Sport for Development?

A Randomized Controlled Trial among Vulnerable Youth in Liberia

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Abstract

Over the past two decades, sports programs have proliferated as a form of direct intervention as well as a mode of engaging youth in development projects. Thousands of organizations, millions of participants, and hundreds of millions of dollars are invested in sports based development programs each year. The underlying belief that sports promote socioemotional skills, psychological well-being, and foster traits that boost employability has provided motivation to expand funding and offerings of sports for development (SFD) programs. Through a randomized control trial in Monrovia, Liberia, we assess the impact of a sports and non-cognitive skills development program for vulnerable youth. Our results do not show evidence of improved psychosocial behaviors. However, we do see a 0.115 standard deviation increase in an index of labor market outcomes for those randomly assigned to participate. While we are unable to isolate the mechanism of these impacts, we find that the effects are strongest among those likely to be most disadvantaged in the labor market.

1 Introduction

Across the world, youth are found playing sports wherever there is enough space to kick a ball or swing a bat: in fields, on beaches, empty streets, or vacant lots. Few activities capture the excitement, energy, and imagination of youth as much as sports. Beginning in the early 2000s, a wave of exuberance brought increased popularity of sports as a mechanism to promote development outcomes. "Sport for Development" (SFD) programs take on diverse designs but broadly aim to develop pro-social behaviors and labor force potential among young adults. Sports are viewed as a vehicle for promoting transformative change among participants, especially within at-risk, marginal populations.

In 2001, the United Nations established the Office on Sport for Development and Peace. Four years later they declared 2005 the International Year of Sport and Physical Education and defined Sport for Development as a broad effort to "engage people from disadvantaged communities in physical activity projects that have an overarching aim of achieving various social, cultural, physical, economic or health-related outcomes."[1] A recent review of SFD programs found 955 organizations engaging exclusively in sports programming and over two thousand additional organizations that incorporate sports into their programs (Svensson and Woods, 2017). Other sources corroborate these estimates, claiming that SFD programs reach tens of millions of youth throughout the world (Adair, 2014). Our own efforts to track down expenditures on SFD programs suggest that global expenditures exceed hundreds of millions, if not billions, of dollars per year.[2] Both in terms of participation and expenditure, SFD programs operate at a massive global scale.

SFD proponents frequently tout sports-centered programs as an impactful form of direct intervention for at-risk youth as well as an effective entry point for complementary programs targeting difficult to reach populations. In particular, it is frequently claimed that these programs can directly improve psychosocial outcomes and soft skills of participants and that these benefits will, in turn, lead to better labor market outcomes for

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[1]This definition comes from Adair (2014). We follow this definition in this paper in order to preserve a more narrow focus on sports programming as a form of intervention instead of broader definitions that also incorporate the role of sports figures for diplomacy or fundraising purposes. Sports for development and peace (SDP), Sport for Change (SFC), Development through Sport (DTS), and Sport and Development (S&D) are other commonly used terms for the category of programs that we discuss in this paper.

[2]This estimate is based off of reports and documentation found online. We examined organizations that self-register through `https://www.sportanddev.org` and `http://www.streetfootballworld.org`. The eight members of the steering committee of the International Platform for Sport and Development alone could be linked to over $105 million in project budgets for SFD-related activities. Searching for additional financial disclosures led us to additional estimated expenditures at least $200 million in annual expenditures. Further details are provided in Appendix B.

marginalized youth.[3] However, despite this large mobilization of resources, there is little existing evidence to either substantiate or refute these underlying claims.

In Liberia, the site of this study, over three-fifths of the country's population is below the age of twenty-five. This population pyramid, concentrated by children and young adults, presents Liberia with considerable demographic challenges.[4] Although the country's second civil war ended over 15 years ago, the memories and trauma of one of the continent's bloodiest and most protracted conflicts still looms large on the national psyche. Policy-makers and international actors hae therefore been worried that failure to engage with youth and help them find productive outlets would risk destabilizing the country and eruption of civil unrest.

In this paper, we investigate the effect of sports group-mediated life-skills training on psychosocial well-being and labor force outcomes among youth in Monrovia, Liberia's largest city. Our evidence derives from a randomized control trial of an SFD program conducted by Mercy Corps, a large international non-governmental organization with similar programs in over twenty-five countries. The study took place in nine communities around Monrovia, with 1,200 youth invited to participate in the Mercy Corps program and another 1,200 assigned to the control group. Similar to the claims of many other SFD proponents and practitioners, the stated aims of Mercy Corps' SFD program, "Sports for Change" (SFC), are to improve psychosocial or socio-emotional behaviors among participants, increasing their "readiness" for productive labor-force participation. The SFC method centers on the formation of youth groups, engagement with these groups through competitive sports, and facilitation of a complementary life-skills curriculum. Random assignment of individuals to youth sports groups and a control group allows us to estimate the causal impact of SFC on a range of psychosocial and labor market outcomes.

The program designers anticipated benefits on psychosocial outcomes. Our data collection included five measures of psychosocial outcomes, which we validate by demonstrating a strong correlation with labor market outcomes and welfare measures at baseline. However, our analysis reveals limited evidence of meaningful direct impacts of the program on five different measures of psychosocial behaviors and attitudes along with a composite psychosocial index. Across all outcomes, we can rule out effect sizes greater than 0.11 standard deviations. The only outcome showing any marginal statistical signif-

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[3]Many organizations claim that these benefits are even wider ranging with the United Nations asserting that benefits include gender equality, social integration, development of social capital, peacebuilding, conflict prevention and resolution, trauma relief, and economic development. `https://www.un.org/sport/content/why-sport/overview`

[4]Liberia's 2014-2015 Household Income and Expenditure Survey shows that 76.4 percent of Liberia's population is under the age of 35, 62.5 percent is under 25, and 44.5 percent is under 15.

icance suggests a *negative* effect. The point estimate on the composite index is -0.02 and we can rule out effect sizes greater than 0.06 standard deviations.

The proposed theory of change suggested that psychosocial improvements caused by the program would then lead to improved labor force outcomes. Despite lack of measurable psychosocial impacts, we do see a statistically significant increase in labor outcomes. Labor supply and earnings both increase by approximately 12% and we find that the SFC program increased an index of labor force outcomes by 0.115 standard deviations. Corroborating this evidence, participants report an 11% increase in the share of their contributions to non-food household expenditures. However, we also observe a 0.08 standard deviation increase in an index of reported coping behaviors, such as reducing the size or number of meals, suggesting that the positive labor effects of the program may not translate into unambiguous welfare gains.

Given the lack of impacts on psychosocial measures, we try to identify other mechanisms for the impacts on labor. In particular, we examine whether peer effects drove impacts on labor market outcomes. Unfortunately, we are unable to explain the results through exposure to high (or low) performing peers or the presence of pre-existing social ties in assigned groups. Finally, we test for heterogeneous treatment effects in order to determine who benefits most from the SFC program. We find that along several dimensions (age, education, gender, and prior training) labor force benefits of the program are concentrated among relatively marginalized sub-groups.

2   Related Work

Related Work on Sport for Development

Sport for Development proponents assert a wide range of positive anticipated benefits for program participants, arguing that sports are an effective way to improve prosocial and psychosocial 'life skills' as well as financial outcomes for participating youth. Many organizations trust that benefits result directly and naturally from sports participation: Sports participation inherently teaches valuable life lessons and helps participants develop prosocial skills. This faith is seen in organizations whose sole intended output is the creation of opportunities for youth to play sports or, even more simply in some cases, to distribute free soccer balls to impoverished communities.[5] Other organizations have invested considerable time and effort designing and incorporating complementary life skills training

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[5]Example: Ball to All `http://www.balltoall.org/`.

into their sports activities."[6] However, the body of existing evidence on SFD programs is limited. A large portion of the extant literature focus on improving the design and strategic implementation of SFD programs.[7] Alongside these prescriptive suggestions for SFD are implicit claims about expected positive impacts on participants. In one example, Kidd (2008) states "[SFD] has brought considerable benefit to many children and youth in the countries where it is conducted." Rookwood (2008) suggest that soccer builds trust, respect, and self-discipline. Others highlight the positive relationship between sports and psychosocial development and resiliency (Petitpas et al., 2005; Berlin et al., 2007; Perkins and Noam, 2007; Henley et al., 2007).

Frequently studied examples of the SFD movement range from Nairobi to the United States.[8] Petitpas et al. (2005) present a framework for SFD programs that range between focusing on reducing delinquency to developing pro-social life skills. The framework centers on the premise that "youth development programs should assist participants in identifying their transferable skills, create opportunities for them to use these skills in different contexts, and provide them with the support and encouragement necessary to enable them to gain confidence in their ability to use their skills effectively in various situations." As such, SFD programs are seen as a mechanism to prepare young adults to utilize pro-social skills in a variety of long-term applications.

While these studies provide important psychological and sociological grounding of hypothesized effects and potential benefits, the evidence relies heavily on case studies and theoretical models unsubstantiated by empirical evidence. Three recent reviews of this literature have agreed that the evidence base is lacking in rigor and that the few studies with individual-level data are systematically under-powered in sample size and fail to address endogeneity concerns of participating beneficiaries and program outcomes (Burnett, 2009; Coalter, 2010; Holt and Jones, 2007).

Recent work by Panter-Brick et al. (2018) assesses the impact of a Mercy Corps program similar to the Sports for Change program in Liberia. Jordanian and Syrian youth were organized into groups centered on a range of activities (often, but not exclusively sports based) and locally identified facilitators provided life skills and psychosocial support. The authors found modest improvements in some psychosocial outcomes with big-

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[6]Examples: Peace Players International, `https://www.peaceplayersintl.org/`, and Grassroots Soccer, `http://www.grassrootsoccer.org/`.

[7]Hartmann and Kwauk (2011) propose sports as a "hook" to engage youth in order to ignite transformative changes to youth social skills. Jeanes (2013) suggest that peer-led education through sports programs be combined with multi-layered interventions directed at all levels of communities.

[8]For example, the Mathare Youth Sports Association in Nairobi (Morris et al., 2004; Kidd, 2008; Coalter, 2009), the Physically Active Youth program in Namibia (Donnelly et al., 2007), and the Midnight Basketball Leagues across numerous locations in the United States (Hartmann and Depro, 2006)

ger effects among youth exposed to higher levels of trauma. However, the study was hindered by high levels of attrition (74% after one year) and does not examine economic outcomes among participants.

Sports programs can also be helpful for economic development by promoting positive reconciliation across groups, as Lowe (2018) shows. Examining the impacts of pure sports participation without complementary programming, the author finds that individuals assigned to mixed-caste cricket groups in India show higher levels of integration and pro-social behavior with other castes.

Related Work on Psychosocial Targeted Programs

This paper also relates to the broader body of work linking non-cognitive and psychosocial factors to labor market outcomes. Two recent surveys of the literature document how cognitive skills do not fully explain labor market outcomes, with a large part of the residual attributable to socio-emotional skills (Kautz et al., 2014; Heckman and Kautz, 2012). Sometimes referred to as 'character' or life skills, these skills are seen as necessary for the realization of investments in cognitive skills. The authors suggest that interventions that improve soft skills may have an impact on economic and welfare outcomes as well.

In response to this body of work linking soft skills and economic outcomes, considerable interest and programming have been put into psychosocial interventions in traumatized populations, although findings have been inconsistent (Underwood, 2018). On the positive end, a World Bank Policy Research Working Paper by Adoho et al. (2014) presents preliminary evidence from a randomized control trial of an intensive program on economic empowerment and life skills training for young Liberian women. They find large improvements in psychosocial measures of self-confidence and anxiety, a 47% increase in employment, and an immense 80% increase in earnings for program participants. Ibarraran et al. (2014) also have positive, but considerably more modest, results on the impacts of a soft skills training program for youth in the Dominican Republic, finding improvements in earnings (8%), formality of work (10%), and measures of non-cognitive skills (0.08-0.12 standard deviations), but no increase in overall labor force participation. Calero and Rozo (2016) have mixed results in another experimental study among youth in Brazil's Favelas, finding that training aimed at improving risky behaviors increased income but only improved behaviors among participants with higher pre-existing levels of socio-emotional skills. Groh et al. (2016) find no effects of a soft skills training program on female youth employment among Jordanian community college graduates. And in the most similar setting to our paper, Blattman et al. provide mixed evidence in their study of

pro-social programming in a sample of high-risk ex-combatants in Liberia. The authors find that a cognitive behavioral training (CBT) intervention led to a 0.25-0.3 standard deviation decrease in antisocial behaviors one month after completing the CBT program. However, this effect only persisted in follow-ups one year after the intervention among CBT beneficiaries who also received a substantial cash grant of 200 USD. They find no persistent impacts of the program of economic outcomes.

3 Program Design and Theory of Change

At the time of the study, the President of Liberia, Ellen Johnson-Sirleaf, expressed particular concern over high levels of youth unemployment as a potential destabilizing factor for the country.[9] Overall labor force participation was and remains very low in Liberia, estimated by the International Labor Organization at roughly 60%.[10] The central role of youth as both victims and combatants in the Liberian conflict underlines a sense of urgency among policy-makers and international actors to find ways to engage young populations and to help those who have been directly and indirectly affected by the war.

In 2012, Mercy Corps launched the Promoting Sustainable Partnerships for Economic Transformation (PROSPECTS) initiative in Montserrado Country of Liberia, where Monrovia is located. PROSPECTS contained several distinct interventions designed to provide vulnerable young Liberians with psychosocial and pre-employment skills necessary for future formal or self-employment. This paper focuses on the evaluation of one initiative within PROSPECTS: Sports for Change.

Sports for Change (SFC) targeted vulnerable, out-of-school youth between the ages of 18 and 25 with little or no prior formal work experience. This target population was broadly considered to be unskilled and "unemployable." The program in Liberia, adapted from the Mercy Corps method of engaging youth in other post-conflict settings, was designed to use sports groups as a means of attracting and engaging with vulnerable youth. Bundling sports team practices with life-skill activities, the program designers expected positive impacts on participants' psychosocial outcomes and improved resiliency to adverse life events. Improved psychosocial well-being and resiliency were expected to create a foundation of workforce "readiness" for participants to enter into formal employment or launch a small business.

In total, SFC established 30 different sports clubs with 40 members per club. Mercy

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[9]www.reuters.com/article/liberia-sirleaf/liberian-president-says-youth-unemployment-a-threat-to-peace-idUSL5N0JA43B20131125

[10]http://data.un.org/en/iso/lr.html

Corps trained one coach per club on a curriculum of life-skills lessons designed to complement the sports activities. Training sessions integrated five core life skills: constructive communication, self-esteem, resilience and problem solving, teamwork and trust building, and strategy making and planning (see Appendix Figure A.1 for an example of a session schedule).

Coaches organized two group meetings per week for a total of 16 sessions over eight weeks. The typical three-hour meeting comprised one hour of introduction and warm-ups, one hour of instructional activities, and one hour of sports. Appendix Table A.1 presents the topics covered in each of the sixteen Sports for Change sessions along with the targeted skills to be emphasized in each session. The primary sports played by clubs were soccer and handball. Participants received USD $2 for each session that they attended (intended to reimburse participants for transportation expenditures).

4   Experimental Design

Recruitment and Random Assignment

We worked with Mercy Corps in nine urban communities of Monrovia to identify a pool of eligible youth for participation in the Sports for Change program. Applicants were randomly assigned to either the treatment or control group at a public lottery. We organized one public lottery per community. Randomization was conducted at the level of the individual and stratified by gender to ensure a balance of men and women across treatment and control groups.[11]

Random assignment allows us to analyze the impact of the Sports for Change program by comparing key outcome variables of individuals assigned to the program and those assigned to the control group. For the 2,400 participants included in this analysis, 50% were assigned to an SFC youth group; 50% were not invited to a sports group and thus serve as our control group.[12] Additional details on the recruitment of participants into

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[11]Women and men formed separate lines and each individual drew a ticket from a covered bucket. The ticket stated the group assignment. Individuals were unable to see into the bucket and could not change their assignment after a ticket was drawn.

[12]The initial research and program design of PROSPECTS also included a "cash for work" (CFW) program that involved an opportunity for participants to earn money by collecting recyclable materials. Implementation challenges, compounded by low interest in the program, meant that very few people assigned to the CFW group ever actually participated in the program. As a result, the analysis in this paper focuses solely on the Sports for Change component of PROSPECTS. Random assignment of the full set of 3,000 participants in the original research design was 20% of participants to the CFW program only, 20% to the SFC program only, 20% to both programs, and 40% to the control group. Due to implementation challenges as well as budgetary and logistical constraints on conducting follow-up surveys amid the outbreak of Ebola,

the study and random assignment to treatment groups and sports teams can be found in the appendix.

Table 1 shows the number of study participants by community and gender. In total, 2,400 individuals were deemed eligible for the program and assigned to either the control group or an SFC team. The number of participants per community varied from 200 to 600. Mercy Corps sought 50% female participants. Although there is some variance of female participation levels across communities, gender balance across treatments within each community was preserved by the stratification. In total, 1,200 individuals (574 men and 626 women) were assigned to an SFC group; 1,200 applicants (579 men and 621 women) were assigned to the control group.

Data and Research Timeline

The study includes data from four different sources: registration data, baseline in-person interviews, administrative program data, and endline phone interviews.

Registration forms were completed by the entire pool of eligible applicants and included demographic information on age, gender, and schooling. Registration staff recorded extensive tracking and contact information in anticipation of the baseline interviews. Program and sports group assignment were recorded as part of the applicant's completed record. In the days immediately following the registration event in each community, Innovations for Poverty Action (IPA) conducted in-person baseline interviews with all registrants[13].

The registration lottery and baseline were conducted according to the schedule shown in Table 1. These initial activities began in the West Point community on July 24, 2013 and concluded with the Logan Town community in February 2014. Between completion of the registration/lottery days and administration of the baseline survey, there was very low attrition: only five out of 2,400 registrants refused to be interviewed or could not be found after the registration event.

The SFC program was then implemented on a phased launch schedule. Once a community's baseline survey was complete, Mercy Corps initiated training of SFC coaches and group training sessions. The final community completed its full set of 16 SFC ses-

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it was decided to exclude respondents in the CFW-only treatment from the endline survey. As such, we do not have outcome data for the 600 individuals assigned to the CFW-only group.

[13]For logistical reasons, it was not possible to both generate a sample frame of individuals and also complete baseline surveys prior to treatment assignment. We do not anticipate that this design feature produced appreciable biases in baseline survey responses, which is supported by identical baseline response rates between treatment and control. Of the five registrants who did not participate in the baseline, two were in the treatment group and three were in the control for attrition rates of 0.17% and 0.25% respectively.

sions in April 2014.

Programmatic data on attendance and payments to beneficiaries was recorded and provided by Mercy Corps. Participation in SFC was high in all nine communities. On average, the 1,200 individuals assigned to SFC attended 10.35 SFC sessions (out of a maximum of 16). In one community, Peace Island, average attendance fell below 50%. High retention rates among those who ever showed up suggest that the program was popular among participants. Among individuals who attended at least one SFC session, 70.1% attended more than half of the SFC sessions; 67.1% attended at least three-quarters of the SFC sessions.

Due to risks associated with travel restrictions and quarantines during the Ebola crisis in Liberia, the endline survey was administered through computer-assisted telephone interviews. The endline survey was conducted simultaneously for participants in all nine communities.[14] Endline interviews began on April 3, 2015, and ended on May 9, 2015. A total of 2,081 individuals were successfully interviewed for the endline survey, a follow-up success rate of 87%.

Descriptive Statistics and Baseline Balance

Table 2 shows summary statistics and balance of participants at baseline by program treatment status. The average age in the sample is 21 years old. 83% had completed primary school and slightly more than 25% had completed secondary. Just over 43% had some form of employment at baseline. Among those working, respondents worked roughly 28 hours per week and earned around 16.50 USD for that work.

We measure subjective welfare using a modified version of the Cantril Scale (Cantril et al., 1965). Respondents were shown a six-step ladder and told that the top of the ladder represents the wealthiest households in the community while the bottom represents the poorest. They were then asked to indicate which step of the ladder they saw themselves at with one being the lowest and six being the highest response values. Deaton (2008) has shown that the Cantril Scale of subjective welfare correlates with income levels. An average of 2.3 in the sample suggests that, on average, respondents felt that their overall welfare was just below average.

Locus of control, aggression, risky behavior, and self-esteem along with the composite psychosocial index comprise the five psychosocial well-being measures we use in our

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[14]Stratification of treatment by community alleviates the concern that inconsistency in time between the program and the follow-up survey bias estimation of the program's impact. Differences in timing prevent us from making comparisons of treatment effects across communities.

analysis.[15] Several of our main outcomes of interest are drawn from internationally accepted psychosocial indicators. Each of these indices is the composite scoring of a series of questions on respondent attitudes and behaviors linked to their feelings of control for their life outcomes (locus of control), self-esteem, risky behaviors, and aggression.

Locus of control, developed by Rotter (1966) is a concept of internal versus external control. Low values of the Locus of Control Index signify that an individual believes that his or her actions determine the outcomes, whether positive or negative, in their life. Higher values indicate external locus of control, meaning that an individual believes that his or her behavior has little influence over the outcomes in life. The index involves a series of eight statements that the respondent is asked to identify with, e.g. "If you try hard you can make your life better." For each statement, the respondent is asked to state if they Agree, Somewhat Agree, Somewhat Disagree, or Disagree. To create the index, responses are sorted and scored from 1 to 4, with external control responses equaling 1 and internal control responses equaling 4. The values of the 8 responses are equally weighted and summed to create an index that ranges from 8 to 32.

The Rosenberg Self-Esteem Scale (Rosenberg (1965)) measures positive and negative feelings about oneself. We implemented the scale using 8 statements which the respondent is asked to use a Likert Scale for Agree-Disagree. Negative statements were reverse coded and total score calculated for each respondent by summing the responses to the 8 statements. As with the Locus of Control Index, the Self-Esteem Scale ranges from 8 to 32.

In order to identify tendencies toward aggressive behavior, we presented seven distinct scenarios to respondents. Scenarios were framed over a 12 month recall period, e.g. "In the past 12 months have you had major disputes with a neighbor often, sometimes, rarely or never?" Responses were reverse coded, Never equals zero and often equals four. Scores for the seven questions were summed in order to create an Aggression Index ranging from 0 to 21. At baseline, the vast majority of respondents did not report aggressive behavior, with a mean index score of 2.55 and median of 2.0. However, 10% of respondents have scores of 6 or more, suggesting that a small segment of individuals are involved in altercations within their community.

We also asked a series of six questions about risky behaviors (gambling, cigarette smoking, alcohol use, marijuana use, hard drug use, and drug selling). Each question was coded from Never (0) to Often (4) and all six are equally weighted and summed to create an index ranging from 0 to 18. As with the Aggression Index, risky behaviors are

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[15]Although we collected data at baseline, the depression anxiety and stress (DASS) index was excluded from the endline due to challenges in implementing the module over the phone.

uncommon. However, risky behavior is more common among male respondents.[16]

Table 2 shows the statistics for raw values across treatment and control groups. In our regression analysis we use standardized versions of each metric. The psychosocial index is the standardized mean of the five other standardized psychosocial measures.

While most baseline variables are well-balanced across treatment status, we note an imbalance in four of the 35 variables, which is slightly higher than we would expect from chance. Respondents in the control group had higher baseline measures of self-esteem and numeracy, but lower scores on the depression, anxiety, and stress (DASS) index and three-month income. Our preferred ANCOVA specification controls for different starting levels in the outcome variable.

For three-month income, the baseline imbalance is no longer significant after implementing the inverse hyperbolic sine transformation, which should mitigate the influence of outliers in the data with unusually large reported earnings.[17] Given that longer recall windows are prone to greater amounts of measurement error, we exclude the three-month income measure from our primary analysis of labor outcomes and give preference to seven-day income. Appendix tables show the robustness of our results when including the three-month income as well.

Despite the challenges of conducting a phone-based survey during the Ebola outbreak, the survey team managed to reach 87% of respondents for the follow-up. We test for selective attrition in Appendix Table A.2. There is no evidence of selective attrition in terms of total number of attriters by treatment status (columns (1)-(2)). In column (3) we see no overall evidence of selective attrition and the joint test of significance for baseline covariates interacted with treatment has a p value of .98.[18]

Psychosocial and Labor Measures

The Sports for Change program was built on a belief that psychosocial well-being and labor outcomes are closely linked. In addition to their direct benefits, it is believed that improving psychosocial well-being would impact employment and workforce readiness, leading to higher labor force participation and earnings.

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[16]Our measures of aggression and risky behavior follow the survey modules used in Blattman et al. (2017) who adapted the aggression module from Raine et al. (2006).

[17]The inverse hyperbolic sine transformation is a way to address issues with extreme right-tail outliers for dependent variables without dropping zeros, as occurs with a conventional log transformation. In regression models it can still be interpreted similarly to the log transformation (Burbidge et al., 1988; MacKinnon and Magee, 1990).

[18]There is one strongly significant baseline characteristic, baseline PSI. Participants in the treatment group with low baseline PSI measures were more likely to attrite from the sample. If anything, this would likely result in a positive bias on our estimates of SFC's impacts.

Baseline correlations show a significant and positive relationship between three of our five measures of psychosocial behaviors and financial outcomes. Table 3 shows the results from regressing financial outcomes on five different indices of psychosocial behaviors: welfare, self-esteem, locus of change (empowerment), risky behaviors, and aggressive behaviors. Each index is coded so that positive values represent "better" behavior. Four of the five indices show positive point estimates for all outcomes. In the aggregate labor force index in column 3, three of these five show statistically significant correlation with labor outcomes. Only the coefficients for risky behaviors do not show a positive association with any labor outcome.

These correlations add credibility to claims of a relationship between psychosocial well-being and labor outcomes, but do not constitute a test of causality between the two. Moreover, the correlations suggest that we are capturing meaningful psychosocial measures in our survey which relate to labor market outcomes. We use the experimental design of this study to test the causal relationship between SFC participation and anticipated psychosocial well-being and labor market outcomes outcomes.

5 Empirical Results

The SFC program had two main objectives. First, Mercy Corps saw the program as a way to improve the psychosocial well-being and resilience of vulnerable youth. Second, Mercy Corps sought to test whether psychosocial improvements would lead to greater workforce "preparedness" which could result in a positive impact on labor-related outcomes.

With random assignment, two survey periods, and low autocorrelation of our outcome variables, our preferred estimation strategy is an ANCOVA specification due to its greater statistical precision (McKenzie, 2012). We estimate the direct effects of the program on psychosocial measures and labor outcomes using the following regression equation:

$$Y_{i,t} = \beta_0 + \beta_1 SFC_i + Y_{i,t-1} + \lambda \mathbf{X}_i + \delta_c + \epsilon_i \tag{1}$$

Where $Y_{i,t}$ is an outcome of interest for individual, i, measured at the endline in time, t, SFC_i is an indicator for whether individual i was assigned to the sports for change program, and $Y_{i,t-1}$ is the lagged outcome of interest for individual i as recorded during the baseline. $\mathbf{X}_i$ is a set of time-invariant covariates which include age and age-squared as well as dummies for female and grade level attained. We include a set of community fixed

effects, δ_c and use robust standard errors to adjust for heteroskedasticity of the error term. For some outcome variables, where baseline data is not available, the lagged dependent variable is omitted.

Take up of the SFC program among the treatment group was not universal, we thus interpret our estimates of β_1 as the average causal effect of the program for those assigned to the treatment group, i.e. the intent to treat estimate.

High attendance measures suggest that the SFC program was desirable in the eyes of participants and adds credibility to the view that this program was well-implemented. Moreover, when asked at the time of the endline survey, 96% of SFC participants said that they liked the program. When asked, "In what contexts do you think the SFC skills are most useful?" the plurality of respondents, 36%, said when playing sports. However, many participants suggested that the program may have had benefits beyond sports: 21.2% responded that the program was most useful for conflict resolution and 31.5% said that the program was most useful for trying to find employment.

Psychosocial Impacts

Table 4 shows the direct impact of program participation on a set of five psychosocial outcomes: self-esteem, locus of control, risky behaviors, aggression, and subjective welfare assessments as well as an aggregate index of psychosocial behavior.[19] Akin to the approach by Blattman et al. (2017), we coded all psychosocial variables in the same direction and standardized their values. As such, higher values of our aggressive behaviors and risky behavior indices signify 'better' outcomes. Panel (a) shows that the program does not appear to have had a meaningful impact on the psychosocial behaviors of its participants. Point estimates are all close to zero. Of the six outcomes, only two have positive point estimates and the standard errors can rule out effect sizes greater than 0.11 standard deviations. This is small compared to the findings in Blattman et al. (2017), who find effect sizes around 0.25-0.3 standard deviations. The only coefficient showing any marginal statistical significance has a negative coefficient suggesting a *worsening* of aggressive behaviors in response to the program. We interpret these results as ruling out substantial positive impacts on psychosocial outcomes as captured by these measures.

Second, we consider the possibility that the program's impacts take the form of increased resiliency in the face of adverse life events. The surveys asked if respondents or their families had been effected by a set of different types of negative life events over the

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[19]We provide the ANCOVA results. Difference in differences results are generally consistent and can be provided upon request.

past year such as the death of a family member or victimization of a crime. Using these responses, we created a life event index by adding together the number of affirmative responses given by the respondent and standardizing this resulting sum. Respondents in the control group and their families had been impacted by an average of 1.5 of these negative life events, with a standard deviation of two.[20] For example, 27 percent of the control group reported a serious accident that injured a member of the household; 28 percent reported experiencing abuse or a violent crime. Panel (b) controls for this index and looks at whether the program helped participants to be more resilient in the face of adversity. Row three shows that these events do appear to have a meaningful correlation with many of the psychosocial measures. We find negative correlations between the life event index and risky behaviors and self-esteem; however, the relationship is positive with aggression. While we do not interpret these relationships as causal, these correlations give us confidence that our psychosocial measures are capturing meaningful behaviors and attitudes of respondents.

Greater resiliency in the face of adversity would suggest a positive coefficient on the interaction term of program treatment status and the life event index in row (2) of panel (b). Column (5) does show a statistically significant and positive impact on risky behaviors in the presence of life events. However, the sign of the other five outcomes is inconsistent and none of them show any statistical significance.

Labor Force Impacts

In Table 5, we follow a similar estimation strategy as used for psychosocial outcomes to examine the effect of the SFC program on labor force outcomes. We test for program impacts on three outcomes: hours worked in the past week, income earned over the past week, and a composite "labor force index" of these two measures. The inverse hyperbolic sine transformation of reported income is used to address the skewness of respondent earnings and to retain zeros in the regression.

Panel (a) shows that the program caused a 1.4 hour increase in the number of hours worked for program participants, an 11.8% increase over the control mean. The point estimate in the second column suggests that the program also led to an increase in earnings by 11.9%. Both of these results are marginally significant at the 90% confidence level. The composite labor force index in column (3) suggests a 0.115 standard deviation increase (p=0.011). Appendix Table A.4 shows that these results are robust to including the noisier

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[20]Some life events recorded in the interview were ultimately excluded from the index where we thought that the likelihood of this event could be an outcome of the program itself. Table 9 shows the separate events and indicates with a star the measures that were included in the life event index.

measure of three-month recall earnings.

Panel (b) looks for evidence of greater resiliency. Although lacking in statistical significance, the sign of the interaction term in row (2) is negative across all specifications, suggesting *less* resiliency in the face of adverse life events. We interpret this to mean that meaningful positive benefits in the form of greater labor related resiliency resulting from the program can be ruled out.

A comprehensive examination of the program's impact on all outcomes captured in the endline reveals mixed evidence. Table 7 shows the impacts of the program on all labor outcomes. Consistent with increased labor force participation and earnings, program participants increased their share of contributions to household non-food expenditures by 2.6 percentage points, 11% of the control mean (p=0.044). However, the program appears to have had a marginally significant *negative* impact on an index of coping behaviors, suggesting that program beneficiaries engaged in more coping behaviors such as reducing the number and size of meals. This response would be inconsistent with increased earnings and labor force participation unless coping and labor force participation are both reactions to an omitted household shock that correlated with treatment. Some plausible shocks that may meet these criteria were reported as life events discussed earlier. However, Table 9 shows that treatment status is not positively correlated (or has no significant impact on) the likelihood of adverse events taking place. If anything, the point estimates of most events are negative which would, presumably, lower the need to engage in coping strategies and/or increase labor supply.

Given our inability to fully reconcile our findings, we view this as positive, albeit tentative, evidence of SFC's impact on labor force outcomes for participants.

6   Mechanisms and Heterogeneity

Alternative Mechanisms

The logical framework of SFC was that the program would improve pro-social behaviors (as measured by psychosocial outcomes) for participants and that these improvements would result in better labor market outcomes. Strong positive baseline correlations of these two measures suggested that this was plausible; however, the program did not appear to either improve these psychosocial outcomes or make participants more resilient in the face of adverse shocks. Nevertheless, the program still appears to have had a positive impact on labor force participation and earnings.

If these labor force impacts were not transmitted through the hypothesized mecha-

nisms of psychosocial improvements and workforce readiness, what alternative mechanisms could there be? One possibility is that peer effects of varying types may have driven these results. Because participants were not only randomly assigned to treatment or control status but were also randomly assigned to specific teams within their community, we can look at several potential peer effects that may have led to the observed program impacts.

Baseline data collection included questions about each respondent's friend network and allowed us to identify pre-existing social linkages between study participants. We are then able to see if the presence of a friend in randomly assigned sports groups impacts program outcomes. Estimation was conducted using a similar ANCOVA specification as in the previous section. However, instead of program treatment status, the treatment is coded as an indicator of whether any pre-existing friends were (randomly) assigned to the same group as a given participant. The specification includes fixed effects for the different sports groups as well as for individuals' baseline number of potential friends with whom they could have been matched. The sample is restricted to only include those assigned to an SFC team.

Table 6 shows that the presence of a friend in ones randomly assigned sports group has a significant positive impact on attendance. Participants are roughly 10% more likely to attend at least one SFC session and similarly attend 10% more sessions on average. Together, this suggests that the benefits of friend presence are on the extensive margin of getting individuals to attend group sessions. However, columns (3) and (4) show that the presence of friends did not have a meaningful impact on program outcomes. The point estimate of the impact on the psychosocial index is very close to zero while the impact on labor force index is negative, about half the size of the treatment effect and not statistically significantly different from zero).

It may instead be that program impacts are the result of *new* network formation among program participants. New network connections could have an impact in different ways. New connections could be the source of work opportunities, provide information about work opportunities, or serve as role models of good (or bad) behavior. Although our data do not allow us to disentangle these mechanisms, random assignment to groups again allows us to see whether group composition and exposure to new people impact psychosocial or labor outcomes. Unfortunately, we do not find strong evidence of this mechanism either. Randomly being assigned to groups with more peers with high baseline labor force or psychosocial measurements do not appear to have a consistent or statistically significant impact on one's program outcomes.[21]

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[21]Tables are available upon request.

Heterogeneity

Even without a clear understanding of why the program worked, there may be value in better understanding *who* benefited most from the program and whether the program's impacts are the result of sensible patterns of heterogeneity. We check for heterogeneous treatment effects across a number of different dimensions. Each dimension reflects a group likely to be more disadvantaged in the labor force: female, young, low education, no vocational training, and from more disadvantaged communities.

Figure 1 plots the estimated treatment effects from separate ANCOVA regressions for different dimensions of heterogeneity. For each pair of coefficients plotted in the figure, the estimate to the left is of the treatment effect of the program as estimated for the "in group" sample indicated below, and the coefficient to the right is the treatment effect for the "out group" sample. For example, the two treatment effects plotted closest to the y-axis split the sample by female status. The left-most estimate is the treatment effect in the female only sample and the coefficient plotted just to the right of it is the treatment effect as estimated among males. The first five sets of results all suggest that more disadvantaged groups have, on average, larger absolute treatment effects.

We present these heterogeneity results on the labor force index outcome in regression form in Panel (a) of Table 10. Each row is a separately estimated ANCOVA regression estimating the main effect of SFC participation along with an interaction term for the treatment and the dimension of heterogeneity listed on the left. The first row of Panel (a) shows a positive point estimate of the SFC program of 0.0572 standard deviations with standard errors of 0.0659. Column (2) shows an interaction term of 0.1053 that is not significantly different from zero. However, the overall effect for females (SFC + SFCxHet in the table) is 0.1625 standard deviations, with a p-value of 0.0098 reported in column (5). Although the interaction term testing the difference between these groups are not significant, we observe that all five of the disadvantaged groups experience an overall positive treatment effect at least at the 5% significance level.

To consolidate these patterns across individual dimensions, we use a linear model to estimate labor force index outcomes on the same sets of variables, using only individuals in the control group.[22] We then use these coefficients to predict likely labor market outcomes in the full sample and create an indicator variable for predicted values above the median. We repeat this process of predicting high and low psychosocial and coping

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[22]There is very low serial correlation in labor market outcomes, including the relationship between important covariates and labor market outcomes (e.g. different communities are on very different labor market trends). As a result, we use data from the control group at follow-up to generate predicted values instead of using baseline data. Autocorrelation for the psychosocial index is 0.202 and for the labor force index it is 0.107.

measures outcomes for all respondents. The final pair of results in Figure 1 and row (6) of Panel (a) in Appendix Table 10 show that those with worse predicted labor force outcomes have significantly larger treatment effects than those expected to be doing better in the absence of the program. People predicted to have low labor force outcomes have a treatment effect that is 0.21 standard deviations bigger than those predicted to have higher labor force outcomes in the absence of the program (p=.019).

We perform a similar set of analyses to look for parallel patterns of program impact on psychosocial outcomes and the coping index in Panel (b) and (c), respectively. We do not find meaningful positive treatment effects on PSI for any of our subgroups across these dimensions of heterogeneity. Outcomes for those with high predicted PSI may, in fact, be negative, while those with worse predicted outcomes have a positive point estimate that is indistinguishable from zero. We also see slightly worse PSI outcomes (though not statistically significant) for those with worse predicted labor force outcomes. This is further evidence that the mechanism of labor force benefits was unlikely to come through a psychosocial channel. Similarly, we observe a negative and statistically significant impact of SFC on coping for those who are predicted to better coping outcomes (those with a high predicted coping index) and no impact of SFC on coping for those who are predicted to have worse coping outcomes. We do, however note that for all three outcomes, those with low predicted outcomes responded relatively better to the SFC program, even while these dimensions of heterogeneity within each outcome do not appear to have effects across outcomes. Overall, we take these patterns as additional evidence that the SFC program did not induce positive changes in psychosocial or coping outcomes among easily identifiable subgroups or the subgroups with the largest labor force impacts. We therefore conclude that the mechanisms behind the positive labor force impacts may be more nuanced than a simplified theory of change based on these intermediate indicators.

7 Summary and Conclusion

Using sports as a method of intervention and vehicle for other socio-emotional and psychosocial training has come increasingly into fashion. Sport for Development (SFD) is viewed as a potentially transformative approach to engaging and positively affecting the lives of vulnerable youth. These programs involve millions of participants across the globe and constitute hundreds of millions of dollars of expenditures each year. Despite these high levels of participation and expenditure, there is little existing evidence on the efficacy of these programs and their effect on participants.

We fail to find corroborating evidence to support the hypothesized relationship be-

tween sports for development programs and the psychosocial outcomes that SFD programs purport to affect. The Sports for Change program did not appear to have significant impacts on participants' psychosocial measures or resiliency in the presence of negative life events. Despite this, the evaluation showed significant impacts on labor force outcomes. Given the lack of effects on psychosocial measures, the motivating theory of change for SFD does not appear to be the mechanism driving improved labor market outcomes. While we were ultimately unable to isolate the mechanisms that are responsible for the program's impact on labor force outcomes, heterogeneity analysis suggests that those likely to be more disadvantaged (women, low education, young, and those without vocational training) benefited most from the program.

Ultimately, this evaluation provides some evidence of positive impacts of an SFD program on labor force outcomes. Given the scarcity of positive findings on active labor market programs in developing countries in general and the extent to which SFD programs are not precisely targeted at boosting labor market outcomes these results are notable in their precision and magnitude (McKenzie, 2017). However, the strength of these results is tempered by our inability to identify the mechanism through which this program's impact works and inconsistent findings related to food security. Given the pervasiveness and scale of resources devoted to SFD programs, we feel that further research should be done in order to deepen the pool of evidence on sport for development programs.

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8 Figures and Tables

Figure 1: Heterogeneity of SFC Impacts on Labor Force Index
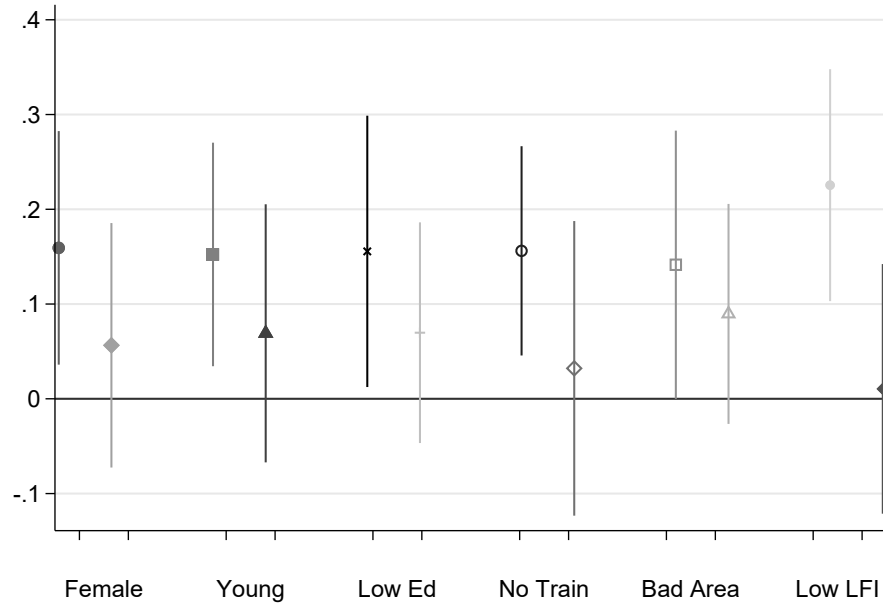
Notes: Figure shows point estimates and 95% confidence intervals of ANCOVA regression of labor force index on program treatment status. Each dimension of heterogeneity splits the sample between in and out-group members such that estimates on the left are in that dimension of heterogeneity and those on the right are out. For example, the first estimate closest to the y-axis is the treatment effect of the program estimated for the sample of women and the second point estimate is the estimated treatment effect among men. "No Train" indicates respondents who had never done any vocational training. "Bad Area" refers to the three communities with reputations for being particularly tough: West Point, New Kru Town, and Clara Town. "Low LFI" uses a linear prediction of the labor force index based on the other covariates in the table estimated on the control group and predicts labor force index for the entire population. Low LFI then indicates those who were predicted to be below the median of this continuous measure.

Table 1: Registration and Baseline Survey Dates and Participants

Community	Registration	Baseline Interviews	SFC		Control		Total
			Male	Female	Male	Female	
West Point	24 Jul 2013	29 Jul - 8 Aug 2013	90	70	91	69	320
New Kru Town	7 Sep 2013	11 Sep - 24 Sep 2013	116	124	117	123	400
Peace Island	31 Oct 2013	3 Nov - 8 Nov 2013	39	41	41	39	160
Buzzy Quarter	7 Nov 2013	9 Nov - 16 Nov 2013	38	42	40	40	160
Clara Town	18 Nov 2013	22 Nov - 5 Dec 2013	76	84	78	82	320
Dry Rice Market	12 Dec 2013	15 Dec - 19 Dec 2013	40	40	40	40	160
Banjor	11 Jan 2014	13 Jan - 16 Jan 2014	38	42	40	40	160
Chicken Soup Factory	18 Jan 2014	23 Jan - 30 Jan 2014	68	92	67	93	320
Logan Town	1 Feb 2014	4 Feb - 12 Feb 2014	69	91	65	95	320
Total			574	626	579	621	2400

Table 2: Baseline Balance by Treatment Status

	Control	Treatment	P-value of Diff
Demographics and household characteristics:			
Female	0.518	0.522	0.85
Age	20.926	20.798	0.26
Head of Household	0.131	0.143	0.42
Household Size	6.762	6.598	0.26
Mother known to be living	0.868	0.870	0.91
Father known to be living	0.713	0.717	0.84
Has at least one child	0.454	0.432	0.28
Christian	0.876	0.863	0.37
Muslim	0.111	0.125	0.29
Matched connections in sample	2.390	2.419	0.72
Education and cognitive ability:			
Completed primary school	0.835	0.836	0.95
Completed secondary school	0.276	0.265	0.57
Highest Grade Completed	11.389	11.350	0.81
Numeracy (0-10)	5.951	5.784	0.04**
Digits Forward (0-8)	5.176	5.124	0.42
Digits Backward (0-8)	1.981	1.924	0.24
First Word Recall (0-10)	3.059	3.072	0.91
Second Word Recall (0-10)	2.578	2.558	0.85
Ravens Score (0-3)	1.753	1.726	0.51
Risk Aversion (0-6)	3.785	3.758	0.79
Psychosocial Measures:			
Subj. Welfare, today, (0-6)	2.292	2.321	0.59
Self-esteem Index	22.977	22.495	0.00***
Locus of Control Index	24.089	24.031	0.63
Aggression Index	2.603	2.546	0.63
Risky behavior index	1.501	1.468	0.67
Depression, Anxiety and Stress Score (DASS21)	21.987	23.282	0.02**
Psychosocial Index (Standardized)	0.000	-0.065	0.12
Labor Force and Financial Measures:			
Labor Force Index (Standardized)	0.000	0.012	0.78
Labor Force Index 2 (Standardized)	-0.000	0.021	0.62
Working Last Week	0.431	0.436	0.83
Hours worked last week	11.546	12.344	0.33
Hours worked last week (if positive)	27.495	29.016	0.27
IHST(Hours worked last week)	1.513	1.563	0.53
Income earned last week	6.501	6.647	0.80
Income earned last week (if positive)	16.342	16.999	0.57
IHST(Income earned last week)	1.190	1.180	0.88
Income earned last three months	48.060	57.840	0.01**
Income earned last three months (if positive)	80.078	96.591	0.00***
IHST(income earned last three months)	2.625	2.738	0.25
N	1197	1198	

Notes: Top 1% of values for hours worked, income earned last week, and income earned last three months are trimmed and set to missing.

Table 3: Labor outcomes and psychosocial associations

	(1) Hours	(2) IHST(7dI)	(3) LFI
Welfare Today (WF)	0.653	0.087**	0.049**
	(0.420)	(0.036)	(0.022)
Self-Esteem Index (SE)	1.561***	0.187***	0.108***
	(0.430)	(0.035)	(0.022)
Locus of Control Index (LOC)	0.523	0.082**	0.041*
	(0.443)	(0.034)	(0.022)
Aggressive Behaviors Index (Agro)	0.517	0.055	0.034
	(0.486)	(0.038)	(0.024)
Risky Behaviors Index (RB)	-0.453	0.018	-0.007
	(0.502)	(0.042)	(0.026)
N	2020	2039	2007
Mean Y	11.99	1.18	0.01
R2	0.051	0.082	0.072

Notes: Standard errors in parentheses. Top 1% of earnings and hours are trimmed and set to zero to prevent relationships driven by implausibly large outliers. Regressions include female, age, and age^2 covariates as well as fixed effects for educational attainment and community. LFI=Labor Force Index. 7dI=Income over the last seven days. All variables are coded so that higher values reflect "better" behaviors or attitudes. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 4: SFC, Psychosocial Outcomes, and Resiliency

Panel (a): Impact of SFC on Psychosocial Outcome

	(1) WF	(2) SE	(3) LOC	(4) Agro	(5) RB	(6) PSI
SFC	0.02	0.03	-0.02	-0.08*	-0.00	-0.02
	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
Y_L1	0.13***	0.21***	0.11***	0.19***	0.25***	0.18***
	(0.02)	(0.02)	(0.02)	(0.03)	(0.03)	(0.02)
N	2055	2058	2058	2058	2058	2058
R2	0.058	0.070	0.042	0.066	0.139	0.070

Panel (b): Impact of SFC on Resiliency - Psychosocial Outcome

	(1) WF	(2) SE	(3) LOC	(4) Agro	(5) RB	(6) PSI
SFC	0.024	0.031	-0.015	-0.073*	-0.017	-0.024
	(0.045)	(0.044)	(0.045)	(0.042)	(0.042)	(0.045)
Life Event Index x SFC	0.006	-0.026	0.010	-0.053	0.098**	0.019
	(0.044)	(0.044)	(0.048)	(0.043)	(0.045)	(0.047)
Life Event Index (LEI)	-0.010	-0.139***	-0.011	0.094***	-0.058**	-0.048
	(0.032)	(0.031)	(0.034)	(0.030)	(0.029)	(0.032)
Y_L1	0.130***	0.201***	0.110***	0.180***	0.252***	0.181***
	(0.024)	(0.021)	(0.022)	(0.029)	(0.031)	(0.024)
LEI_L1	-0.012	-0.020	-0.029	0.062***	-0.020	-0.007
	(0.021)	(0.022)	(0.021)	(0.022)	(0.020)	(0.021)
N	2055	2058	2058	2058	2058	2058
R2	0.058	0.093	0.043	0.075	0.142	0.071

Notes: Outcomes standardized and coded so that higher values reflect "better" behavior. WF=Welfare, SE=Self-Esteem, LOC=Locus of Change, Agro=Aggression, RB=Risky Behavior, PSI=Psychosocial Index. Y_L1 is the lagged dependent variable for the estimation of an ANCOVA specification. Life Event Index is coded with higher values indicating the occurence of more negative life events. Standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 5: SFC, Labor Outcomes, and Resiliency

Panel (a): SFC Impacts on Labor Outcomes

	(1)	(2)	(3)
	Hours	IHST(7dI)	LFI
SFC	1.393*	0.119*	0.115**
	(0.724)	(0.065)	(0.045)
Y_L1	0.069***	0.076***	0.098***
	(0.020)	(0.021)	(0.024)
N	1978	2014	1947
Mean Y	12.483	2.188	0.054
Control Mean	11.734	2.133	-0.003
R2	0.045	0.071	0.075

Panel (b): SFC Impacts on Labor Outcomes with Resiliency

	(1)	(2)	(3)
	Hours	IHST(7dI)	LFI
SFC	1.554**	0.125*	0.123***
	(0.736)	(0.066)	(0.046)
Life Event Index x SFC	-1.098	-0.072	-0.062
	(0.708)	(0.064)	(0.044)
Life Event Index	1.221**	0.068	0.071**
	(0.490)	(0.046)	(0.030)
Y_L1	0.067***	0.077***	0.098***
	(0.020)	(0.021)	(0.024)
LEI_L1	0.267	0.050	0.025
	(0.357)	(0.033)	(0.023)
N	1978	2014	1947
Control Mean	11.734	2.133	-0.003
R2	0.048	0.074	0.078

Notes: LFI=Labor Force Index. 7dI=Income over last 7 days. Y_L1=Lagged dependent variable. LEI_L1=Lagged life event index. Life Event Index is coded with higher values indicating more bad events. Standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 6: Effects of Any First Degree Friends

	(1) Any Attendance	(2) Total Days Attended	(3) PSI	(4) LFI
Any Friends	0.075**	1.068**	-0.002	-0.058
	(0.032)	(0.492)	(0.085)	(0.066)
N	1029	1029	1029	973
Mean Y	0.73	10.79	-0.02	0.10
R2	0.093	0.094	0.099	0.113

Notes: Mean likelihood of matched friend = 0.365. Regressions include female, age, and age^2 controls as well as educational attainment and community fixed effects. PSI=Psychosocial Index, LFI=Labor Force Index. Standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 7: Impact of SFC on All Labor and Financial Outcomes

	SFC	Std Err	P-Value	Control Mean
Labor Force Index	.1072	.0439	.0147	-.0032
Hours worked	1.3928	.7236	.0544	11.734
Hours worked > 0	.0428	.0201	.0331	.6753
IHST(Hours)	.1323	.0742	.0748	2.086
Weekly income (7dI)	1.0527	.7604	.1664	10.543
IHST(7dI)	.1186	.0647	.0668	2.1332
Labor Force Index (with 3MI)	.1058	.044	.0164	-.0027
Three month income	-.5389	3.0659	.8605	55.1231
IHST(3MI)	.0706	.0744	.3428	3.7743
Contribution Share of HH food	.0159	.0124	.2026	.3001
Contribution Share of HH non-food	.0261	.0129	.0439	.2416
Time contribution to HH	-.0337	.1055	.7498	2.9007
Coping Index (positive=less coping)	-.0802	.0441	.0693	.0416
How many times over the last week has your household... (1-7)				
...Relied on cheaper food	.1311	.0913	.1511	2.3536
...Limited size of meals	.229	.0887	.0099	2.0771
...Reduced number of daily meals	.1595	.0858	.0633	1.7042
...Lowered consumption for adults	.0494	.0821	.5479	1.2977
...Borrowed food/relied on help	.0555	.0638	.3843	.7861
Over the last year has your household... (1=yes, 0=no)				
...Sold/slaughtered livestock	.0343	.0169	.0431	.1618
...Sold assets	.0067	.0154	.6653	.138
...Borrowed money	.0187	.0217	.3875	.3913
Amount borrowed	-74.4	644.5	.9081	6158.4
...Lent money to others	.0084	.0202	.6769	.2903
Total amount lent to others	771.7	1239.1	.5337	4240.1
...Sent child to live with others	.0179	.0183	.327	.2093
...Spent down savings	.0261	.0222	.2391	.5271
...Delayed investments	.0191	.0222	.3909	.5068

Notes: All results estimated using an ANCOVA specification except for coping measures which were not collected at baseline. Results estimated without the lagged dependent variable.

Table 8: Impact of SFC on All Psychosocial Outcomes

	SFC	Std Err	P-Value	Control Mean
Psychosocial Index	-.0206	.0438	.6375	0
Welfare today	.0242	.0438	.5804	0
Locus of Control Index	-.0165	.0441	.7086	0
State your response to the following statements. 1=Agree, 2=Weakly Agree, 3=Weakly Disagree, 4=Strongly Disagree				
Your choices affect your future.	-.057	.0359	.1131	1.473
You have limited control over your life.	-.0393	.0481	.4139	1.9846
Business success is the result of luck.	.0235	.0526	.6543	2.2312
Trying hard can improve your life.	-.0008	.0199	.9673	1.1272
When you make plans, you can usually make them work.	.0075	.0359	.8349	1.4923
Bad things that happen to people are due to bad luck.	-.0043	.0537	.9367	2.9267
People who live on the streets are responsible for their situation.	.0548	.0546	.316	2.6888
Success comes from hard work.	.0149	.029	.6069	1.2437
Self-Esteem Index	.0299	.0432	.489	0
State your response to the following statements. 1=Agree, 2=Weakly Agree, 3=Weakly Disagree, 4=Strongly Disagree				
You are satisfied with yourself.	.005	.0468	.9156	1.7303
You feel useless sometimes	.0215	.0549	.6956	2.54
Everything you try to do, you fail.	.0074	.0531	.8888	2.421
You do not have enough respect for yourself.	-.0585	.0465	.2089	3.4137
You feel that you are at least as good a person as most people.	-.1066	.0455	.0193	1.7367
You think that you are a good person but doing nothing.	.0892	.056	.1116	2.1272
You can do business as well as most others.	.0304	.0369	.4104	1.4133
You feel ashamed of how your life is going.	-.0093	.0547	.8657	2.2563
Aggression Index	-.0757	.0425	.0748	0
Over the last year have your friends... (1=often, 2=sometimes, 3=rarely, 4=never)				
...had disputes with leaders/elders.	.0193	.0351	.5818	3.5735
...been involved in disputes with other community members.	.0591	.0398	.1375	3.2215
Over the last year have you... (1=often, 2=sometimes, 3=rarely, 4=never)				
...major disputes with a neighbor.	.0178	.0293	.5446	3.6667
...major disputes with a family member.	.0587	.0292	.0443	3.6673
...major disputes with a community leader.	.012	.0151	.4289	3.9203
...major disputes with police.	0	.0144	.998	3.937
...been in a physical fight.	.0395	.0216	.0678	3.8233
Risky Behavior Index	-.0043	.0416	.9173	0
Over the last year have your friends... (1=often, 2=sometimes, 3=rarely, 4=never)				
...gambled or bet.	.0022	.0348	.9495	3.5743
...smoked cigarettes.	-.0055	.0153	.7215	3.9392
...drank alcohol.	.0176	.0369	.6332	3.4006
...smoked marijuana.	.0109	.0149	.4617	3.9315
...used other heavy drugs.	-.0034	.0115	.7635	3.9671
...sold drugs.	-.0145	.0123	.2369	3.9689

Note: All indices coded so that positive="better" outcomes. Welfare today and all indices have been standardized based off of the control group

Table 9: Impact of SFC on All Life Events

	SFC	Std Err	P-Value	Control Mean
Life Event Index - Standardized	-.0377	.0433	.3846	.1654
Life Event Index - PCA	-.0691	.074	.3504	.0119
Have any of these things been a worry for you or anyone else living in this house during the last year? (1=yes, 0=no)				
Serious Illness *	-.0132	.022	.5495	.526
Serious Accident *	-.0007	.0195	.9728	.2726
Death of Friend/Family Member *	-.0389	.0216	.0714	.6252
Divorce or Separation *	-.0159	.0189	.401	.2459
Lost Job	-.0162	.0221	.4629	.4682
Not Able to Get a Job	-.0194	.0191	.3104	.762
Alcohol Related Problems	.0026	.0191	.8919	.2486
Drug Related Problems	.0116	.0163	.4741	.1551
Witness Violence	-.0004	.0211	.9865	.3516
Abuse or Violent Crime	-.0307	.0196	.118	.2842
Trouble with Police	-.0109	.0177	.5397	.2102
Gambling Problem	-.014	.0172	.4148	.1956
Family Member Sent to Jail *	-.0057	.0176	.747	.1994
Overcrowding at Home *	-.0027	.0202	.8924	.2938
Discrimination/Racism *	-.0057	.0192	.7677	.2534
Vandalism *	.0148	.0181	.4151	.2017

Notes: Life events with a * are included in the aggregate life event index.

Table 10: Heterogeneous Impacts on PSI, LFI, and Coping Index

						Control Group Means	
Panel (a): Labor Force Index	SFC	SFCxHet	Het	Y_L1	P:$\beta1 + \beta2$	$Het = 1$	$Het = 0$
Female	0.0572	0.1053	-0.2527	0.1111	0.0098	-0.1308	0.1384
	(0.0659)	(0.0910)	(0.0626)	(0.0236)	.	.	.
Young	0.0724	0.0809	-0.2559	0.1160	0.0108	-0.1461	0.1600
	(0.0692)	(0.0917)	(0.0645)	(0.0234)	.	.	.
Low Education	0.0693	0.0830	-0.1874	0.1168	0.0363	-0.1109	0.0794
	(0.0594)	(0.0938)	(0.0650)	(0.0237)	.	.	.
No Training	0.0360	0.1201	-0.1369	0.1168	0.0056	-0.0690	0.1066
	(0.0785)	(0.0968)	(0.0662)	(0.0239)	.	.	.
Bad Community	0.0897	0.0538	.	0.1212	0.0465	-0.0584	0.0322
	(0.0592)	(0.0932)	.	(0.0236)	.	.	.
Predicted Low Labor Force	0.0062	0.2141***	-0.4472	0.1017	0.0004	-0.2613	0.2551
	(0.0669)	(0.0914)	(0.0649)	(0.0234)	.	.	.
Predicted Low PSI	0.0766	0.0671	-0.1468	0.1193	0.0305	-0.0458	0.0413
	(0.0635)	(0.0918)	(0.0684)	(0.0238)	.	.	.
Predicted Low Coping Index	0.1239*	-0.0298	0.0495	0.1222	0.1428	-0.0199	0.0158
	(0.0658)	(0.0919)	(0.0707)	(0.0237)	.	.	.
Panel (b): Psychosocial Index	SFC	SFCxHet	Het	Y_L1	P:$\beta1 + \beta2$	$Het = 1$	$Het = 0$
Female	-0.0395	0.0409	-0.1009	0.1909	0.9807	-0.0644	0.0711
	(0.0655)	(0.0876)	(0.0610)	(0.0236)	.	.	.
Young	-0.0285	0.0203	-0.0485	0.1944	0.8944	0.0091	-0.0104
	(0.0614)	(0.0870)	(0.0616)	(0.0236)	.	.	.
Low Education	-0.0159	-0.0070	-0.2100	0.1834	0.7472	-0.1438	0.0878
	(0.0557)	(0.0907)	(0.0614)	(0.0235)	.	.	.
No Training	-0.0067	-0.0163	-0.1061	0.1881	0.6582	-0.0487	0.0810
	(0.0783)	(0.0940)	(0.0632)	(0.0236)	.	.	.
Bad Community	-0.0245	0.0153	.	0.1943	0.8968	0.1067	-0.0707
	(0.0557)	(0.0901)	.	(0.0237)	.	.	.
Predicted Low Labor Force	0.0322	-0.1048	-0.0171	0.1913	0.2375	0.0106	-0.0046
	(0.0633)	(0.0885)	(0.0635)	(0.0236)	.	.	.
Predicted Low PSI	-0.1108*	0.1850**	-0.3340	0.1800	0.2458	-0.2075	0.2089
	(0.0601)	(0.0881)	(0.0644)	(0.0239)	.	.	.
Predicted Low Coping Index	0.0201	-0.082	-0.0555	0.1907	0.3272	-0.0025	0.0085
	(0.0612)	(0.0880)	(0.0704)	(0.0236)	.	.	.
Panel (c): Coping Index	SFC	SFCxHet	Het		P:$\beta1 + \beta2$	$Het = 1$	$Het = 0$
Female	-0.0558	-0.0509	0.0255		0.0780	0.0563	0.0252
	(0.0631)	(0.0874)	(0.0635)		.	.	.
Young	-0.1129*	0.0486	0.1358		0.2662	0.0935	-0.0174
	(0.0663)	(0.0879)	(0.0640)		.	.	.
Low Ed	-0.1363**	0.1416*	-0.1300		0.9400	-0.0453	0.0933
	(0.0567)	(0.0897)	(0.0664)		.	.	.
No Training	-0.0802	-0.0025	-0.0628		0.1344	0.0150	0.0859
	(0.0716)	(0.0906)	(0.0662)		.	.	.
Bad Community	-0.0974*	0.0368	.		0.3738	0.0218	0.0547
	(0.0569)	(0.0887)	.		.	.	.
Predicted Low Labor Force	-0.0763	-0.0083	0.0801		0.1624	0.0585	0.0197
	(0.0640)	(0.0882)	(0.0670)		.	.	.
Predicted Low PSI	-0.0932	0.0288	-0.1028		0.3159	-0.0089	0.0857
	(0.0602)	(0.0879)	(0.0675)		.	.	.
Predicted Low Coping Index	-0.1660***	0.1724**	-0.2213		0.9228	-0.1068	0.1858
	(0.0585)	(0.0877)	(0.0700)		.	.	.

Notes: Each row results from a separately estimated ANCOVA regression with a dimension of heterogeneity listed in the first column. Standard errors for each covariate listed in columns 1-4 are listed in parentheses in the row just below. Predicted labor force, PSI, and coping index are calculated by separately regressing each outcome on female, age, age^2, no training, and community and educational attainment fixed effects in the control group sample. Using these estimated coefficients, we then split the sample by high or low predicted labor force, PSI, and coping index measures at the median of each of these measures. The dependent variable is listed in the panel header. Coping index measures were not collected at baseline and therefore the lagged dependent variable cannot be included in the regressions. Significance markers only included for main treatment and interacted treatment effects. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

9 Appendices

Table A.1: Sports for Change Life Skills Sessions: Topics and Skills Addressed

Session	Sports for Change Skills				
	Resilience	Planning	Trust	Self-Esteem	Communication
1: Introduction			X		
2: Me and Others			X	X	X
3: Understanding Emotions	X	X	X	X	X
4: Communication			X		X
5: Relationships	X		X		X
6: Cooperation			X	X	X
7: Believing in Me		X	X		X
8: Conflict and Violence	X	X	X	X	X
9: Collaboration			X		X
10: Motivation	X	X		X	
11: Dealing with Problems	X		X	X	X
12: Making Strategies		X	X	X	
13: Applying SFC Skills in My Life	X	X	X	X	X
14: Planning Graduation Event		X			
15: What Have We Learned?	X	X	X	X	X
16: Review and Closing	X	X	X	X	X

Table A.2: Test for Selective Attrition

	(1)	(2)	(3)
SFC	-0.001	-0.005	-0.108
	(0.014)	(0.014)	(0.177)
Baseline LFI x SFC			-0.007
			(0.014)
Baseline PSI x SFC			-0.038***
			(0.014)
Female x SFC			0.008
			(0.033)
Age x SFC			0.002
			(0.006)
Head of Household x SFC			-0.025
			(0.041)
Household Size x SFC			-0.003
			(0.004)
Mother Living x SFC			0.028
			(0.041)
Father Living x SFC			-0.004
			(0.031)
Has Children x SFC			-0.067*
			(0.036)
Christian x SFC			0.130
			(0.124)
Muslim x SFC			0.080
			(0.129)
Friends in Sample x SFC			-0.001
			(0.007)
Education Attainment x SFC			-0.004
			(0.004)
Numeracy x SFC			0.002
			(0.008)
N	2395	2333	2333
Mean Y	0.132	0.132	0.132
P-value from F-Test of Joint Significance			0.979
Controls	No	Yes	Yes
R2	0.000	0.034	0.041

Notes: These are results from a regression of a binary indicator of attrition from the study on the treatment and a set of covariates. Column (1) does not include any co-variates. Column (2) includes a set of covariates. Column (3) includes this same set of covariates as well as an interaction term with each co-variate and treatment. The p value of the F-test for joint significance of the treatment and its interactions is shown below column (3). * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A.3: SFC, Psychosocial Outcomes, and Resiliency

Panel (a): Impact of SFC on Psychosocial Outcome

	(1)	(2)	(3)	(4)	(5)	(6)
	WF	SE	LOC	Agg	RB	PSI
SFC	-0.00	0.10*	-0.03	-0.06	-0.02	-0.00
	(0.06)	(0.06)	(0.06)	(0.05)	(0.05)	(0.06)
N	4154	4160	4160	4160	4160	4160
R2	0.576	0.609	0.562	0.600	0.654	0.601

Panel (b): Impact of SFC on Resiliency - Psychosocial Outcome

	(1)	(2)	(3)	(4)	(5)	(6)
	WF	SE	LOC	Agro	RB	PSI
SFC	-0.01	0.09	-0.04	-0.05	-0.03	-0.02
	(0.06)	(0.06)	(0.06)	(0.05)	(0.05)	(0.06)
SFC x LEI	0.10	0.04	0.02	-0.05	0.07	0.07
	(0.06)	(0.06)	(0.06)	(0.05)	(0.05)	(0.06)
Life Event Index	-0.01	-0.13***	0.02	0.04	-0.06*	-0.06
	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
N	4154	4160	4160	4160	4160	4160
R2	0.577	0.612	0.562	0.601	0.654	0.601

Notes: Outcomes standardized and coded so that positive reflects "better" behavior. WF=Welfare, SE=Self-Esteem, LOC=Locus of Change, Agro=Aggression, RB=Risky Behavior, PSI=Psychosocial Index. Life Event Index is coded with higher values indicating the occurence of more negative life events. Standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A.4: SFC, Financial Outcomes, and Resiliency with Three Month Income

Panel (a): SFC Impacts on Financial Outcomes

	(1)	(2)	(3)	(4)
	Hours	IHST(7dI)	IHST(3mI)	LFI
SFC	1.393*	0.119*	0.071	0.103**
	(0.724)	(0.065)	(0.074)	(0.045)
Y_L1	0.069***	0.076***	0.076***	0.116***
	(0.020)	(0.021)	(0.016)	(0.023)
N	1978	2014	2014	1925
Control Mean	11.734	2.133	3.774	-0.004
R2	0.045	0.071	0.063	0.085

Panel (b): SFC Impacts on Financial Outcomes with Resiliency

	(1)	(2)	(3)	(4)
	Hours	IHST(7dI)	IHST(3mI)	LFI
SFC	1.554**	0.125*	0.077	0.111**
	(0.736)	(0.066)	(0.076)	(0.046)
Life Event Index x SFC	-1.098	-0.072	-0.091	-0.068
	(0.708)	(0.064)	(0.072)	(0.043)
Life Event Index	1.221**	0.068	0.085*	0.070**
	(0.490)	(0.046)	(0.051)	(0.030)
Y_L1	0.067***	0.077***	0.078***	0.116***
	(0.020)	(0.021)	(0.016)	(0.023)
LEI_L1	0.267	0.050	0.082**	0.033
	(0.357)	(0.033)	(0.037)	(0.022)
N	1978	2014	2014	1925
Control Mean	11.734	2.133	3.774	-0.004
R2	0.048	0.074	0.067	0.089

Notes: LFI=Labor Force Index. 7dI=Income over last 7 days. Y_L1=Lagged dependent variable. LEI_L1=Lagged life event index. Life Event Index is coded with higher values indicating more bad events. Standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A.5: SFC, Financial Outcomes, and Resiliency - Panel

Panel (a): SFC Impacts on Financial Outcomes

	(1)	(2)	(3)
	Hours	IHST(7dI)	LFI
SFC	0.442	0.117	0.091
	(1.102)	(0.093)	(0.062)
N	3956	4028	3894
Mean Y	12.222	1.687	0.032
Control Mean	11.734	2.133	-0.003
R2	0.544	0.588	0.555

Panel (b): SFC Impacts on Financial Outcomes with Resiliency

	(1)	(2)	(3)
	Hours	IHST(7dI)	LFI
SFC	0.397	0.116	0.088
	(1.127)	(0.095)	(0.063)
Life Event Index x SFC	0.149	-0.032	0.006
	(0.896)	(0.073)	(0.050)
Life Event Index	-0.157	-0.049	-0.016
	(0.461)	(0.039)	(0.026)
N	3956	4028	3894
Control Mean	11.734	2.133	-0.003
R2	0.544	0.589	0.555

Notes: LFI=Labor Force Index. 7dI=Income over last 7 days. Life Event Index is coded with higher values indicating more bad events. Standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Session 8: Conflict and Violence

Topics to be covered:
- Why do conflicts happen?
- How do we avoid conflict?
- Fair play
- How do we deal with conflicts when they arise?

Equipment
- Ropes
- Footballs – 6
- Bibs
- Cones
- Other sporting equipment as required by the sport

Session Outline

0-5mins	Energizer	Opening Chant Travelling to new places
5-20mins	Introduction	Review of last session Feedback from last session Introduce topic for the day Outline activities
20-35mins	Warm up	Stretches and exercise
35mins-1hr	Activity 1	Knee Fight
1hr-1hr20mins	Activity 2	Find Similarities and Move On
1hrs20mins-1hr45mins	Activity 3	Line Push and Pull
1hrs45mins-2hrs	Break	Including registration
2hrs-2hrs40mins	Sport	Football (2 varieties to promote conflict resolution!)
2hrs40mins-3hrs	Conclusion	Review main topics discussed Discussion Plan for next week Closing Chant

Appendix B: Additional Details on Sports for Development Linked Organizations and Expenditures

In order to identify active organizations working on SFD related programs we began with the available lists of SFD programs located at `https://www.sportanddev.org` and `http://www.streetfootballworld.org`. These organizations list 1049 unique organizations running SFD programs. However, these lists may be incomplete and include a wide range of actors who operate at widely ranging scales and capacities. With such a broad umbrella, and without a centralized clearinghouse of SFD focused programs and organizations, a reliable and comprehensive estimate of all actors in this space is not possible. This makes estimating the magnitude of global expenditures on these programs extremely difficult. Organizations that can be identified do not always make financial records publicly available. Documents that are available are frequently incomplete or do not clearly distinguish allocations to sports activities from other programmatic expenditures. Moreover, SFD activities are often embedded within larger programs or funded through corporate social responsibility, thus making accounting for SFD expenses opaque.

In 2003, the International Platform for Sport and Development was formed as a way to link sport and development organizations. The IPSD has eight governmental and NGO leaders on its steering committee: The Commonwealth Secretariat, the Norwegian Olympic Committee, the Union of European Football Associations, the Australian Department of Foreign Affairs and Trade, Laureus Sport for Good Foundation, Reach Out to Asia, and the German Federal Ministry for Economic Cooperation and Development. We were able to connect these eight organizations alone to over $105 million in project budgets for SFD-related activities. We also identified a number of other actors with publicly available disclosures of their SFD expenditures including FIFA ($7 million), streetfootballworldwide ($2 million), the Inter-American Development Bank ($4.5 million), Clinton

Foundation ($8 million), Right to Play ($48 million), and a World Bank project with the Russian Federation valued at $150 million. Although specific funding numbers could not be tracked down, our review also found a number of other programs and organizations with SFD funding or programming including UNICEF, UNESCO, America SCORES, the Foundation for Global Sports Development, International Olympic Committee, Charity Ball, the Clinton Foundation, The Commonwealth, Right to Play, UEFA, and USAID.

Appendix C: Additional Details of Recruitment and Randomization Protocols

In order to mobilize youth for the program, Mercy Corps and its implementing partners raised awareness of the registration date in each community. In the days leading up to the event Mercy Corps publicized the event by circulating fliers, posting large banners throughout the community, and informing local authorities. On the day of the registration itself, Mercy Corps used a truck with a large amplification system to drive through the streets of the community, broadcasting information about the recruitment and encouraging youth to go to the registration location and sign up. This broadcasting approach began early in the morning of the registration day and extended until the targeted number of registrants had been reached, often late in the afternoon or early evening.

At each registration center, typically a local school or community center, interested youths queued in line, waiting for admission in the order in which they arrived. They were then allowed into the registration room in sets of approximately 30 and explained the details of the potential lottery outcomes. After completing registration, individuals then chose their assignment ticket which included whether or not they were in a SFC group and, if so, which team they were assigned to. The tickets were chosen from a covered bucket so that they could not influence their selected outcome. The result of their draw was then recorded by research team staff before they were given additional

information about their selected program and group.