sponsored child, but other children in the family. This research aims to test the possible spillover effects from the sponsored child to the younger, non-sponsored younger siblings in a household.

Compassion International is one program that provides sponsorship for children in developing countries in the hope to "release children from spiritual, economic, social, and physical poverty" (Compassion International, 2012). Compassion International provides sponsorship for more than 1.2 million children in 26 different countries with monthly contributions ranging from \$25-\$40 (Wydick et al, 2010). These contributions help fund the child directly through education fees, food, and health expenses, or they support projects and programs that the child participates and benefits (Compassion International, 2012). Given that this sponsorship program provides additional funds to the sponsored child, this could mean that funds within the family are freed up for use on another child who is not receiving sponsorship. This can be perceived as a family income increase, which can lead to not only the sponsored child's self-esteem to increase, but also the younger, non-sponsored child's self-esteem to increase.

In an attempt to help as many families as possible and to help those who most need it, Compassion has many requirements and restrictions to who sponsorship is given. First, the child must come from a family that is under the poverty level. In addition to being enrolled in school, the child must be between the age of three and nine and not sponsored by another organization. Compassion also limits the number of children that can be sponsored within a family. Special priority is given if a child is orphaned, living with a single parent or other family member, or a refugee. There is also priority given to children in kindergarten, first, and second grade so as to maximize the number of years a child is eligible for sponsorship.

Using a survey similar to that used in the research done by Wydick et al (2010), Ross and Wydick (2011), and Ramirez (2011) and a process called human figure drawings, research is done on the spillover effects to younger, non-sponsored siblings of sponsored children with respect to the child's confidence. In order to do this, surveys will be given to both currently sponsored children and children who were approved for sponsorship but never received sponsorship (referred to as waitlisted children) as well as older and younger siblings of both groups. The spillover effect will then be tested by looking at the difference between the younger and older sibling of the sponsored child and the younger and older sibling of the waitlisted child.

The paper is structured as follows: section 2 discusses the literature, section 3 presents the methodology and data, section 4 presents the results, and section 5 concludes.

2. Literature Review

Current research has shown that child sponsorship has a positive affect on the sponsored child, but what effects does it have on the non-sponsored, younger siblings' self-esteem? It is conceivable that being the younger sibling of a sponsored child could affect a child's self-esteem in either a positive or a negative way. For one thing, having an older sibling who is sponsored may mean there are more resources available within the family, which can then be used on the non-sponsored, younger sibling. On the other hand, the younger sibling may wonder why he/she was not chosen for sponsorship, causing a decrease in the non-sponsored child's self-esteem. In order to ask this question, several things must first be considered. Does child sponsorship have a positive influence on a sponsored child and, if so, how does it affect their self-esteem? There is very little research on child sponsorship; however, what little research does exist shows that sponsorship does lead to a higher self-esteem level than their non-sponsored peers (Ross, 2011). The second question to ask is, do spillover effects occur between children? If there were no evidence that spillovers occur between children, there would be no reason to believe child sponsorship would have spillover effects to non-sponsored siblings. However, there is an abundance of research suggesting that there are spillover effects ranging from performance in school (Hanushek, 1999) to the use of drugs and alcohol (Case, 1991; Kling; 2007) between children. After presenting the literature that would suggest that spillover effects might exist, literature providing support on how to measure the self-esteem of a child is presented.

There is very limited research on the effects of child sponsorship, but what research does exist has found there to be a positive affect on the sponsored child with regards to years of education completed, the probability of employment, occupational choice, age of marriage and child-bearing, community leadership, dwelling quality, and life satisfaction (Wydick, 2010 and Ramirez, 2011). In addition to these findings, Ross (2011) found that sponsored children scored higher than their non-sponsored peers on a scale adapted from the Rosenberg Self-Esteem Scale¹. After surveying 337 sponsored children in Kenya and 233 of their non-sponsored siblings, Ross (2011) found that sponsored children scored 0.924 points higher on a self-esteem scale, were 13.7 percent more likely to expect a professional occupation, and expected to achieve 0.460 additional years of education when compared to their non-sponsored siblings. Here, Ross (2011) compared both younger and older siblings to the sponsored child. As Ross (2011) was looking at the direct effect of child sponsorship and this experiment is looking at the spillover effects, the difference between the younger siblings of the sponsored children and the older siblings of the sponsored child will be compared to the difference between the younger siblings of the waitlisted child and the older sibling of the waitlisted child, not compared to the sponsored sibling directly.

The research on the spillover effects for children is vast. Looking at three consecutive cohorts of Texas public elementary students attending grade three in 1992, Hanushek (1999) shows that a child's math achievement scores are positively correlated with the average score of his/her peers. Spillover effects can also be seen with regards to drug use, alcohol use, church attendance, and education (Case, 1991; Kling, 2007). Case (1991) finds that a child living in a neighborhood with a large population of children involved in crime and drug and/or alcohol use have a higher probability of also being involved in crime, drug use, and/or alcohol use. Using the Moving to Opportunity program in the U.S., Kling (2007) looks at the effects on children who moved to a safer neighborhood with lower poverty rates. The outcomes are mixed, but the authors find there to be a possible positive affect on youth female's education. Another example of education spillover effects and children can be found when looking at the Progressa program in Mexico. Bobonis (2008) found that the conditional cash transfers of Progressa not only increased the enrollment into school of eligible children, but also increased the enrollment percentage of children in ineligible households. This literature supports the

¹ The Rosenberg Self-Esteem Scale was created by Dr. Rosenberg, a professor of Sociology at the University of Maryland.

idea that spillover effects between children exist and therefore, spillover effects to non-sponsored siblings can be expected.

Based on the existence of these spillover effects, what effects could be expected on the younger, non-sponsored sibling's self-esteem when there is an increase in the sponsored child's self-esteem? One explanation for an increased self-esteem in the younger, non-sponsored child can be explained by the self-esteem and socioeconomic status theory discussed by Twenge (2002). In this article, the author defines self-esteem as "the extent to which one prizes, values, approves, or likes oneself" (Twenge, 2002). Using this definition along with the self-esteem and socioeconomic status theory, it would suggest that an individual's self-esteem might be affected by one's educational attainment, occupational status, income, or a composite of these items. As this research is dealing with children and children have not realized all, if any, of these aspects, it can be expected that the child's self-esteem could be described as the expected outcome of these aspects. As child sponsorship frees up resources that would originally have been needed for the sponsored child, the resources may be shifted to the non-sponsored, younger sibling, lending the expectation of the child to complete additional years of education, which would lend to an expected high income and occupational status as an adult. Based on the SES theory, one would expect to see a non-sponsored, younger sibling's self-esteem to be higher than his/her peers, which do not have the increased resources due to having a sponsored sibling.

In addition to the self-esteem and socioeconomic status theory, Veselska (2009) cautions that additional elements need to be considered when looking at the self-esteem of a child. Such elements include gender and age, both of which will be used as controls in the model. As Veselska (2009) states that boys' and girls' self-esteem develop differently, this research will look at the possible spillover effects of sponsorship for both boy and girls together and separately.

In order to test the possible spillover effects, there is a group of literature that suggests the self-esteem of a child can be measured by having the child draw a picture of him/herself; a technique called human figure drawings. Inspection of human figure drawings is a technique used in many psychological researches to indicate the child's emotional status including the child's self-concept, anxiety, attitude, and conflict (Skybo, 2007). "It is hypothesized that [Human figure drawings] reflect primarily on a child's... attitude towards himself and toward the significant other in his life" (Debiasi, 2012). The aspects found within the drawing may

indicate a confidence or lack of confidence in oneself. When looking at a child's drawings, Skyo (2007) stresses that, "one should always consider the whole figure drawn and the combination of various signs and indicators as well". Keeping this in mind, this research includes twenty aspects by which each child's drawing is scored based on the literature available on human figure drawings. These elements are then categorized according to the psychological aspect they may be indicating. These psychological aspects are then used as dependent variable to measure the spillover effect to the younger, non-sponsored siblings.

Daglioglu (2010) provides elements of a child's drawing that may indicate insecurity and inadequacy. These elements include tiny head, the omission of hands, a monster or grotesque figure, and the omission of hands, legs, or feet, all of which are included in this research. In addition to these items, Skyo (2007) suggests that drawing the figure small or shading in parts of the figure may indicate insecurity or anxiety. Based on the literature, five self-esteem indices are created based on the child's drawings. These indices are insecurity, shyness, anxiety, aggression, and self-efficacy. Elements included in the insecurity index include: monster, grotesque, or genitals, shading of the face or body, missing the nose or mouth, frowning or crying, drawn in a dark color, drawn in a single color, the inclusion of lightning, drawing a tiny figure (less than five centimeters), missing the arms or hands, missing legs, and drawing a tiny head. All elements included in each index can be found in Table 1.

3. Methodology / Data

Though there may be several ways the non-sponsored, younger sibling could be affected, the specific spillover effect considered in this research is confidence levels. In order to look at the confidence of the child, a survey, as well as a technique often used by psychologists called human figure drawings, will be used. The children interviewed were asked to draw a picture of themselves standing in the rain (examples can be found in the Appendix B). Each child was given one sheet of blank, white paper, a standard set of colored pencils, and ten minutes to complete their drawing. Each drawing was then checked for specific characteristics often used to identify confidence or lack thereof. In addition to the drawings, a survey was given which included five questions related to self-esteem. For this section of the survey, the child was asked to answer: strongly agree, agree, disagree, or strongly disagree. Some of these questions included statements such as: at times I feel I am no good at all or I feel I have much to be proud of. Using both the survey questions and the picture elements, indices for self-esteem, insecurity,

shyness, anxiety, aggression, and self-efficacy are created to compare the treatment group (younger and older siblings of sponsored children) and the control group (younger and older siblings of waitlisted children). Using these indices, the hypothesis that child sponsorship does have spillover effects to younger, non-sponsored siblings of sponsored children will be tested.

H₀: Child Sponsorship has no affect on the younger, non-sponsored sibling's self-esteem, insecurity, shyness, anxiety, and self-efficacy.

H₀=0

H₁: Child Sponsorship has an affect on the younger, non-sponsored sibling's self-esteem, insecurity, shyness, anxiety, and self-efficacy.

H_A≠0

In order to test this hypothesis, both families with sponsored children and families with children who are not sponsored but are on the waitlist to be sponsored will be included. Being on the waitlist for sponsorship implies that the family and child meet the necessary requirements for sponsorship, but there are not enough funds at the moment for the child to receive sponsorship. This allows for a valid counterfactual to test the hypothesis, as it would be expected that siblings of waitlisted children would follow the same projection of outcomes as the younger child in the sponsored family if the sponsored child in the family had never received sponsorship.

Working with Compassion International, children were interviewed from both family types in Jakarta, Indonesia. The sample included 521 randomly chosen individuals ranging from the age of 4 up to 27 with an average age of 10.8. My subjects included 397 individuals in sponsored families and 124 children in non-sponsored families. Of the children interviewed 281 are girls and 240 are boys. Within the sponsored families I interviewed 286 sponsored children, 55 younger non-sponsored siblings, and 101 older non-sponsored individuals. In the non-sponsored families, I interviewed 77 waitlisted children, 16 were younger siblings of the waitlisted children and 14 were older siblings of waitlisted children. Note that the younger siblings of waitlisted children and the older siblings of waitlisted children may also be on the waitlist as their families qualify for sponsorship and if they are of the eligible age. This does not change the validity of my counterfactual as many of the younger siblings of sponsored children may also be waitlisted, or they may not be eligible simply due to the rules of sponsorship in Compassion restricting the number of children within one household that may be sponsored. Within Compassion International, families cannot have more than two children

receiving sponsorship (three under special circumstances, such as twins in the family, which were not observed in this research). Therefore, these siblings may only be ineligible due to the family having two children that are sponsored, not due to age or any other family requirement. The age rule requires that the child be between the age of three and nine in order to receive sponsorship. This implies that many of the children on the waitlist may have siblings that were once on the waitlist but are no longer eligible for the program due to age eligibility.

Four different Compassion sites within Jakarta, Indonesia are used for this research. These sites were not chosen at random, but were chosen by their roll out date so that the age requirement could be utilized as an instrumental variable. Of these four sites, two sites began in February of 2003 and the other two began in February 2007. Given these differences in start dates and the age requirement for eligibility, an instrument is created in order to explain why a sponsored child may have received sponsorship or why a child did not receive sponsorship. These instruments include dummy variables for the age of the child at program roll out, ranging from negative three and below up to age nine. This will be highly correlated with the sponsored child variable, but will be exogenous to the confidence level of the individual making it a valid instrument.

The model used to test the hypothesis includes sponsored children (S), younger siblings of sponsored children (YS), older siblings of sponsored children (OS), younger siblings of waitlisted children (YW), and older siblings of waitlisted children (OW) as well as controls (C) for sex, site, age, enumerator, and researcher.

$$Y_i = \beta_0 + \beta_1(S) + \beta_2(YS) + \beta_3(OS) + \beta_4(YW) + \beta_5(OW) + \beta_6(C)$$

The variables for the sponsored, younger siblings of sponsored, older siblings of sponsored, younger siblings of waitlisted, and older siblings of waitlisted are all binary variables taking on a value of one when the child is sponsored, waitlisted, etc. and zero when the child is not. Sex and age are used as control variables as children of difference sexes and ages may develop at different levels, which could affect how the child draws him/herself. For my control variable sex, the variable takes on a value of one for male and zero for female. A control for the project site the child is located in is also included as these sites may vary in degrees of poverty or may have other differences that could affect the children. Also included in the controls are dummy variables for the enumerator present and the researcher that was present. A dummy variable for the researcher was included to account for cultural and gender differences between those present. A summary of my variables can be found in Table 2.

Once the above model has been run, a difference will then be taken in order to test for significant spillover effects, using the below model

$$(\beta_2 - \beta_3) - (\beta_4 - \beta_5)$$

By doing this differences between older siblings and younger siblings within a treated household ($\beta_2 - \beta_3$) compared to the difference between older siblings and younger siblings in the controlled households ($\beta_4 - \beta_5$) allows for the spillover effect to be seen. If this difference is significantly different than zero, this would imply that there does exist spillover from sponsored children to their younger, non-sponsored siblings within a treated household. This difference would be expected to be significant for two reasons. First, having a sponsored child may take more pressure off the family to provide schooling and other necessities to the now sponsored child, which free up resources that could be allocated to other children within the family. Second, there is a possibility that the non-sponsored child could be affected negatively as he/she may not understand why he/she was not chosen for sponsorship.

In order to test the hypothesis, an instrumental variable regression with clustered standard errors at the household level is used. Clustering at the household level is used, as children within the same household would be expected to have correlated outcomes. To check multiple areas of self-esteem, six indices are created: self-esteem (survey questions only), insecurity, shyness, anxiety, aggression, and self-efficacy. For all indices, a method presented by Anderson (2008) called Summary Index is used. This involves a process in which each element is coded such that a higher number indicates a more “positive” outcome; each outcome is demeaned by the pooled study mean and divided by the standard deviation of the control group. From there, these outcomes are weighted by the inverse of the covariance matrix of the transposed outcomes. By using this method, elements of the index will be weighted by the covariance matrix, which allows more weight to be given to the elements that provide additional information and less weight to be given to those elements that provide no new information.

As this research includes multiple inferences, a P-Value threshold will be created using the Bonferroni-Holm method. The likelihood that at least one of many hypotheses is significant increases as the number of hypotheses increases giving reason to use threshold p-values for comparison. The Bonferroni-Holm method is used because it is preferred to the Bonferroni method as it allows for more rejections of the null hypothesis while still being more

conservative than no p-value correction. These p-value thresholds are created using an alpha equal to 0.10, or at the ninety percent confidence interval. Using this alpha, the first p-value is created by dividing alpha by the number of hypotheses, in this case six, giving a value of 0.017. The second p-value is created by dividing alpha by the number of hypotheses minus one, five, giving a value of 0.020. This pattern continues until six p-value thresholds are created to compare to the p-values of the outcomes. Ordering the outcome p-values from smallest to largest, they are then compared to the threshold p-values in order. If the p-value of the outcome is smaller than the p-value of the threshold, the null hypothesis for this outcome is rejected and the next p-values are compared. This continues until the threshold p-value is larger than the compared outcome p-value at which point the null hypothesis being compared and all of those yet to be compared are not rejected.

4. Results

A first glance at the data differences can be seen in Table 3. Looking at the t-tests conducted between the sponsored children and all non-sponsored children as well as the difference between the younger siblings of the sponsored children and all other non-sponsored children, some differences might be expected. First, looking at the difference between the sponsored children and all other non-sponsored children, there seems to be a significant difference with regards to the child's insecurity, shyness, anxiety, and self-efficacy. These differences may suggest that there is a direct impact from child sponsorship to the sponsored child for these aspects. The second difference, between the younger siblings of the waitlisted children and all other non-sponsored children may suggest possible spillover effects with regards to the child's shyness.

4.1 *Self-Esteem Index*

The self-esteem index is an index created by combining all five questions on the survey all of which pertain to self-esteem. These questions each require answers of strongly agree, agree, disagree, or strongly disagree. A list of these questions can be found in the survey in the Appendix A.

As this index is created using the Summary Index method discussed earlier, the self-esteem index is approximately normal with a mean of 0.001, a maximum of 1.523 and a minimum of -1.371. The average self-esteem index score for each group of children can be

found in Table 2. A histogram of the means for the self-esteem index can also be found in Figure 1.

When an OLS regression using the age instrumental variable is run without controls, the coefficient on sponsored, older siblings of sponsored, and younger siblings of waitlist are all negative but insignificant (Table 4). The coefficients on the younger sibling of the sponsored and the older sibling of the waitlist children are positive but also not significant. When the controls are added, the coefficients of the sponsored child, younger sibling of the sponsored child, older sibling of the sponsored child, and younger sibling of the waitlisted child as well as age, site, and researcher are all negative but insignificant. Only the coefficients on the older sibling of the waitlist, sex, and the enumerator are positive; however, they are still not significant. As the coefficient on the sponsored child is not significant, this is contrary to the findings by Ross (2011).

After running the regressions, the difference between the younger and older sibling in the treated household minus the difference between the younger and older sibling in the control household are tested. Without controls, the coefficient of this difference is positive but insignificant. When the controls are added, the coefficient remains approximately the same and still not significant. This would suggest there does not exist any spillover effects to the younger, non-sponsored siblings of sponsored children with regards to the self-esteem survey questions.

4.2 Insecurity Index

The insecurity index is created using the picture elements which include: monster, grotesque, or genitals, shading of the face or body, missing the nose or mouth, frowning or crying, drawn in a dark color, drawn in a single color, the inclusion of lightning, drawing the figure tiny (less than five centimeters), missing the arms or hands, missing the legs, and tiny head (Debiasi, 2012; Daglioglu, 2010; Skyo, 2007; Koppitz, 1968; Klepsch, 1982; Furth, 2002; Wadeson, 1971). This index is created using the Summary Index method mentioned earlier and is therefore approximately normally distributed with a mean of -0.034, a maximum of 1.375, and a minimum of -0.632. The average values for each child can be found in Table 1 and a histogram of the means for this index can be found in Figure 2. It is important to note that, because of the design of the index, a higher number on the insecurity index implies that the child is more insecure.

When the regression is run with the insecurity index without the controls, both the sponsored child and the older sibling of the sponsored child have a negative and significant coefficient at the 95% and 90% percent level, respectively (Table 4). This would imply that being sponsored or the older sibling of a sponsored child decreases the level of insecurity of the child. However, when the controls are added, all significance on the children drops away and only age and the researcher are significant. This could imply that the significance originally found on the sponsored child and the older sibling of the sponsored child can be explained by the age of the child, as age is significant at the 99% level. The coefficient of age is negative implying that males are less insecure than females. The significance on the variable for researcher implies that the children felt less insecure with the female researcher than the male researcher.

The differences between the younger and older siblings in the treated household and the younger and older siblings of the control household are negative, but not significant with or without the controls added. This would imply there does not exist any spillover effects to the younger, non-sponsored sibling with regards to the child's insecurity levels.

4.3 Shyness Index

The shyness index is created using elements from the picture data which include: missing the nose or mouth, drawing a tiny figure (less than five centimeters), poor integration of body parts, missing arms or hands, missing legs, erasure or scribble marks, and short arms. This index was created using the Summary Index method with a mean of -0.000, a maximum of 1.678, and a minimum of -0.441. The means for each child for the shyness index can be found in Table 1 and a histogram of the means for this index can be found in Figure 3. Again, it is important to note that a higher score on the shyness index implies that the child is more shy.

Running the regression for the shyness index without controls, all types of children included are positive and significant, and significance on these variables remains when the controls are added. With the controls, being sponsored implies a -0.860 point decrease at the 99% level, the younger sibling of a sponsored child implies a decrease of -0.507 points at the 90% level, the older sibling of a sponsored child implies a decrease of -0.779 points at the 95% level, the younger sibling of a waitlisted child implies a decrease of -0.423 points at the 90% level, and the older sibling of a waitlisted child implies a decrease of -0.518 points at the 90% level (Table 4). Since all of the children included in the regression are significant and negative, this may

indicate that being on the waitlist may cause a child to be more shy than his/her peers. This could be explained if the child knows why he/she is on the waitlist but doesn't understand why he/she has not received sponsorship. Unlike the insecurity index, age is not significant, but the researcher continues to be significant at the 90% level. This implies that the children felt less shy when the female researcher was present than when the male researcher was present.

Even though there is significance when the model is run, when the difference between the younger and older siblings in the treated household is compared to the difference between the younger and older siblings in the control household, this difference is not significantly different than zero with or without the controls. This would imply that there does not exist any spillover effects to the younger, non-sponsored sibling of the sponsored child with regards to the level of shyness of the child.

4.4 Anxiety Index

The anxiety index is created using the picture elements: shading of the face or body, missing the nose or mouth, frowning or crying, drawn in dark colors, drawn in a single color, the inclusion of lightning, smiling, drawn in light or cheery colors, missing arms or hands, and missing legs. As this index was, again, created using the Summary Index method, it is approximately normally distributed with a mean of -0.067, a maximum of 0.958, and a minimum of -0.790 with a higher score implying that the child has more anxiety. The means for each child variable for the anxiety index can be found in Table 1, and a histogram of the mean for this index can be found in Figure 4.

The regression without controls for the anxiety index gives no significance to any of the children variables. When the controls are added to the regression, the only significance is found on the sex of the child (Table 5). The positive coefficient implies that males will score, on average, approximately 0.111 points higher on the anxiety scale than females. Keeping in mind that a higher score on the scale implies more anxiety, this implies males tend to have higher anxiety than females.

When the differences between the younger and older sibling of the treated household are compared to the differences between the younger and older sibling of the control household, there is no significance for either regression with or without controls. This would imply that there does not exist any spillover effects from the sponsored child to the younger, non-sponsored child in the treated household for anxiety levels.

4.5 Aggression Index

The aggression index is created using the Summary Index method and includes picture elements: huge figure (fifteen centimeters or larger), monster, grotesque, or genitals, long arms, and missing the arms or hands. This index has a mean of 0.000, a maximum of 1.771, and a minimum of -0.467. A higher score on this index would imply more aggression and a lower score would imply less aggression. The average score for each child variable and the aggression index can be found in Table 1, and a histogram of the means for this index can be found in Figure 5.

Using the IV regression, significance is found on all child type variables except the younger sibling of the waitlisted child (Table 5). This would indicate that a sponsored child will, on average, score approximately -0.430 points lower on the aggression index, a younger sibling of a sponsored child would score approximately -0.363 points lower, an older sibling of a sponsored child would score approximately -0.399 points lower, and the older sibling of a waitlisted child would score approximately -0.442 points lower, all at the 90% level. However, when the controls are added, all significance is dropped and only the sex and site are then significant. The significance on sex would imply that males will, on average, score 0.128 points higher on the aggression index than females at the 99% level, indicating that males tend to be more aggressive than females.

The differences between the younger and older siblings of the treated household and the younger and older siblings of the control household are also not significant. This would imply that there does not exist any spillover effects to the younger, non-sponsored sibling in a treated household with regards to aggression.

4.6 Self-Efficacy Index

The self-efficacy index is created using the picture elements: carrying an umbrella or protected by some shelter, body language, tiny head, and short arms. This index is created using the Summary Index method, is approximately normally distributed, and has a mean of 0.000, a maximum of 0.654, and a minimum of -3.207. A higher score for this index implies that the child is more self-efficient and a lower score implies the child has a lower view of his/her self-efficacy. The average score for each child variable and the aggression index can be found in Table 1, and a histogram of the means for this index can be found in Figure 6.

The regression on the self-efficacy index shows that being a sponsored child will increase the self-efficacy score by approximately 0.382 points at the 95% level and that being the younger sibling of a waitlisted child will increase the score by approximately 0.311 points at the 90% level; with no significance found for the other types of children (Table 5). When the controls are added, all significance on the type of child is dropped and only the control for sex is significant implying that all significance originally found for the sponsored children and the younger siblings of a waitlisted child can be explained by the sex of the children. As sex is significant, this would imply that males will score approximately 0.081 points lower on the self-efficacy scale than females meaning that females tend to be more self-efficient.

The differences between the siblings in the treated household and the siblings in the control household are also not significant. This would indicate that there does not exist any spillover effects to the younger, non-sponsored siblings in the treated households.

Given that some literature suggests that males and females may develop differently than each other, the regressions are re-run looking at first, only males and second, only females.

4.7 Males Only

For the males in the sample, 140 are sponsored, 25 are younger siblings of the sponsored, 42 are older sibling of the sponsored, 43 are waitlisted, 7 are younger siblings of the waitlisted, and 7 are older siblings of the waitlisted. The average age for this group is 10.65 with a minimum of 4 and a maximum of 27². Histograms of the dependent variable separated for male and female can be found in Figures 7 through 12 and the regressions can be found in Table 6 and Table 7.

Looking at the self-esteem index, without controls there is no significance on any of the child variables, but the coefficients are now positive instead of negative as in the model including all sexes. When the controls are added, significance is then found on the older sibling of the waitlisted child. This finding indicates that the older sibling of a waitlisted child will, on average, score 0.622 points higher on the self-esteem index at the 90% level. However, when the difference is taken between the siblings in the treated household and the siblings in the control household, there is no significance. This would indicate that, though older siblings of the waitlisted child tend to score higher, there is no spillover effect to the younger, non-sponsored sibling of the sponsored child for males.

² The "child" aged 27 is the older sibling of a sponsored child age 11.

Using the insecurity index, with no controls there is no significance on any of the child variables. This lack of significance holds even after the controls are added. When the difference is taken between the siblings of both houses, there is still no significance. Again, this would imply there does not exist any spillover to the younger, non-sponsored sibling of the sponsored child when looking at only the males and insecurity.

When the shyness index is run without controls, the children in the treated household are significant. On average, being a sponsored child will lead to a -0.733 point decrease on the shyness scale at the 99% level, being the younger sibling of a sponsored child would lead to a -0.482 point decrease at the 95% level, and being the older sibling of a sponsored child would lead to a -0.713 point decrease at the 99% level. Keeping in mind that a decrease in the scale would indicate that the child is less shy, this may indicate that simply being in a treated household may lead to a decrease in shyness. However, when the controls are added, only the coefficient on the sponsored child stays significant, indicating that sponsorship leads to a decrease on the shyness scale of -0.504 points at the 90% level. When the differences are tested between the two families, the difference is not significantly different than zero. Again, this would imply that, for males, there is no spillover effect to the younger, non-sponsored sibling of sponsored children when looking at the level of shyness.

The anxiety index, when looking at only the males in the sample, does not show any significance on the child type with or without the controls. The difference between the children within the two households is also not significantly different from zero. This would indicate that, for males, there is no spillover effect to the younger, non-sponsored sibling of sponsored children with regards to anxiety.

The aggression index, similarly to the anxiety index, does not show any significance when either the controls are included or withheld. The difference between the treated and control household siblings is also not significantly different than zero. This would indicate that there does not exist any spillover to the younger siblings of the sponsored children with regards to aggression when only looking at males.

When looking at the self-efficacy index, there is no significance on the variable of the children with or without the controls. However, there is significance on the site variable. This significance may be explained by the slight difference between the last site location and the other sites (coded as the highest value). The last site was in a location that had an orphanage. Many of the children from this site were orphans themselves, or were friends with children who

were orphaned. Being an orphan may mean that the child is used to taking care of him/herself leading to the increased score on the self-efficacy index. When the differences are taken between the children in the treated household and the children in the control households, there is no significance. Therefore, it can be concluded that there does not exist any spillover effects to the younger, non-sponsored siblings of sponsored children with regards to their self-efficacy, when looking at only males.

4.8 Females Only

Looking at females only and the self-esteem index, there is no significance on any variables with or without the controls. The differences between the younger and older sibling in the treated household is also not significantly difference than the difference between the younger and older sibling in the control household. This would indicate that, when looking at only females, there is no spillover effect on the self-esteem index from sponsored children to their younger, non-sponsored siblings (Table 8).

Similarly, the insecurity index does not show significance for either regression with or without the controls; however, when the controls are added, there is a negative and significant coefficient on the researcher that was present. As there were two researchers, one male and one female, this would indicate that the female subjects were less secure when the male researcher was present or more secure when the female researcher was present and would score, on average, 0.111 points more on the insecurity index at the 99% level with the male researcher. The difference between the siblings of the treated household and the siblings in the control household is not significant, implying there to is no spillover effect on females with regards to their insecurity from the sponsored sibling.

Using the shyness index and only looking at females, both being sponsored and being the older sibling of a sponsored child is significant. This would imply that, without controls, the sponsored child will score, on average, approximately -0.751 points lower on the shyness index (indicating that she is less shy) and that the older siblings of the sponsored child will score approximately -0.658 points lower on the shyness index, both at the 95% level. However, when the controls are added, only the sponsored child continues to hold significance indicating that the female sponsored children will score approximately -0.593 points lower on the shyness index at the 90% level. Not including the controls, the difference between the younger sibling and the older siblings in the treated household and the younger sibling and the older sibling in

the control household is significant at the 90% level and positive. This would indicate that there is a negative spillover effect to the younger sibling of the sponsored children, i.e. the younger siblings of sponsored children are shyer. When the controls are added; however, this significance does not hold. This may imply that the significant difference can be explained by one of the controls.

The anxiety index, with and without controls, does not show any significance on the types of children; however, there is significance on the researcher present. This would indicate that the female subjects were more anxious when the male researcher was present at the 95% level or less anxious when the female researcher was present (Table 9). The difference between the children in each household is not significantly different than zero indicating that there does not exist any spillover effects to the younger female siblings of sponsored children with regards to anxiety.

When the regression is run for the aggression index without controls, only the older sibling of the waitlisted children is significant at the 90% level. This would indicate that the older female siblings of the waitlisted children, on average, score -0.535 points lower on the aggression index (indicating a lower level of aggression). With the controls added; however, the significance drops away. The difference between the siblings in the treated household and the control household is negative and significant at the 95% level when the controls are excluded. When the controls are added, the difference continues to be negative but is now significant at the 99%. This would indicate that there does exist a positive spillover to the younger, non-sponsored female siblings of the sponsored children before using the Bonferroni-Holm p-value comparison.

Given that this p-value is significant, the comparison between the outcome p-value and the threshold p-value of the Bonferroni-Holm correction must be done. The Bonferroni-Holm first p-value is a value of 0.0167 at the 90% confidence interval. As the p-value of the outcome (0.008) is less than this, it can be concluded that the null hypothesis is rejected and that the significance holds. Therefore, there does exist spill over between younger, non-sponsored females and sponsored females with regards to aggression. Being the younger, non-sponsored female sibling of a sponsored child, leads to less aggression.

Looking at the index for self-efficacy, without controls the sponsored child, older sibling of the sponsored child, and younger sibling of the waitlisted child are all positive and significant at the 95%, 90% and 95% level respectively. This would indicate that being a female

sponsored child would lend to a 0.698 point increase on the self-efficacy scale, being an older, female sibling of a sponsored child would lend to a 0.458 point increase on the self-efficacy scale, and being a younger, female sibling of a waitlisted child would lend to a 0.549 point increase on the self-efficacy scale. However, when the controls are added to the regression, all of the significance drops away and only the researcher present is significant and continues to be negative as in the outcomes above. The difference between the younger and older sibling in a treated household compared to the difference between the younger and older sibling in the control household is also significant at the 95% level both with and without controls; however, the coefficient is negative. This would indicate that there may exist a negative spillover to the younger, female, non-sponsored sibling of sponsored children with respects to self-efficacy but that it lends to the younger, non-sponsored child being less self-efficient.

Similar to the aggression index, as the outcome is significant, it must be compared to the next level of threshold p-value in the Bonferroni-Holm p-value correction. The second threshold p-value is 0.020. As the outcome p-value (0.028) is greater than the threshold p-value, the null hypothesis would not be rejected. This would imply that, though there may initially seem to be spillover effects to the younger, non-sponsored female siblings, it actually cannot conservatively be concluded that this spillover effect exists.

4.9 Robustness Check

In order to check whether the outcomes for the instrumental variable regression with clustered standard errors is robust, bootstrapped regressions with one thousand replications are run with the entire sample; these outcomes can be found in Table 11. Though there are slight differences in the standard errors between the original regressions and the bootstrapped regressions, these differences are not large enough to change the outcomes of the original regressions.

As there are no significant differences between the entire sample, bootstrapped standard errors are not re-run for the males and females separately. Because the separated regression for bootstrapped standard errors for males or females only would be pulled from the same sample, there is no reason to believe that bootstrapped standard errors would be difference when only looking at the males or females. Therefore, only the full sample bootstrapped standard error regressions are included.

5. Conclusion

Though there is evidence that child sponsorship does have a positive affect on the sponsored child, the spillover effects to younger, non-sponsored siblings of sponsored children are only found with regards to aggression for females only. This indicates that the younger, non-sponsored female siblings of sponsored children are less aggressive than their younger, non-sponsored female peers. Though the spillover effects may not be as vast as originally hypothesized, the spillover effect to the younger female siblings is hopeful and some additional research on more possible spillover effects of child sponsorship would be beneficial.

Additional research in different countries could provide more light on the possible spillover effects. One unique fact about Indonesia compared to the countries in which Compassion has been researched prior, is that Indonesia is primarily Muslim and Compassion works only with Christian churches. This may affect the outcomes and additional research in a more predominantly Christian country may show more or less spillover between the children.

Unfortunately, due to some adverse events during the time of research, there are some limitations to what has been done. First, the research had to be conducted in the church locations of Compassion, which limited the number of children from each family that could be interviewed. As such, though the sponsored child and waitlisted child were selected randomly, the sibling that attended with the selected child was not randomly selected. Many of the selected children had more than two children in his/her family, but the research was restricted to only the sponsored or waitlisted child and one sibling. The selection of this sibling was left up to the parent. This fact may influence the findings as the parents may have sent their “better” child in hopes it would better reflect on them, or they may have sent their “worse” child in hopes that the child might receive sponsorship. As this could go either direction, there is no way of knowing how or if this affects the outcomes of this research.

There is also little known about how Compassion chooses the families to receive sponsorship. Though there are requirements that must be met, once those families meet the requirements, there is no direction as to how families are then chosen given the limited funds. This may imply that the poorest families are chosen or that the families better known in the community may be chosen. As such, there is no way to know how this affects this research.

Also worth noting is the sample size of the siblings for the waitlisted children as it only included 16 younger siblings of waitlisted children and 14 older siblings of waitlisted children. A larger sample size for these groups may lend additional information.

References

- Angelucci, M., & De Giorgi, G. (2009). Indirect Effects of an Aid Program: How Do Cash Transfers Affect Ineligibles' Consumption?. *American Economic Review*, 99(1), 486-508. doi:10.1257/aer.99.1.486
- Bobonis, G. J., & Finan, F. (2009). NEIGHBORHOOD PEER EFFECTS IN SECONDARY SCHOOL ENROLLMENT DECISIONS. *Review Of Economics & Statistics*, 91(4), 695-716.
- Bramoullé, Y., Djebbari, H., Fortin, B. (2007). Identification of Peer Effects through Social Networks.
- Case, A. C., & Katz, L. F. (1991). The Company You Keep: The Effects of Family and Neighborhood on Disadvantaged Youths.
- Chevalier, A. (2004). Parental Education and Child's Education: A Natural Experiment.
- Chiapa, C., Garrido, J., & Prina, S. (2012). The effect of social programs and exposure to professionals on the educational aspirations of the poor. *Economics Of Education Review*, 31(5), 778-798.
- Compassion International. (2012). <http://www.compassion.com/>
- Daglioglu, H. E., Umit, D., Kan, Adnan. WCES-2010: A study on the emotional indicators in 5-6 year-old girls' and boys' human figure drawings. *Procedia - Social And Behavioral Sciences*, 2(Innovation and Creativity in Education), 1503-1510. doi:10.1016/j.sbspro.2010.03.226
- Debiasi, L. B., Reynolds, A., & Buckner, E. B. (2012). Assessing Emotional Well-Being Of Children in a Honduran Orphanage: Feasibility of Two Screening Tools. *Pediatric Nursing*, 38(3), 169-176.
- Farokhi, M., Hashemi, M. The Analysis of Children's Drawings: Social, Emotional, Physical, and Psychological aspects. *Procedia – Social and Behavioral Sciences* 30 (2011) 2219-2224.
- Furth, G. (2002). *The Secret World of Drawings: A Jungian Approach to Healing Through Art*. Toronto: Inner City Books.
- Hanushek, E., Kain, J. F., Markman, J. M., Rivkin, S. G. (1999). Do Peers Affect Student Achievement? *Conference on Empirics of Social Interactions*, January 14, 2000.
- Ioannides, Y. M., & Topa, G. (2010). Neighborhood Effects: Accomplishments And Looking Beyond Them. *Journal Of Regional Science*, 50(1), 343-362. doi:10.1111/j.1467-9787.2009.00638.x

- Klepsch, M., & Logie, L. (1982). *Children Draw and Tell: An Introduction to the Projective Uses of Children's Human Figure Drawings*. New York: Brunner/Mazel.
- Kling, J. R., Liebman, J. B., & Katz, L. F. (2007). Experimental Analysis of Neighborhood Effects. *Econometrica*, 75(1), 83-119.
- Koppitz, E. M. (1968). *Psychological evaluation of children's human figure drawings*. New York: Brunner/Mazel.
- Manski, C. F. (1991). Identification of Endogenous Social Effects: The Reflection Problem. *Review of Economic Studies*, 60(3), 531-542.
- Orth, U., Robins, R. W., & Widaman, K. F. (2012). Life-Span Development of Self-Esteem and Its Effects on Important Life Outcomes. *Journal Of Personality & Social Psychology*, 102(6), 1271-1288.
- Ramirez, H. E. (2011). Quantifying the Impacts of Child Sponsorship Using the Life Satisfaction Approach – Evidence from Bolivia
- Ross, P. H., Wydick, B. (2011). The Impact of Child Sponsorship on Self-Esteem, Life-Expectations, and Reference Points: Evidence from Kenya.
- Skybo, T., Ryan-Wenger, N., Su, Y. Article: Human Figure Drawings as a Measure of Children's Emotional Status: Critical Review for Practice. *Journal Of Pediatric Nursing*, 2215-28. doi:10.1016/j.pedn.2006.05.006
- Suryahadi, A., Priyambada, A., & Sumarto, S. (2005). Poverty, School and Work: Children during the Economic Crisis in Indonesia. *Development & Change*, 36(2), 351-373. doi:10.1111/j.0012-155X.2005.00414.x
- Topa, G. (2001). Social Interactions, Local Spillovers and Unemployment. *Review Of Economic Studies*, 68(2), 261-295.
- Twenge, J. M., Campbell, W. K. Self-Esteem and Socioeconomic Status: A Meta-Analytic Review. <http://psr.sagepub.com/content/g/1/59>.
- Veselska, Z., Madarasova Geckova, A., Gajdosova, B., Orosova, O., van Dijk, J., & Reijneveld, S. (2010). Socio-economic differences in self-esteem of adolescents influenced by personality, mental health and social support. *European Journal Of Public Health*, 20(6), 647-652. doi:10.1093/eurpub/ckp210
- Wadeson, H. (1971). Characteristics of Art Expression in Depression. *Journal of Nervous and Mental Disease*, 153, 197-204.
- Wydick, B., Glewwe, P., & Rutledge, L. (2010). Does International Child Sponsorship Work? A Six-Country Study of Impacts on Adult Life Outcome.

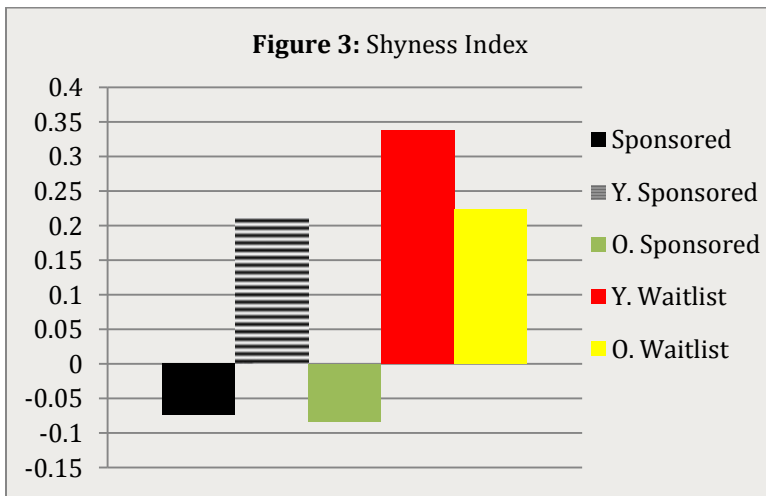
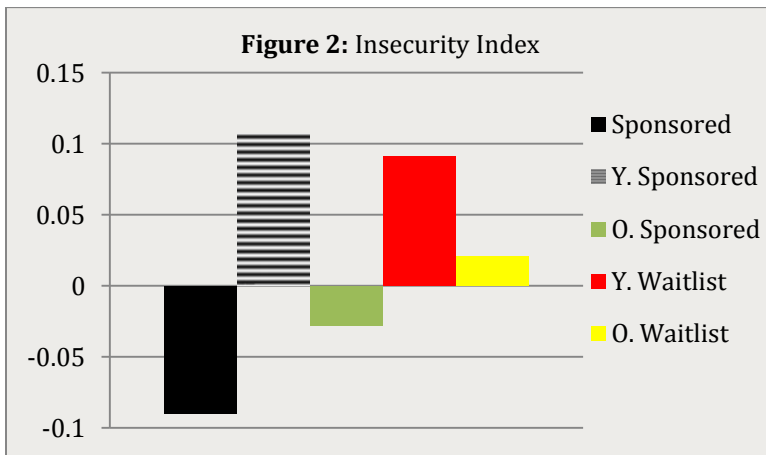
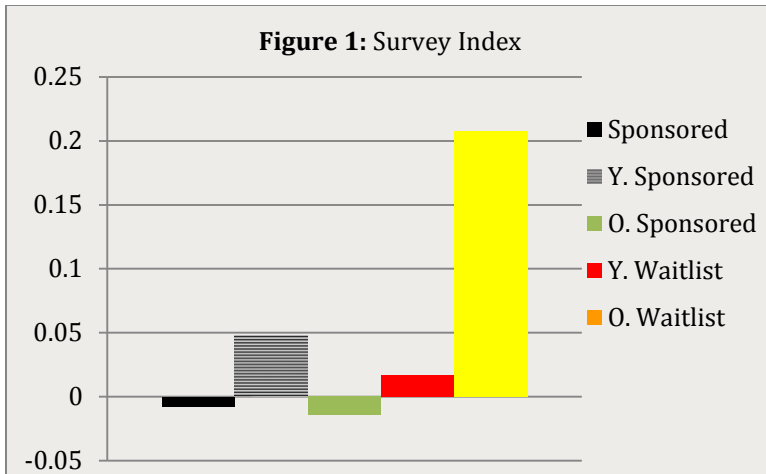
Xu, L. (2010). Identifying Peer Effects in Student Academic Achievement by Spatial Autoregressive Models with Group Unobservables. *Journal Of Labor Economics*, 28(4), 825-860.

Table 1: Picture Indices					
Picture Element	Insecurity Index	Shyness Index	Anxiety Index	Aggression Index	Self-Efficacy Index
Huge Figure (Greater than 15 centimeters)				X	
Monster, Grotesque, Genitals	X			X	
Long Arms				X	
Shading of the Face or Body	X		X		
Missing the Nose or Mouth	X	X	X		
Frowning or Crying	X		X		
Drawn in Dark Colors	X		X		
Drawn in a Single Color	X		X		
Lightning in the Picture	X		X		
Smiling			X		
Drawn in Light or Cheery Colors			X		
Tiny Figure (Less than 5 centimeters)	X	X			
Poor Integration of Body Parts		X			
Missing Arms or Hands	X	X	X	X	
Missing Legs	X	X	X		
Eraser Marks, Scribble Outs		X			
Carrying Umbrella or Shelter					X
Body Language					X
Tiny Head	X				X
Short Arms		X			X

Table 2: Summary Statistics

---Means with Standard Deviations in Parentheses---

	Sponsored	Younger Sib Sponsored	Older Sib Sponsored	Waitlist	Younger Sib Waitlist	Older Sib Waitlist	Total
Self-Esteem Index	-0.008 (0.514)	0.048 (0.584)	-0.014 (0.476)	0.018 (0.479)	0.017 (0.613)	0.207 (0.403)	0.001 (0.508)
Insecurity Index	-0.090 (0.281)	0.107 (0.319)	-0.028 (0.319)	0.065 (0.361)	0.091 (0.332)	0.021 (0.311)	-0.034 (0.313)
Shyness Index	-0.074 (0.355)	0.212 (0.438)	-0.083 (0.326)	0.232 (0.461)	0.338 (0.462)	0.224 (0.340)	-0.000 (0.397)
Anxiety Index	-0.106 (0.338)	0.041 (0.366)	-0.073 (0.337)	0.011 (0.418)	-0.029 (0.393)	0.019 (0.355)	-0.067 (0.357)
Aggression Index	0.008 (0.478)	0.010 (0.528)	-0.026 (0.524)	0.004 (0.506)	0.087 (0.581)	-0.070 (0.469)	0.000 (0.495)
Self-Efficacy Index	0.064 (0.449)	-0.087 (0.599)	-0.070 (0.578)	-0.823 (0.413)	0.024 (0.293)	-0.121 (0.406)	0.000 (0.492)
Control Variables							
Age	11.063 (2.530)	8.127 (2.674)	14.287 (3.377)	7.312 (1.369)	6.375 (1.204)	8.071 (1.141)	10.820 (3.417)
Sex [^]	0.455 (0.499)	0.455 (0.503)	0.416 (0.495)	0.558 (0.500)	0.438 (0.512)	0.500 (0.519)	0.461 (0.499)
Site	2.657 (1.067)	2.727 (1.193)	2.189 (1.007)	2.494 (1.108)	2.375 (1.258)	2.571 (1.223)	2.545 (1.089)
Enumerator	0.500 (0.501)	0.564 (0.501)	0.545 (0.500)	0.558 (0.500)	0.500 (0.516)	0.643 (0.497)	0.524 (0.500)
Researcher	0.525 (0.500)	0.604 (0.494)	0.443 (0.499)	0.501 (0.504)	0.600 (0.507)	0.667 (0.492)	0.515 (0.500)
Observations	521	521	521	521	521	521	521
[^] female=0, male=1							



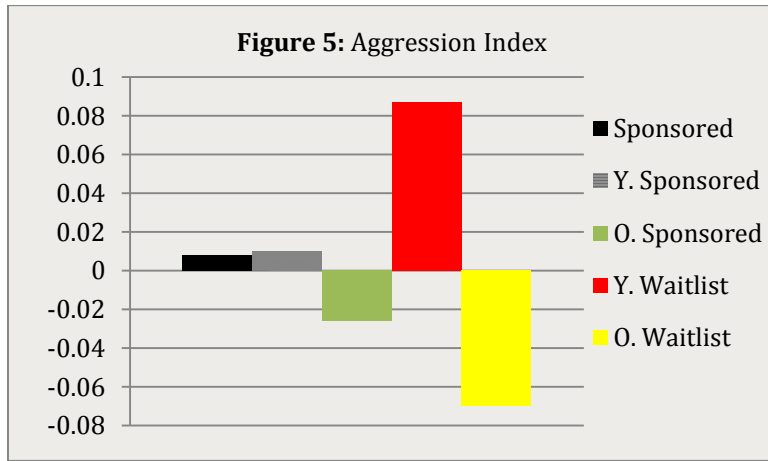
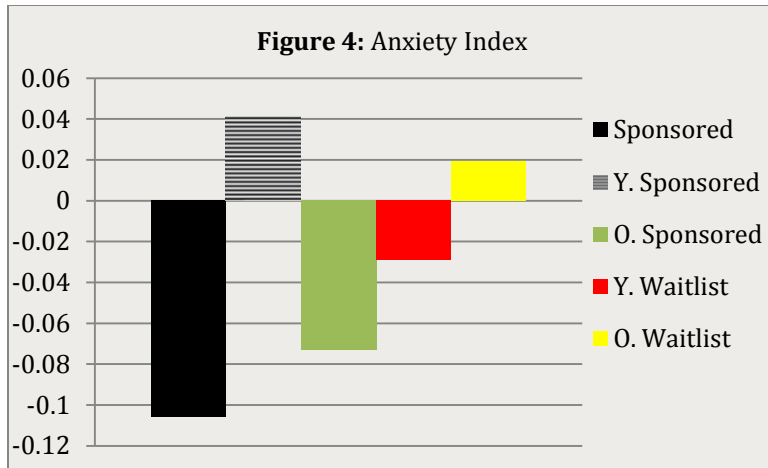


Table 3: T-Tests

Subsamples	Overall Mean (N, Std. Dev.)	Sponsored Mean (Std. Dev.)	Not Sponsored Mean (Std. Dev.)	t-statistic (N for 0,1)
Self-Esteem Index	0.001 (521, 0.508)	-0.008 (0.514)	0.011 (0.501)	0.681 (235, 286)
Insecurity Index	-0.034 (521, 0.313)	-0.090 (0.281)	0.034 (0.336)	0.000 (235, 286)
Shyness Index	-0.000 (521, 0.397)	-0.074 (0.354)	0.090 (0.427)	0.000 (235, 286)
Anxiety Index	-0.067 (521, 0.339)	-0.106 (0.338)	-0.019 (0.374)	0.006 (235, 286)
Aggression Index	0.000 (521, 0.495)	0.008 (0.478)	-0.009 (0.516)	0.701 (235, 286)
Self-Efficacy Index	0.000 (521, 0.492)	0.064 (0.449)	-0.077 (0.531)	0.001 (235, 286)
Subsamples	Overall Mean (N, Std. Dev.)	Younger Siblings of Sponsored Mean (Std. Dev.)	Not Sponsored Mean (Std. Dev.)	t-statistic (N for 0,1)
Self-Esteem Index	0.011 (235, 0.501)	0.048 (0.584)	-0.001 (0.474)	0.529 (180, 55)
Insecurity Index	0.034 (235, 0.336)	0.107 (0.319)	0.011 (0.339)	0.062 (180, 55)
Shyness Index	0.090 (235, 0.427)	0.212 (0.438)	0.052 (0.417)	0.0145 (180, 55)
Anxiety Index	-0.019 (235, 0.374)	0.041 (0.366)	-0.038 (0.376)	0.171 (180, 55)
Aggression Index	-0.009 (235, 0.516)	0.010 (0.528)	-0.015 (0.514)	0.759 (180, 55)
Self-Efficacy Index	-0.077 (235, 0.531)	-0.086 (0.599)	-0.074 (0.510)	0.886 (180, 55)

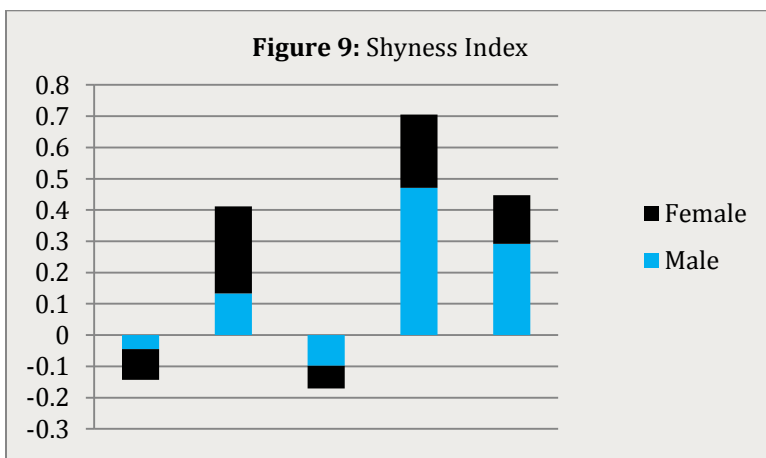
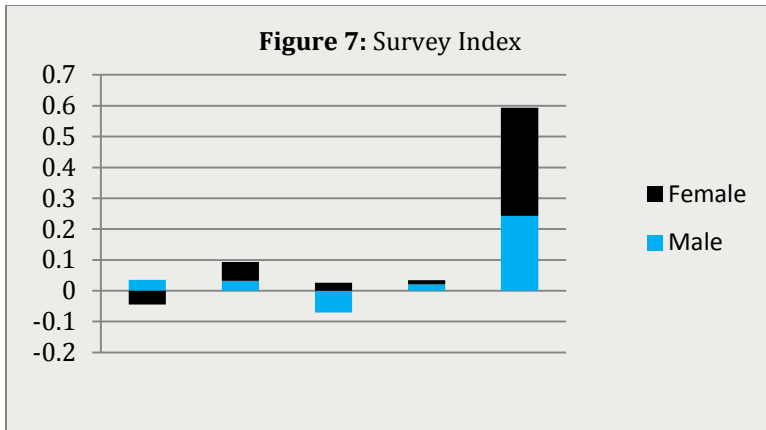
Table 4: IV Regression for Self-Esteem Index, Insecurity Index, and Shyness Index

P-Value Threshold: 0.017

Variables	Self-Esteem Index	Self-Esteem Index	Insecurity Index	Insecurity Index	Shyness Index	Shyness Index
Sponsored	-0.070 (0.229)	-0.121 (0.363)	-0.347** (0.145)	-0.321 (0.235)	-0.870*** (0.211)	-0.860*** (0.314)
Younger Sib Sponsored	0.000 (0.209)	-0.068 (0.291)	-0.112 (0.130)	-0.120 (0.187)	-0.495** (0.203)	-0.507* (0.265)
Older Sib Sponsored	-0.062 (0.200)	-0.062 (0.348)	-0.247* (0.134)	-0.226 (0.237)	-0.791*** (0.190)	-0.779** (0.315)
Younger Sib Waitlist	-0.031 (0.231)	-0.116 (0.291)	-0.129 (0.156)	-0.146 (0.199)	-0.370* (0.212)	-0.423* (0.251)
Older Sib Waitlist	0.160 (0.214)	0.165 (0.304)	-0.198 (0.152)	-0.204 (0.213)	-0.484** (0.204)	-0.518* (0.268)
Age		-0.011 (0.015)		-0.002 (0.009)		-0.000 (0.012)
Sex		0.013 (0.047)		0.127*** (0.029)		0.017 (0.038)
Site		-0.004 (0.024)		-0.014 (0.015)		0.004 (0.019)
Enumerator		0.064 (0.046)		0.035 (0.029)		0.066* (0.038)
Researcher		-0.028 (0.047)		0.072** (0.029)		0.096* (0.039)
Constant	0.048 (0.196)	0.195 (0.212)	0.220** (0.128)	0.159 (0.135)	0.707*** (0.189)	0.609*** (0.194)
Observations	521	505	521	505	521	505
R-Squared	0.003	0.011	0.025	0.100	.	.
Spillover Effects						
$((\beta_2 - \beta_3) - (\beta_4 - \beta_5))$	0.253 (0.212)	0.275 (0.225)	0.065 (0.115)	0.048 (0.133)	0.182 0.135	0.177 (0.147)
P-Value	0.233	0.222	0.571	0.717	0.180	0.230
Robust standard errors in parentheses						
*** p<0.01, ** p<0.05, * p<0.1 Male=1						
Clustered standard errors at the household level in parentheses						

Table 5: IV Regression for Anxiety Index, Aggression Index, and Self-Efficacy Index
P-Value Threshold: 0.017

Variables	Anxiety Index	Anxiety Index	Aggression Index	Aggression Index	Self-Efficacy Index	Self-Efficacy Index
Sponsored	-0.130 (0.177)	-0.319 (0.273)	-0.430* (0.231)	-0.125 (0.339)	0.382** (0.193)	0.216 (0.361)
Younger Sib Sponsored	0.022 (0.158)	-0.138 (0.220)	-0.363* (0.210)	-0.126 (0.278)	0.200 (0.178)	0.083 (0.286)
Older Sib Sponsored	-0.092 (0.160)	-0.286 (0.269)	-0.399* (0.208)	-0.087 (0.353)	0.217 (0.180)	0.055 (0.379)
Younger Sib Waitlist	0.010 (0.186)	-0.143 (0.234)	-0.285 (0.242)	-0.045 (0.286)	0.311* (0.185)	0.265 (0.262)
Older Sib Waitlist	-0.001 (0.172)	-0.161 (0.239)	-0.442* (0.236)	-0.221 (0.290)	0.166 (0.193)	0.077 (0.299)
Age		0.007 (0.011)		-0.008 (0.013)		0.010 (0.017)
Sex		0.111*** (0.034)		0.128*** (0.046)		-0.081* (0.043)
Site		-0.022 (0.018)		0.039* (0.022)		0.030 (0.027)
Enumerator		0.033 (0.033)		-0.021 (0.048)		-0.001 (0.053)
Researcher		0.039 (0.035)		0.071 (0.047)		-0.074 (0.052)
Constant	0.019 (0.155)	0.081 (0.157)	0.372* (0.202)	0.014 (0.205)	-0.287* (0.170)	-0.254 (0.186)
Observations	521	505	521	505	521	505
R-Squared	0.023	0.041	.	0.031	0.007	0.041
Spillover Effects						
$((\beta_2 - \beta_3) - (\beta_4 - \beta_5))$	0.103 (0.128)	0.129 (0.149)	-0.121 (0.196)	-0.216 (0.219)	-0.162 (0.150)	-0.160 (0.191)
P-Value	0.423	0.387	0.538	0.326	0.283	0.402
Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1 Male=1 Clustered standard errors at the household level in parentheses						



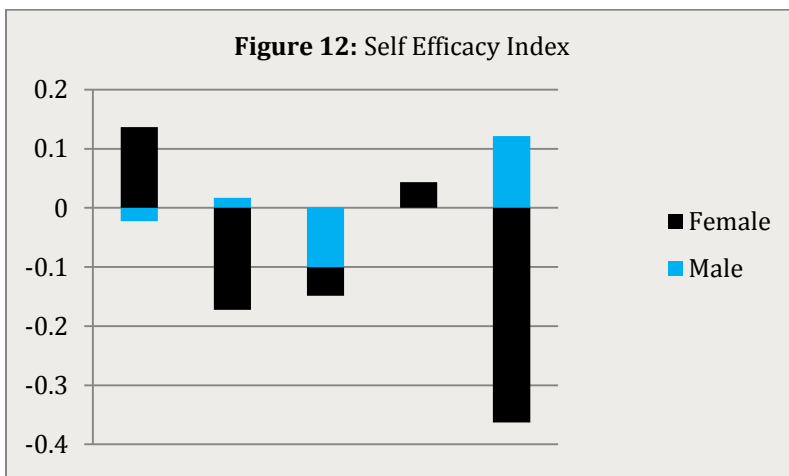
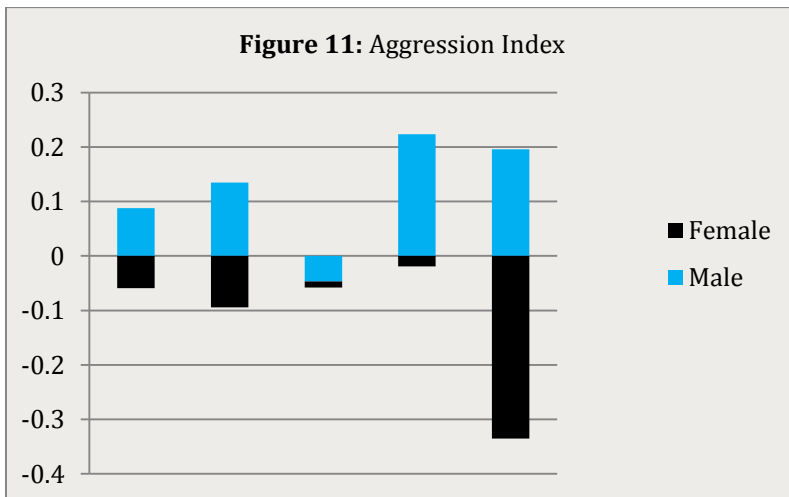
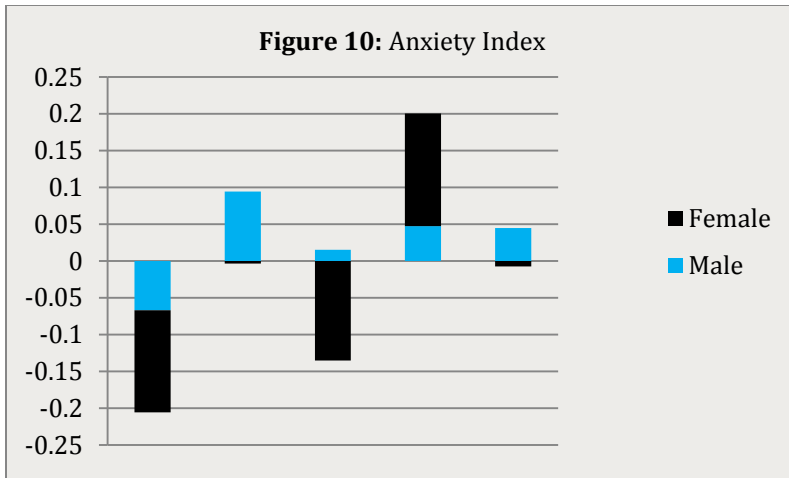


Table 6: Males Only: IV Regression for Self-Esteem Index, Insecurity Index, and Shyness Index
P-Value Threshold: 0.017

Variables	Self-Esteem Index	Self-Esteem Index	Insecurity Index	Insecurity Index	Shyness Index	Shyness Index
Sponsored	0.192 (0.257)	0.442 (0.385)	-0.203 (0.149)	-0.103 (0.261)	-0.733*** (0.220)	-0.504* (0.299)
Younger Sib Sponsored	0.168 (0.224)	0.316 (0.295)	-0.049 (0.128)	-0.008 (0.195)	-0.482** (0.210)	-0.360 (0.248)
Older Sib Sponsored	0.065 (0.223)	0.369 (0.372)	-0.145 (0.141)	-0.043 (0.266)	-0.713*** (0.199)	-0.496 (0.310)
Younger Sib Waitlist	0.157 (0.280)	0.257 (0.333)	-0.054 (0.183)	-0.039 (0.236)	-0.144 (0.269)	-0.096 (0.266)
Older Sib Waitlist	0.378 (0.251)	0.622* (0.338)	-0.107 (0.175)	-0.102 (0.255)	-0.323 (0.225)	-0.227 (0.272)
Age		-0.026 (0.019)		-0.012 (0.014)		-0.012 (0.017)
Site		0.002 (0.033)		-0.029 (0.022)		-0.011 (0.027)
Enumerator		0.022 (0.068)		0.057 (0.043)		0.084 (0.054)
Researcher		-0.055 (0.066)		0.030 (0.044)		0.047 (0.051)
Constant	-0.135 (0.212)	-0.062 (0.183)	0.184 (0.126)	0.268** (0.132)	0.615*** (0.193)	0.529*** (0.180)
Observations	240	233	240	233	240	233
R-Squared	0.009	0.003	0.062	0.078	0.037	0.124
Spillover Effects						
$((\beta_2 - \beta_3) - (\beta_4 - \beta_5))$	0.325 (0.328)	0.313 (0.370)	0.429 (0.137)	-0.028 (0.173)	0.052 (0.257)	0.006 (0.286)
P-Value	0.324	0.399	0.754	0.871	0.840	0.984
Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1 Clustered standard errors at the household level in parentheses						

Table 7: Males Only: IV Regression for Anxiety Index, Aggression Index, and Self-Efficacy Index
P-Value Threshold: 0.017

Variables	Anxiety Index	Anxiety Index	Aggression Index	Aggression Index	Self-Efficacy Index	Self-Efficacy Index
Sponsored	-0.163 (0.182)	-0.065 (0.279)	0.081 (0.259)	0.394 (0.398)	0.132 (0.204)	0.130 (0.424)
Younger Sib Sponsored	-0.013 (0.161)	0.042 (0.217)	0.119 (0.245)	0.327 (0.325)	0.166 (0.180)	0.188 (0.308)
Older Sib Sponsored	-0.092 (0.166)	0.001 (0.286)	-0.063 (0.216)	0.303 (0.402)	0.048 (0.205)	0.074 (0.447)
Younger Sib Waitlist	-0.060 (0.218)	-0.042 (0.262)	0.208 (0.296)	0.376 (0.356)	0.149 (0.204)	0.264 (0.269)
Older Sib Waitlist	-0.062 (0.180)	-0.061 (0.237)	0.180 (0.269)	0.404 (0.348)	0.271 (0.207)	0.350 (0.347)
Age		-0.011 (0.015)		-0.024 (0.020)		0.006 (0.023)
Site		-0.027 (0.027)		0.012 (0.037)		0.068** (0.031)
Enumerator		0.052 (0.046)		-0.031 (0.073)		-0.065 (0.076)
Researcher		-0.029 (0.048)		0.103 (0.073)		-0.015 (0.075)
Constant	0.107 (0.153)	0.206 (0.143)	0.016 (0.207)	-0.051 (0.237)	-0.149 (0.175)	-0.363* (0.209)
Observations	240	233	240	233	240	233
R-Squared	0.049	0.054	0.014	.	0.010	0.036
Spillover Effects						
$((\beta_2-\beta_3)-(\beta_4-\beta_5))$	0.077 (0.158)	0.022 (0.196)	0.154 (0.365)	0.051 (0.418)	0.239 (0.201)	0.201 (0.222)
P-Value	0.629	0.910	0.674	0.903	0.235	0.366
Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1 Clustered standard errors at the household level in parentheses						

Table 8: Females Only: IV Regression for Self-Esteem Index, Insecurity Index, and Shyness Index
P-Value Threshold: 0.017 & 0.020

Variables	Self-Esteem Index	Self-Esteem Index	Insecurity Index	Insecurity Index	Shyness Index	Shyness Index
Sponsored	-0.452 (0.375)	-0.811 (0.518)	-0.297 (0.207)	-0.374 (0.241)	-0.751** (0.293)	-0.593* (0.336)
Younger Sib Sponsored	-0.297 (0.348)	-0.621 (0.449)	-0.033 (0.184)	-0.126 (0.207)	-0.306 (0.283)	-0.188 (0.300)
Older Sib Sponsored	-0.332 (0.336)	-0.631 (0.509)	-0.193 (0.192)	-0.255 (0.245)	-0.658** (0.273)	-0.459 (0.339)
Younger Sib Waitlist	-0.345 (0.382)	-0.701 (0.471)	-0.058 (0.215)	-0.159 (0.232)	-0.350 (0.276)	-0.281 (0.291)
Older Sib Waitlist	-0.186 (0.363)	-0.453 (0.452)	-0.153 (0.213)	-0.198 (0.259)	-0.429 (0.270)	-0.331 (0.304)
Age		-0.003 (0.018)		-0.001 (0.009)		-0.011 (0.011)
Site		-0.011 (0.035)		-0.003 (0.018)		0.007 (0.023)
Enumerator		0.075 (0.068)		0.021 (0.039)		0.082 (0.049)
Researcher		0.013 (0.071)		0.111*** (0.037)		0.140*** (0.047)
Constant	0.358 (0.331)	0.700* (0.3701)	0.118 (0.188)	0.143 (0.184)	0.585** (0.267)	0.426 (0.263)
Observations	281	272	281	272	281	272
R-Squared	.	.	0.007	0.030	.	0.073
Spillover Effects						
$((\beta_2-\beta_3)-(\beta_4-\beta_5))$	0.193 (0.287)	0.258 (0.305)	0.064 (0.174)	0.090 (0.178)	0.273 (0.155)	0.221 (0.171)
P-Value	0.501	0.398	0.711	0.616	0.079	0.198
Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1 Clustered standard errors at the household level in parentheses						

Table 9: Females Only: IV Regression for Anxiety Index, Aggression Index, and Self-Efficacy Index
P-Value Threshold: 0.017 & 0.020

Variables	Anxiety Index	Anxiety Index	Aggression Index	Aggression Index	Self-Efficacy Index	Self-Efficacy Index
Sponsored	0.056 (0.223)	-0.256 (0.278)	-0.298 (0.320)	0.177 (0.381)	0.698** (0.280)	0.420 (0.327)
Younger Sib Sponsored	0.196 (0.205)	-0.085 (0.240)	-0.294 (0.286)	0.073 (0.323)	0.333 (0.251)	0.118 (0.296)
Older Sib Sponsored	0.064 (0.206)	-0.256 (0.274)	-0.211 (0.310)	0.302 (0.416)	0.458* (0.251)	0.177 (0.341)
Younger Sib Waitlist	0.215 (0.233)	-0.052 (0.268)	-0.219 (0.336)	0.139 (0.347)	0.549** (0.267)	0.361 (0.267)
Older Sib Waitlist	0.192 (0.232)	-0.027 (0.299)	-0.535* (0.299)	-0.214 (0.330)	0.143 (0.252)	-0.067 (0.277)
Age		0.012 (0.011)		-0.020 (0.016)		0.011 (0.015)
Site		-0.021 (0.021)		0.041* (0.025)		-0.004 (0.030)
Enumerator		0.017 (0.047)		-0.015 (0.062)		0.027 (0.060)
Researcher		0.096** (0.047)		0.038 (0.060)		-0.138** (0.061)
Constant	-0.200 (0.201)	-0.044 (0.203)	0.200 (0.293)	-0.123 (0.270)	-0.506** (0.247)	-0.314 (0.221)
Observations	281	272	281	272	281	272
R-Squared	0.028	0.014	.	0.032	0.007	0.091
Spillover Effects						
$((\beta_2-\beta_3)-(\beta_4-\beta_5))$	0.109 (0.210)	0.197 (0.215)	-0.399 (0.201)	-0.583 (0.217)	-0.531 (0.204)	-0.487 (0.220)
P-Value	0.604	0.362	0.048**	0.008***	0.01***	0.028**
Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1 Clustered standard errors at the household level in parentheses						

Table 10: Bootstrapped Standard Errors
IV Regression for Self-Esteem Index, Insecurity Index, and Shyness Index
P-Value Threshold: 0.017

Variables	Self-Esteem Index	Self-Esteem Index	Insecurity Index	Insecurity Index	Shyness Index	Shyness Index
Sponsored	-0.070 (0.226)	-0.121 (0.365)	0.347*** (0.135)	0.341 (0.246)	0.871*** (0.212)	0.860*** (0.329)
Younger Sib Sponsored	0.000 (0.208)	-0.068 (0.298)	0.124 (0.121)	0.138 (0.199)	0.495** (0.202)	0.507* (0.275)
Older Sib Sponsored	-0.062 (0.199)	-0.062 (0.352)	0.257** (0.127)	0.247 (0.248)	0.792*** (0.192)	0.778** (0.329)
Younger Sib Waitlist	-0.031 (0.235)	-0.116 (0.304)	0.143 (0.148)	0.166 (0.207)	0.371* (0.213)	0.424 (0.266)
Older Sib Waitlist	0.160 (0.210)	0.165 (0.311)	0.201 (0.148)	0.208 (0.223)	0.484** (0.204)	0.518* (0.285)
Age		-0.011 (0.014)		0.001 (0.009)		0.000 (0.013)
Sex		0.013 (0.048)		-0.120*** (0.028)		-0.017 (0.039)
Site		-0.004 (0.024)		0.013 (0.015)		-0.004 (0.020)
Enumerator		0.064 (0.045)		-0.031 (0.031)		-0.066* (0.038)
Researcher		-0.028 (0.048)		-0.067** (0.030)		-0.096*** (0.037)
Constant	0.048 (0.195)	0.195 (0.216)	-0.262** (0.118)	-0.207 (0.150)	-0.706*** (0.188)	-0.607*** (0.194)
Observations	521	505	521	505	521	505
R-Squared	0.003	0.011	0.020	0.087	.	.
Spillover Effects						
$((\beta_2-\beta_3)-(\beta_4-\beta_5))$	0.253 (0.211)	0.275 (0.233)	-0.076 (0.117)	-0.067 (0.141)	-0.184 (0.139)	-0.178 (0.419)
P-Value	0.232	0.236	0.515	0.636	0.188	0.230
Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1 Male=1 Clustered standard errors at the household level in parentheses						

Table 11: Bootstrapped Standard Errors
 IV Regression for Anxiety Index, Aggression Index, and Self-Efficacy Index
 P-Value Threshold: 0.017

Variables	Anxiety Index	Anxiety Index	Aggression Index	Aggression Index	Self-Efficacy Index	Self-Efficacy Index
Sponsored	0.167 (0.175)	0.352 (0.270)	0.428* (0.247)	0.124 (0.422)	0.382* (0.205)	0.216 (0.360)
Younger Sib Sponsored	0.016 (0.157)	0.171 (0.221)	0.361 (0.223)	0.126 (0.343)	0.200 (0.187)	0.083 (0.290)
Older Sib Sponsored	0.124 (0.159)	0.318 (0.270)	0.397* (0.223)	0.086 (0.432)	0.217 (0.189)	0.055 (0.375)
Younger Sib Waitlist	0.032 (0.188)	0.178 (0.230)	0.284 (0.264)	0.044 (0.343)	0.311 (0.194)	0.265 (0.262)
Older Sib Waitlist	0.026 (0.179)	0.174 (0.244)	0.441* (0.255)	0.220 (0.355)	0.166 (0.207)	0.077 (0.305)
Age		-0.008 (0.010)		0.008 (0.016)		0.010 (0.017)
Sex		-0.098*** (0.035)		-0.128*** (0.048)		-0.081* (0.045)
Site		0.020 (0.017)		-0.039* (0.023)		0.030 (0.027)
Enumerator		-0.026 (0.035)		0.021 (0.050)		-0.001 (0.054)
Researcher		-0.034 (0.034)		-0.071 (0.049)		-0.074 (0.054)
Constant	-0.117 (0.153)	-0.173 (0.160)	-0.370* (0.215)	-0.014 (0.238)	-0.287 (0.181)	-0.254 (0.192)
Observations	521	505	521	505	521	505
R-Squared	0.019	0.027	.	0.031	0.007	0.041
Spillover Effects						
$((\beta_2 - \beta_3) - (\beta_4 - \beta_5))$	-0.114 (0.139)	-0.150 (0.156)	0.121 (0.199)	0.216 (0.228)	-0.162 (0.150)	-0.160 (0.192)
P-Value	0.411	0.336	0.545	0.345	0.280	0.404
Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1 Male=1 Clustered standard errors at the household level in parentheses						

Appendix A

Household ID:	Village:	ENUMERATOR SS	
Name:			
Gender:	M	F	
Age:			
Are you in School:	Yes	No	
If Yes, What year of school are you in			
If No, How many years of school did you complete			

Sponsored?	Yes	No	
Sibling of Sponsored?	No	Yes, and is older than sponsored sibling	Yes, and is younger than sponsored sibling
Birth Order:		Total Number of Siblings:	
Waitlisted?	Yes	No	
Sibling of Waitlisted?	No	Yes, and is older than waitlisted sibling	Yes, and is younger than waitlisted sibling
Birth Order:		Total Number of Siblings:	
Do you participate in Church Activities other than Regular Church attendance?	Yes	No	

Now I am going to ask you some questions about your parents:

PARENTS:

Occupation of Father:				
Occupation of Mother:				
Parents Marriage Status	Married	Divorced	Re-married	Single
Do either of your parents participate in Community	Yes	No		

Now I am going to ask you some questions about your home:

HOUSING:

Is there Electricity in the house?	Yes	No		
Is there an Indoor Toilet	Yes	No		
Material the roof is made of				
Material the walls are made of				
Material the floor is made of				

BELOW IS A LIST OF STATEMENTS DEALING WITH YOUR GENERAL FEELINGS ABOUT YOURSELF. IF YOU **STRONGLY AGREE**, CIRCLE **SA**. IF YOU **AGREE** WITH THE STATEMENT, CIRCLE **A**. IF YOU **DISAGREE**, CIRCLE **D**. IF YOU **STRONGLY DISAGREE**, CIRCLE **SD**.

	Self-Esteem:	Strongly Agree	Agree	Disagree	Strongly Disagree
1.	I feel that I'm a person of worth, on an equal plane with others.	SA	A	D	SD
2.	I am able to do things as well as most other people.	SA	A	D	SD
3.	I feel I do not have much to be proud of.	SA	A	D	SD
4.	On the whole, I am satisfied with myself.	SA	A	D	SD
5.	At times I think I am no good at all.	SA	A	D	SD
Hopefulness about future:					
6.	I feel like the future holds good things for me.	SA	A	D	SD
7.	I feel that when I am older I will have a good job with a good income.	SA	A	D	SD
8.	I feel that my life as an adult will be better for me than it was for my parents.	SA	A	D	SD
9.	What kind of job do you hope that you can have when you grow up?				

FOR THE FOLLOWING QUESTIONS, PLEASE CIRCLE YOUR ANSWER.

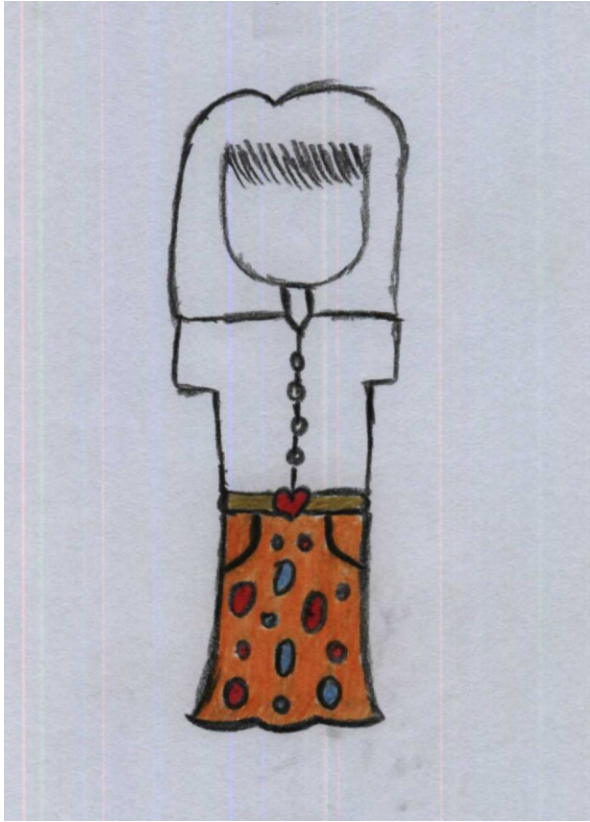
	Social Trust:		
10.	Generally speaking, would you say that most people can be trusted, or that you can't be too careful in dealing with people?	Most can be trusted	Can't be too careful
11.	Do you think most people would try to take advantage of you if they got the chance, or would they try to be fair?	Most would try to take advantage	Most would try to be fair
12.	Would you say that most of the time people try to be helpful, or that they are mostly just looking out for themselves?	Most of the time people try to be helpful	People are mostly looking out for themselves
Spiritual Depth/Trust in God:			
13.	Would you say that God cares for you and has good plans for your life?	Yes	No
14.	Do you believe God wants you to use your gifts to serve others?	Yes	No
15.	Can you trust God to help you overcome the challenges in your life?	Yes	No
16.	Do you hope to be a Christian leader in the church some day?	Yes	No

Reference Points:					
17.	What level of education does your mother expect you to achieve?	Primary School	Middle School	Secondary School	College
18.	What level of education does your father expect you to achieve?	Primary School	Middle School	Secondary School	College
19.	What level of education do your siblings expect you to achieve?	Primary School	Middle School	Secondary School	College
20.	What level of education do your peers expect you to achieve?	Primary School	Middle School	Secondary School	College
21.	What level of education does the staff at Compassion expect you to achieve?	Primary School	Middle School	Secondary School	College
22.	What level of education does your foreign sponsor expect you to achieve?	Primary School	Middle School	Secondary School	College
23.	What level of education do you expect that your peers will achieve?	Primary School	Middle School	Secondary School	College
24.	What level of education would you say is sufficient in order for one to be successful today?	Primary School	Middle School	Secondary School	College
25.	What level of education do you realistically expect that you will achieve?	Primary School	Middle School	Secondary School	College
26.	Would you be satisfied with the same occupation as your father or mother?	Yes	No		
27.	What kind of job do you realistically expect to have in the future?				
28.	What age is a good age to get married?				
29.	How many children is a good number of children to have?				

The questions below are only if the child is currently sponsored through Compassion

30.	How old were you when you first became sponsored?	
31.	What grade in school were you when you first became sponsored?	
32.	In what country does your sponsor live?	
33.	What occupation does your sponsor have?	
34.	How many times a year do you receive letters or gifts from your sponsor?	

Appendix B



Appendix C		Table 12: First Stage IV Regression: All Children	
Variables	Sponsored	Sponsored	Sponsored
Younger Sib Sponsored	-0.747*** (0.042)	-0.746*** (0.041)	-0.746*** (0.041)
Older Sib Sponsored	-0.920*** (0.040)	-0.936*** (0.040)	-0.936*** (0.040)
Younger Sib Waitlisted	-0.718*** (0.073)	-0.666*** (0.073)	-0.666*** (0.073)
Older Sib Waitlisted	-0.727*** (0.075)	-0.731*** (0.077)	-0.731*** (0.077)
Current Age			0.031*** (0.006)
Sex			-0.030 (0.023)
Site			0.032*** (0.012)
Enumerator			0.003 (0.023)
Researcher			0.010 (0.023)
Age at Program Roll Out (-3)	-0.303*** (0.071)		0.014 (0.092)
Age at Program Roll Out (-2)	0.285*** (0.082)		-0.010 (0.096)
Age at Program Roll Out (-1)	-0.185** (0.073)		0.068 (0.085)
Age at Program Roll Out (0)	-0.111 (0.071)		0.139 (0.085)
Age at Program Roll Out (1)	-0.003 (0.068)		0.186** (0.077)
Age at Program Roll Out (2)	-0.064 (0.068)		0.117 (0.076)
Age at Program Roll Out (3)	-0.076 (0.069)		0.123 (0.078)
Age at Program Roll Out (4)	-0.039 (0.069)		0.154** (0.074)
Age at Program Roll Out (5)	-0.001 (0.070)		0.181** (0.074)
Age at Program Roll Out (6)	0.049 (0.065)		0.169** (0.066)
Age at Program Roll Out (7)	0.069 (0.077)		0.190** (0.078)
Age at Program Roll Out (8)	0.051 (0.075)		0.170** (0.074)
Age at Program Roll Out (9)	0.018 (0.081)		0.112 (0.078)
Constant	0.918*** (0.058)		0.331*** (0.112)
Observations			
R-Squared	0.715		0.748

Appendix D

**Table 13: First Stage IV Regression
Males Only**

Variables	Sponsored	Sponsored
Younger Sib Sponsored	-0.664*** (0.069)	-0.683*** (0.067)
Older Sib Sponsored	-0.911*** (0.068)	-0.928*** (0.065)
Younger Sib Waitlisted	-0.632*** (0.124)	-0.570*** (0.126)
Older Sib Waitlisted	-0.697*** (0.118)	-0.688*** (0.120)
Current Age		0.042*** (0.009)
Site		0.030 (0.019)
Enumerator		0.031 (0.038)
Researcher		-0.009 (0.038)
Age at Program Roll Out (-3)	-0.404*** (0.117)	0.028 (0.147)
Age at Program Roll Out (-2)	-0.304** (0.133)	0.107 (0.151)
Age at Program Roll Out (-1)	-0.173 (0.123)	0.145 (0.136)
Age at Program Roll Out (0)	-0.225* (0.118)	0.152 (0.138)
Age at Program Roll Out (1)	0.015 (0.122)	0.293** (0.131)
Age at Program Roll Out (2)	0.003 (0.110)	0.232* (0.119)
Age at Program Roll Out (3)	-0.163 (0.116)	0.085 (0.124)
Age at Program Roll Out (4)	-0.083 (0.114)	0.135 (0.118)
Age at Program Roll Out (5)	-0.001 (0.115)	0.246** (0.121)
Age at Program Roll Out (6)	0.064 (0.121)	0.262** (0.120)
Age at Program Roll Out (7)	0.072 (0.141)	0.246* (0.138)
Age at Program Roll Out (8)	0.045 (0.116)	0.192* (0.112)
Age at Program Roll Out (9)	-0.006 (0.153)	0.051 (0.144)
Constant	0.917*** (0.100)	0.129 (0.181)
Observations		
R-Squared	0.672	0.718

Appendix E

Table 14: First Stage IV Regression
Females Only

Variables	Sponsored	Sponsored
Younger Sib Sponsored	-0.846*** (0.052)	-0.840*** (0.052)
Older Sib Sponsored	-0.942*** (0.047)	-0.956*** (0.049)
Younger Sib Waitlisted	-0.783*** (0.088)	-0.725*** (0.086)
Older Sib Waitlisted	-0.810*** (0.096)	-0.815*** (0.098)
Current Age		0.023*** (0.007)
Site		0.031** (0.015)
Enumerator		-0.039 (0.029)
Researcher		0.013 (0.029)
Age at Program Roll Out (-3)	-0.185** (0.088)	0.036 (0.119)
Age at Program Roll Out (-2)	-0.294*** (0.103)	-0.139 (0.123)
Age at Program Roll Out (-1)	-0.222** (0.087)	-0.021 (0.108)
Age at Program Roll Out (0)	0.005 (0.087)	0.169 (0.105)
Age at Program Roll Out (1)	-0.030 (0.078)	0.099 (0.093)
Age at Program Roll Out (2)	-0.159* (0.086)	-0.023 (0.098)
Age at Program Roll Out (3)	-0.006 (0.083)	0.149 (0.100)
Age at Program Roll Out (4)	-0.009 (0.083)	0.153 (0.095)
Age at Program Roll Out (5)	-0.012 (0.084)	0.102 (0.093)
Age at Program Roll Out (6)	0.035 (0.074)	0.107 (0.077)
Age at Program Roll Out (7)	0.051 (0.088)	0.130 (0.091)
Age at Program Roll Out (8)	0.043 (0.101)	0.132 (0.100)
Age at Program Roll Out (9)	0.020 (0.090)	0.115 (0.089)
Constant	0.938*** (0.069)	0.500*** (0.142)
Observations		
R-Squared	0.777	0.801