Estimating the Return on Investment for Boys & Girls Clubs

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1. INTRODUCTION

The purpose of this report is to estimate the return on investment (ROI) for the youth services and programs provided by Boys and Girls Clubs. These services and programs require substantial resources, especially staff time and expertise, but have potential to generate lifetime benefits for youth participants. This ROI analysis examines how the costs required to provide Club services and programs compare to the long-term benefits in economic terms.

The analysis is intended help the national organization (Boys & Girls Clubs of America, BGCA), local Boys & Girls Clubs and organizations, and funders examine the value and efficiency of the investments they are making in young people's futures. The analysis estimates the ROI for the overall experience offered by Clubs as well as for specific Club programs such as Project Learn and Triple Play. The results can help identify successful initiatives that should be maintained or expanded, as well as opportunities for improvement. On an intuitive level, investments in young people--particularly in BGCA's target areas of education, health, and character and citizenship--have potential to be highly cost-effective. Empirical evidence on the return from these investments is still limited, however, and needs to be updated and expanded to reflect the rich array of available data.

Throughout this report the term ROI is used, but the analytical approach is no different than a benefit-cost analysis. ROI is used to be consistent and to emphasize that Club programs and services represent investments in young people's futures; BGCA's mission is to enable young people to "reach their full potential as productive, caring, responsible citizens."

The next section of the report, Section 2, briefly reviews previous ROI and benefit-cost studies of Boys & Girls Clubs, highlighting the opportunity to generate new estimates with recently available data. Section 3 describes the methods used in this report to generate ROI estimates, which draw from several different data sources. Section 4 presents the results, both for the overall Club experience and for specific Club programs. The results include the best estimates of ROI as well as the degree of uncertainty surrounding these estimates. Finally, Section 5 summarizes and interprets the results, comparing them to previous studies, and provides suggestions for new data and research that could yield even more robust estimates in the future.

2. PREVIOUS STUDIES

2a. General Literature on Out-of-School Time Programs

Our brief review in Section 2 focuses on studies specifically evaluating Boys & Girls Club programs, but it is important first to acknowledge there is a broader literature on out-of-school time programs more generally. A comprehensive database of this literature has been compiled by the Harvard Family Research Project: http://www.hfrp.org/out-of-school-time/ost-database-bibliography/database. A recent meta-analysis concludes there is substantial variation in effectiveness across programs and studies,[1] which underscores the importance of evaluating specific programs rather than relying on general evidence in the literature. A small number of studies estimate the ROI for out-of-school time programs (other than Boys & Girls Clubs). For example, an analysis of an expansion of after school programs in California estimated a ROI in the range of $9-$12 in lifetime benefits for each dollar invested, with most benefits coming from averted crime.[2]

2b. ROI Studies of the Overall BGCA Experience

Several previous studies have quantified the economic benefits of the overall programs and services offered by Clubs in specific geographic areas. Each study found very positive results regarding Boys & Girls Clubs' impact. Here we provide a brief review of the methods and results from these studies.

In 2011, a study by Convergent Nonprofit Solution estimated the economic benefits of Boys and Girls Clubs of Central Florida (BGCCF). This study used an "Organizational Value Proposition" framework. It examined four main outcome areas: capacity (number of youth served), ripple effects on the local economy (primarily through employing staff members), negative outcomes avoided during adolescence (juvenile arrests and teenage pregnancies), and downstream impacts in adulthood (educational attainment, employment, crime, and volunteer work). Juvenile arrests and teenage pregnancies were measured based on reports from Club staff members and were compared to local county and statewide statistics. The outcomes in adulthood were estimated based on results of a 2007 national survey of 1,014 Club alumni, conducted by Harris Interactive. The overall estimated cost of serving each cohort of Club youth in central Florida was $51 million, as compared to total downstream benefits as high as $1 billion if at least 50% of the positive outcomes are attributed to Clubs. The benefit-cost ratio was still over 10 if only 25% of positive

outcomes are attributed to Clubs. The encouraging results of this study should be viewed with caution, in light of a few important limitations. First, it is not clear whether the Club staff members would have been aware of all the arrests and pregnancies experienced by their members; this concern is amplified by the extremely low numbers they reported: only three total arrests and zero pregnancies. Second, it is unclear how the Harris survey could have avoided sampling that was skewed towards people with better outcomes and better experiences with Clubs, who would seem likely to be willing and available to participate in the survey. Third, it is not clear how accurate the Club alumni could be in their subjective perceptions of how Clubs benefited them, and, as the authors acknowledge, it is difficult to know more generally how much credit Clubs can "claim" for positive outcomes without a comparison group to represent the counterfactual outcomes (what would have happened in the absence of Club participation). Fourth, for the juvenile arrests and teenage pregnancies, the comparison group was the full population of local same-age youth; this comparison does not account for the likely possibility that Club members are different from the general youth population in terms of socioeconomic background and other risk factors. Finally, including the full "ripple effects" may not be appropriate since alternative uses of funds (e.g., for other non-profit organizations) may also have a similar ripple effect.

Damooei Global Research conducted a series of economic analyses for regional Club organizations between 2007 and 2014, including Greater Oxnard and Port Hueneme (California) in 2007, Los Angeles County (California) in 2010, Ventura County (California) in 2010 and 2014,the Valley of the Sun region (Phoenix, Arizona and surrounding areas) in 2011, New Jersey statewide in 2012, and California statewide in 2012. These studies examined a similar set of outcomes as in the BGCCF study, including high school graduation, teenage pregnancy, juvenile arrest rates, and ripple effects on the local economy. The studies also estimated economic benefits from reduced substance use of Club members and from parental earnings resulting from being able to work while their children were participating in Clubs. The studies fielded surveys to representative samples of both Club members and their parents. To estimate high school graduation rates for members, the studies made projections based on the reported expectations of the members and their parents; these projections were then compared to local graduation statistics. As in the BGCCF study, teenage pregnancies were estimated based on reports by Club staff members, and were compared to local statistics. Arrest rates were measured from the parent surveys, and compared to local statistics. The studies also used the surveys of Club members to estimate rates of substance use (e.g., alcohol use), which were compared to statewide data from the Youth Risk Behavior Surveillance System

(YRBSS). In each study, the estimated economic benefits of BGCA programs were several times larger than the estimated costs, with benefit-cost ratios exceeding 15 in many cases. These studies have some of the same limitations as the BGCCF study, such as the lack of adjustment for socioeconomic differences between Club members and the general local population, and the potential for incomplete reporting of teenage pregnancies (by staff members) and juvenile arrests (by parents).

A 2012 study of the Boys & Girls Clubs of Puerto Rico (BGCPR) by Estudios Técnicos, Inc. estimated the economic benefits of improvements in high school graduation, teenage pregnancy, and legal transgressions. They estimated these improvements by comparing various data sources for BGCPR samples to official government statistics for Puerto Rico overall. The study estimated economic benefits totaling over $9 million per year from these improved outcomes, as compared to personnel costs of $3.3 million (or $5.3 million including volunteer time), indicating a very favorable benefit-cost ratio. As in many of the other ROI studies described in this section, it is not clear whether outcomes such as teenage pregnancy and legal transgressions would have been completely reported in the Club data, and there are also no adjustments for differences between the socioeconomic profile of Club members as compared to the general population.

A 2013 study of Clubs in Florida, conducted by Florida TaxWatch, estimated economic benefits of improved academic outcomes in high school and decreases in juvenile crime, using data from the Florida Department of Education and the Department of Juvenile Justice. The educational data included graduation and dropout rates, grade promotion and retention, standardized test scores (FCAT achievement levels in reading and mathematics), and absenteeism. The study focused on highly engaged Club members, defined as members who attended at least 100 days in the previous school year. The education and crime indicators for these members were compared to a sample matched in the state databases on several characteristics: school; district/county; grade; gender; SES/lunch status; race/ethnicity; language proficiency; and number of schools attended in an academic year, which was used as a proxy for the stability of the student's home life. The study found that Club members had better outcomes on all dimensions measured, including a 10% higher graduation rate from high school. The report did not calculate overall benefit-cost ratios, but did describe the large economic benefits that would accrue on a per-person basis for the improved outcomes (e.g., the economic value of each additional high school graduate).

Although the study had a strong plan to use a credible comparison group, the matching by the state data offices was apparently not done exactly as requested; the comparison sample was substantially lower in free-lunch eligibility rate, suggesting that a more closely matched sample might have indicated even larger benefits from Club participation.

2c. Opportunity to Generate New ROI Estimates

The present report takes advantage of the recent availability of a wealth of data and evaluation studies with direct relevance to estimating ROI for Boys & Girls Clubs. With the creation of the National Youth Outcomes Initiative (NYOI), there is now an annual national survey of Club members, assessing a range of important indicators that can be used to infer how Clubs are improving youth outcomes. In addition, a series of evaluation studies have estimated the effects of specific Club programs including Triple Play, Project Learn, Targeted Outreach, SMART Moves and Leaders, and Summer Brain Gain. Finally, a growing literature on the linkages between childhood outcomes and adult outcomes can be used to project the lifetime economic benefits of the outcomes observed in the NYOI data and evaluation studies.

Using these data sources, the present report provides the first national ROI estimates for Boys & Girls Clubs, as well as the first estimates using NYOI data. The report also provides the first ROI estimates for specific Club programs (Triple Play and Project Learn), based on the evaluation studies for these programs.

3. METHODS

3a. Overview

Estimating the ROI for Club programs requires a synthesis of many pieces of data from a variety of sources, as summarized in Table 1. In this report, the ROI is a benefit-to-cost ratio: lifetime economic benefits of the programs, divided by program costs. The lifetime economic benefits are projected based on the benefits observed in childhood, using other research that has estimated how childhood outcomes predict lifetime outcomes. The general approach is similar for estimating ROI of the overall Club experience, versus specific Club programs; the main difference is in how program costs and benefits in childhood are estimated.

Table 1: Overview of Methods to Estimate ROI

	Overall BGCA Experience	Specific BGCA Programs
Program Costs	• Overall operating costs from annual financial reports	• Estimates reported by Club organizations in Georgia
Benefits in Childhood	• Comparison of childhood outcomes (e.g., grades, substance use, arrest rates) for Club members in NYOI data, versus matched national sample from other data sets (YRBSS, NSDUH)	• Results from evaluation studies (with varying research designs)
Lifetime Economic Benefits	• Translation of childhood outcomes into adulthood and lifetime outcomes, using methods and data from the Washington State Institute for Public Policy (WSIPP) and other sources	• Same as for overall BGCA experience (see cell to the left)
ROI	*(Lifetime Economic Benefits) / (Program Costs)*	*(Lifetime Economic Benefits) / (Program Costs)*

3b. Program Costs

Program costs refer to resources that are used to provide Club services to youth participants. The main type of cost is likely to be personnel time; staff members provide supervision, instruction, tutoring, and mentoring. From a societal perspective, even unpaid volunteer staff time is a real resource cost, because volunteers' time has value and could have been used in the paid labor

market. In this report we therefore count volunteer time as a cost, where such data are available. Another important category of costs is facility use and maintenance. Various types of physical space are needed for the range of services offered by Clubs. Finally, materials represent another type of cost, although for most programs this cost is likely to be small compared to the other categories. For example, books and computers are used in educational programs, and sports equipment is used in physical activities.

For the overall Club experience, program costs are estimated based on data from annual financial reports completed by Club organizations. The financial reports have information on overall operating costs, which are broken into program services, management and general services, and fundraising. Program services and managements costs are included in our cost estimates, but fundraising costs are not included; the idea is to include costs that are directly required to deliver the programs and services that benefit members. In addition, operating costs of the BGCA national headquarters are included, because those costs are likely to enhance Club services through consultation, raining, programs, and other resources.

The financial reports do not break down costs by specific Club program, so a different data source is needed to estimate program-specific costs. We use data from a brief survey asking BGCA organizations in Georgia to estimate their program-specific costs, including volunteer time. Although these data are taken from a single state, they are likely to be good approximations of costs at a national level; the primary costs are personnel time, and wages in Georgia are close to the national average.

3c. Benefits in Childhood

The first step in estimating the benefits of Club services and programs is to estimate their more immediate effects on improving outcomes during childhood. The causal question of interest is, *what are the outcomes during childhood for people who participate in Clubs, as compared to the hypothetical counterfactual in which they do not participate in Clubs?* In other words, what is the added value of Clubs in young people's lives? The ideal way to answer that question would be to conduct an experiment in which young people are randomly assigned to participate in Clubs or not. Given that such an experiment is not available, the next best approach is to observe outcomes for Club participants and compare those outcomes to a sample of non-participants who are as similar

as possible in characteristics that might influence their outcomes, such as their socioeconomic background, their support network, and their motivation to achieve good outcomes.

To estimate benefits in childhood for the overall experience of participating in Clubs, our approach is to use data from BGCA's recently initiated National Youth Outcomes Initiative (NYOI), in which Clubs survey their members each year regarding a number of important indicators of wellbeing and success, such as grades, physical activity, and substance use. We compare Club members' indicators to other national data sets, adjusting for the demographic and socioeconomic differences across samples to the extent possible. Although Club participation cannot be ascertained in other national data sets, those data sets can be considered reasonable approximations of non-participant samples, given that less than 5% of children in the U.S. participate in Clubs. In this analysis we separately estimate outcomes for Club members who are reported to be "engaged" (attending at least 1-2 times per week) and less engaged members (attending less than once per week).

The Youth Risk Behavioral Surveillance System (YRBSS) and the National Survey of Drug Use and Health (NSDUH) are the national data sets used for comparison in this report. These data sets contain measures that are directly comparable to important indicators available in NYOI. We use the 2013 YRBSS and NSDUH data sets, which are the most recent that are available. The 2013 YRBSS has a national sample of approximately 13,000 people ages 12-17, and includes the following measures that can be compared directly with NYOI measures: cigarette smoking (past 30 days), alcohol use (past 30 days), marijuana use (past 30 days), physical activity (past 7 days), and involvement in a serious physical fight (past year). The 2013 NSDUH has nearly 18,000 people ages 12-17, and includes the following measures that can be compared directly with NYOI measures: cigarette smoking (past 30 days), alcohol use (past 30 days), marijuana use (past 30 days), involvement in a serious fight (past year), grades at school (last semester or grading period), days skipping school (past 30 days), and arrests (past year).

Given that substance use is measured in both the YRBSS and NSDUH, we need to resolve which data provide the most relevant comparison. We focus on YRBSS as the most relevant comparison for sensitive questions such as substance, because it is more similar to the NYOI in its survey method. Both the YRBSS and the NYOI are self-administered surveys in settings away from home (the YRBSS is conducted at school, and the NYOI at Clubs), whereas the NSDUH is conducted at home, where an interviewer and sometimes parents are present (although the youth are given privacy when taking

the survey). The estimated prevalence of youth substance use is considerably lower in the NSDUH as compared to the YRBSS (and Monitoring the Future, for that matter, which is also conducted at school).

Propensity score weighting is used to adjust for demographic and socioeconomic differences between the BGCA sample in NYOI and the comparison YRBSS and NSDUH samples. The analytic approach follows recommendations in Dinardo (2002).[3] First, the NYOI data set is stacked on (appended to) the comparison data set. Then a logistic regression is estimated, with the dependent variable being participation in Clubs (i.e., being from the NYOI data set) and the independent variables being race/ethnicity (dummy variable for each category), age (dummy variable for each year), gender (binary variable), and income (binary variable for being below 200% of the federal poverty threshold, which is available in the NSDUH but not the YRBSS). The propensity score (predicted probability of being in a Club) is then transformed into sample weights for the comparison sample, using the following formula: sample weight = (propensity/(1-propensity)) / (pClub/pComparisonsample). This adjusts the comparison sample so that it is comparable to the Club sample, by giving more weight to children in the comparison sample who have characteristics similar to Club members. Finally, to estimate the benefit of Club participation, the sample weights are used in linear and logistic regressions of the childhood outcomes on Club participation, controlling for demographic and socioeconomic characteristics.

In addition to estimating the per-member childhood benefits, it is important to estimate *how many* members experience these benefits. This estimate is needed to calculate aggregate lifetime benefits (e.g., at a Club, state, or national level) and also to ensure comparability between aggregate costs and aggregate benefits. Given that the operating cost data are available on an aggregated, annual basis, we can roughly think of those costs as the average costs of delivering services and programs to a single birth cohort (e.g., all children born in 2002) who enroll in Clubs. Although that is not literally true—obviously the services and programs are delivered each year to the full age range (many birth cohorts)—from a long-run perspective the Clubs are serving one new cohort per year. Under this approach, we need to estimate how many children per birth cohort are experiencing the lifetime benefits from participating in Clubs at any time during their childhoods. In other words, we need to estimate how many unique children per birth cohort are engaging in Clubs. This number is not available, to our knowledge, so we estimate it as follows. We assume that a cohort of about 180,000 individuals start in Clubs at age 6 (based on current membership data), and every year

about 24% drop out each year.[4] To match current membership numbers by age, 492,000 unique individuals would be exposed to Clubs at some point by age 18. Of these individuals, 279,000 would be "engaged" while members, defined as one visit per week or more, based on the engagement rates by age in the 2014 membership data. We multiply our per-person lifetime benefits by the engaged and non-engaged cohort sizes to get total cohort-level benefits.

To estimate the childhood benefits of specific Club programs, we use results from previous evaluation studies, as noted earlier. Evaluations are available for several of the most widely used programs, although there are many other programs without this kind of evaluation data. The evaluation studies are summarized in Table 2.

Table 2: Summary of Evaluation Studies of BGCA Programs

Outcome area(s)	Reference	Program	Estimated effects	Cost Information	Research design
Health (nutrition, physical activity); also psychological development (peer interactions and sense of control)	Youth Development Strategies, Inc. (2009). Promoting Healthy Living: The Impact of Boys & Girls Clubs' Triple Play Program on Healthy Eating, Exercise Patterns, and Developmental Outcomes	Triple Play: A Game Plan for the Mind, Body and Soul is comprised of several programs for Club youth ages 6-18 that promote good nutrition, physical fitness and prosocial skills	*Small increase in apparent knowledge about nutrition (e.g., 8 percentage point increase in correct answers) *Modest increase in number of healthy foods per day (7.0 vs 5.7) based on food diaries, and number of days eating breakfast (per week?) (3.2 vs 2.7) *Medium increases in: minutes per day of physical activity (PA) (+10 min); days per week with 1+ hr (1.0); engaging in at 1+ hr 5+ days per week (+13 percentage points). Decrease in engaging in <30 min 4+ days per week (15 percentage points)		Cluster-randomized trial, with randomization at site level (30 clubs: 20 treatment and 10 control-4 and 2 in each of 5 U.S. regions) Sample: all members ages 9-14 at baseline were recruited for surveys at three time points, months 0, 6, 21; 32% had complete data (hard to avoid attrition)
Academic (reading, math)	Metis Associates (2014). Evaluation of Summer Brain Gain and Read! Summer Learning Initiatives: 2014 Final Report.	Summer Brain Gain and Read!	*Participants in most grades showed no significant change in reading or math scores. Maintaining existing reading and math skill levels is an encouraging finding, because research indicates that most youth lose about two months of grade-level equivalency in math skills over the	Information about spending on books and supplies:: $7-$16 Report also has information about time spent in training and	Pre-post (no control group in 2014; RCT underway in 2015) Program participants at 25 Clubs; total of 665 kids with useable pre and post STAR assessment data, spread across K-8 Outcomes measures: Renaissance Learning STAR Assessments

			summer months, and low-income youth also lose more than two months in reading achievement. In some areas, members showed significant gains, including improvements in reading skills for 5th and 8th graders and in math skills for 4th, 5th and 6th graders. A decline in reading skills was observed for members in 6th grade only.	with module preparation	(Reading K-8 and Math grades 4-8)
Academic (GPA, attendance)	Schinke et al (2000). Enhancing the Educational Achievement of At-Risk Youth. Prevention Science	Project Learn	*Intervention sites had GPA improvements (ascending to about 1.5 SD at 30 months) whereas comparison and control sites did not change *Intervention sites also had decline in missed days of school (i.e., improved attendance), with 10-14 fewer missed days at 30 month follow-up	Article has some details about how intervention works, in terms of hours spent by youth in different activities, and activities by providers (though no hours for that)	Quasi-experimental (not randomized) comparison across 15 matched sites serving youth in public housing: 5 Clubs with the intervention, 5 Clubs w/o intervention, 5 non-Club facilities Outcomes measured at 6 months, 18 months, 30 months Sample: middle-school age youth
All (academic, character/citizenship, health)	Public/Private Ventures (2009). Making Every Day Count: Boys & Girls Clubs' Role in Promoting Positive Outcomes for Teens	Overall participation in BGCA Clubs	*Attendance level was significantly associated with less skipping school and lower risky behaviors (carrying weapon, smoking cigarettes, drinking alcohol, smoking marijuana, and sexual intercourse) *Attendance also associated with higher community service, integrity (knowing right from wrong), lower shyness, lower aggression, high academic confidence, higher school effort, higher "future connectedness", fewer negative peers, fewer times stopped by police *Generally, about 1 day per week appeared to be the minimum attendance level at which positive outcomes were apparent (this was the case for most risky behaviors), less skipping school was only apparent with 2 days/wk attendance		10 Clubs in urban areas with high memberships and adequate data systems (no comparison sites) Followed outcomes (survey self-report and attendance records) over 30 months and compared outcomes across youth with different levels of attendance Sample was 7th and 8th graders at baseline (focus on transition to high school) Baseline sample had 422 youth, 30 month survey had 322 (76%). Majority of youth had already been in Clubs for 2+ years at baseline.

Financial knowledge (life skill)	Beltyukova, S. A. and Fox, C. M. Money Matters: Make It Count Evidence-Based Study, final evaluation report to Boys & Girls Clubs of America (Toledo, Ohio: Inference LLC, May 2013).	Money Matters: Make It Count (for 12-18 year olds)	Intervention group increased the % correct on most financial knowledge/attitude questions Participants with spending money showed significant behavior improvement upon completing the program: 79 percent (an increase of 11 percent) said they started saving money and 43 percent (an increase of eight percent) said they were sticking to a budget plan.	Program is typically once a week for 8-10 weeks with anywhere from 5-10 to 20-30 teens in attendance	Quasi-experimental: comparison of 31 Clubs with program versus 29 control Clubs without
Violence prevention (through reduced involvement in gangs)	Public/Private Ventures (2002). Targeted Outreach: Boys & Girls Clubs of America's Approach to Gang Prevention and Intervention.	Gang Prevention Through Targeted Outreach (GPTTO) and Gang Intervention Through Targeted Outreach (GITTO).	Compared to their peers, high-risk and gang-involved youth with more frequent participation in BGCA's Gang Prevention/Intervention through Targeted Outreach experienced: • Less contact with the juvenile justice system • Fewer delinquent behaviors (stealing less, less likely to start smoking marijuana) • Higher grades • Greater expectations of graduating from high school or receiving a GED • More positive social relationships and productive use of out-of-school time • Disengagement from gang-associated behaviors and peers However, there were no significant effects on actual gang involvement, and there are many non-significant findings. Magnitudes of significant findings (above) are hard to interpret in many cases because they are only reported as logit coefficients.	The report provides cost estimates based on surveying the participating clubs about their budgets for the programs: $340 per youth for prevention and $1,889 per youth for intervention. These are incremental, program-specific costs, and do not include general Club costs that might also be affected (e.g., general staff and facility costs).	21 Clubs using prevention program, 3 using the intervention program. 932 prevention youth, 104 intervention youth (of which 236 and 66 were surveyed, respectively) Surveys administered at baseline and 12 months later (also for a comparison group who did not attend Clubs) Survey nonresponse and attrition might be a source of bias (but not clear what direction): attrition was considerably higher at follow-up for comparison youth versus prevention/intervention youth
Substance use prevention and resistance to early sexual activity	Kaltreider, D. L.; St. Pierre, T. et al. (1992)."Drug Prevention in a Community	Stay SMART and SMART Leaders (originally adapted from Botvin's Life Skills Training (LST) program, with the	Compared to control youth, intervention youth had lower drug use behavior (for each type-alcohol, marijuana, cigarettes-and overall).	Stay SMART consists of 12 small group sessions	*Quasi-experimental comparison of Stay SMART program (5 Clubs), Stay SMART plus booster (SMART Leaders) (5 Clubs),

	Setting: A Longitudinal Study of the Relative Effectiveness of a 3-Year Primary Prevention Program in Boys and Girls Clubs Across the Nation." American J of Community Psychology, Vol. 20, No. 6, 673-706.	addition of a focus on resisting early sexual activity) SMART Leaders booster occurs 2 years after Stay SMART	There was no incremental benefit of the booster for drug use behavior, although the booster did seem to improve drug-related attitudes The magnitude of the effects is hard to interpret--the outcome is a behavioral scale, and the standardized effects are in the range of 0.10-0.4 (small to medium)	SMART Leaders has an additional 8 sessions (broken into two stages with 5 and 3 sessions respectively)	and control group (4 Clubs) *Followed Clubs for 27 months (assessments at baseline, 3-months, 15-months, 27-months) *Sample with complete data included 161 youths (less than half of initial sample of 377), fairly equally distributed across three conditions

3d. Lifetime Economic Benefits

We evaluate lifetime economic benefits in four different areas: education, health (substance use and physical activity), juvenile justice, and parental earnings. This analysis does not consider all plausible benefits of Club participation. We chose not to evaluate the economic impact of teenage pregnancy, financial literacy, leadership and citizenship, and ripple effects on the local economy for several reasons. We do not have estimates of teenage pregnancy in the Club populations using methods that are comparable to rates in the general population. We also have not found studies that are able to clearly link the measures of financial literacy, leadership, and citizenship to long-term economic outcomes. Finally, we do not have information that shows how the ripple effects of investments in Clubs differ from other types of spending. As this study was focused on tangible financial benefits, we did not include intangible impacts on quality of life such as averted pain and suffering.

The literature is somewhat ambiguous on the impact of **physical activity** in children and the impact on health care cost savings. Although studies show physical activity can influence healthcare costs, these studies have focused on adults.[5] A recently-published longitudinal study on elementary school-age physical activity found no statistically-significant improvements in frequency or duration of physical activity in their mid-40's.[6] That study was reasonably methodologically sound, but may have been underpowered (had too small of a sample size) to show statistically-significant results. More immediately, however, there may be increases in health care costs for obese children [7] although there are studies that suggest the health care cost differences for obesity are small to non-existent in children, but much larger later on in life. In this analysis, we

model the impact of physical activity on costs in several steps. In the first step, we see how physical activity leads to reduced body mass index. We then use a study on the lifetime medical costs of childhood obesity to convert this to a lifetime dollar impact.[8]

As another estimate, we use the results of another analysis of elementary school physical activity on the cost savings over 10 years of reduced BMI.[9] This second estimate is somewhat conservative in that it has relatively small cost savings in a limited time period after the intervention.

Studies consistently show the economic value of **graduation from high school**. Previous studies evaluating Club programs have relied on surveys of parental and student beliefs about future graduation. In this analysis, reported improved retention and grades from Clubs are linked to improved high school graduation. The improved high school graduation is linked to improved lifetime earnings. A 2010 longitudinal study of students in two US school districts showed that retained students are 91% more likely to drop out and that a one grade level improvement led to a 14% decrease in the risk of dropping out.[10] We use national graduation rates (81%) for baseline values[11] and then use NYOI data and program evaluation estimates of Club retention and grades to forecast improvements in graduation rates for Club participants. In sensitivity analysis, we evaluate the impact on exclusively low-income students with a lower baseline graduation rate (73%). The economic value of education is computed using a human capital approach and methods similar to those used by the Washington State Institute for Public Policy (WSIPP).[12] The values used are national, and not specific to Washington State, unless otherwise specified. This value is computed in four parts. The first part measures the degree to which observed differences in earnings are attributable to graduation.[13] The second part measures the probabilities that high school graduation will lead to some college or a college degree.[13] Next, earnings by age and educational attainment are collected as well as estimates of earnings growth rates. A multiplier for employee benefits (0.4) is added,[14] and finally a multiplier for human capital positive externalities of education (0.37) is added.[15-17] This multiplier is intended to account for a wide array of social benefits to the environment, democratization, political stability, crime, public health, and overall economic growth and development.[16]

This study examines three types of **substance use**: alcohol, cigarettes, and marijuana. This use is measured in the NYOI and in several program evaluations. The methodology to quantify the economic impact of their use is similar to that used by the WSIPP.[12] Overall lifetime use is gathered for each type of substance. Because Club participation influences use at an early age, age-based

rates of substance use initiation are applied to simulate when use begins. For example, about half of those who initiate substance use before age 18 become dependent.[18] Substance use is then combined with quitting rates to simulate current prevalence. These rate parameters are based on a synthesis of national evidence by WSIPP.[12] So, as Club participation reduces childhood use of alcohol, tobacco, and marijuana, use in adulthood is reduced as well. Use of each substance has varying economic impacts. Costs of alcohol use include effects on earnings based on WSIPP's methods[12] and health costs of alcohol based on a study of societal costs of underage drinking.[19] These costs include effects on earnings, traffic crashes, interpersonal violence, property crime, high-risk sex, and treatment. Costs of tobacco use include effects on earnings[12] and healthcare.[20] Finally, costs of marijuana use include effects on earnings and emergency department visits.[12]

The impact of substance use on earnings is calculated based on a substance-specific earnings multiplier for those not using substances. Healthcare costs involve costs attributed to use of the substances.[19,20]

Averted arrests from Club participation are converted into monetary benefits by estimating crimes, convictions, and corrections. Those events are then multiplied events by marginal costs of crimes, arrests, convictions, and corrections. The costs of criminal activity are broken into two parts, the value to taxpayers and to victims. In this section, 7 types of crimes are tracked (murder, sex offenses, robbery, aggravated assault, property, drug, and misdemeanors). These methods are similar to those used by the WSIPP.[12] Arrests may be an underestimate of total crimes committed. Crimes committed by type are estimated based on ratios of arrests to reported crimes by type and further adjusted based on underreporting of crimes by type.[12] Convictions are calculated based on clearance rates by arrest type [21] and conviction rates. [22] Different types of corrections systems resource use (e.g. juvenile parole, juvenile detention, juvenile state parole, juvenile state detention) and length of use are calculated based on type of crime.[12]

The costs to taxpayers are broken into costs for police and sheriffs for arrests, courts and prosecutors for convictions, and the corrections system. We use estimates of marginal costs and allocated capital costs for each of these types of costs from the WSIPP.[12] Costs are based on national costs, except for capital costs in the criminal justice system, which are based on Washington State. Costs to victims are based on the type of crime and a cost per crime as estimated from the WSIPP[12].

We also use a Markov model of recidivism to account for costs of future criminal activity initiated by adolescent arrest based on recidivism statistics for youth.[23]

The impact on **parental earnings** is based on the methods and survey by Damooei[24] where 36% of parents strongly agreed that Clubs allowed them to keep their job and that the average income level of those who strongly agreed with this statement was $27,871 in 2010 dollars. These survey results from Damooei's study are corroborated by a national survey of parents with children in out-of-school time programs, the 2014 *America After 3PM* report by the Afterschool Alliance, in which 55% completed agreed and an additional 28% agreed that afterschool programs help working parents keep their jobs. As in Damooei's study, we assume 2 children in Clubs per household. The number of families served by Clubs is multiplied by this 36% and multiplied by the inflation-adjusted income.

3e. Bottom Line: ROI Estimates

The ROI estimates are calculated as the ratio of lifetime economic benefits to program costs. All dollar values collected from other studies are inflated to 2015 dollars and projections of future costs or benefits are translated to a present discounted value using a future discount rate of 3%.

3f. Uncertainty Estimates

All parameter assumptions used to calculate the economic impacts are subject to uncertainty. Where possible, we use statistically-calculated confidence intervals or we use ranges based on ranges seen in the literature. Where ranges do not exist, we use our judgment based on the review of the literature and plausible upper and lower bounds.

4. RESULTS

4a. Overall BGCA Experience

Overall, Club members have higher physical activity and grades, and lower cigarette, marijuana, and alcohol use, as compared to matched comparison samples (Tables 2a and 2b). Somewhat surprisingly, less engaged members have virtually identical outcomes as engaged members, although the estimates are somewhat more precise for engaged members due to the larger sample size in the survey data.

As compared to non-Club children, engaged club members had about 0.55 more days per week with 60+ minutes of physical activity than their matched peers in the Youth Risk Behavior Surveillance System (YRBSS). They had a reduced probability of cigarette smoking in the last 30 days by 0.042 and marijuana smoking by 0.14. The probability of alcohol use in the last 30 days was 0.16 lower and the probability of binge drinking was 0.11 lower. They had a higher GPA by 0.073 points. By contrast, the involvement in serious fights and arrests were significantly higher in the NYOI sample, as compared to the NSDUH, indicating no apparent benefits and possibly negative consequences from participation in Clubs. The NSDUH estimates have questionable comparability to the NYOI for these sensitive survey questions, however, for reasons discussed previously. Therefore, we do not include these measures in our ROI calculations.

Table 2a: Estimated effects of Club participation for engaged members (attending once or more per week), based on comparison of NYOI versus YRBSS/NSDUH data

Measure	Estimated Effect	95% Confidence Interval	p-value
# days in last 7 w/ 60+ min. phys. act. (0-7)	+0.55	(0.44,0.66)	p<.001
cigarette use past 30 days (0/1)	-0.042	(-0.05,-0.03)	p<.001
alcohol use past 30 days (0/1)	-0.16	(-0.18,-0.14)	p<.001
binge drinking past 30 days (0/1)	-0.11	(-0.14,-0.08)	p<.001
marijuana use past 30 days (0/1)	-0.14	(-0.16,-0.12)	p<.001
Grade Point Average (0-4)	+0.073	(0.041,0.11)	p<.001

Note: NSDUH is comparison sample for GPA, and YRBSS is for the other measures

Table 2b: Estimated effects of Club participation for less engaged members, based on comparison of NYOI versus YRBSS/NSDUH data (controlling for sociodemographic characteristics)

Measure	Estimated Effect	95% Confidence Interval	p-value
# days in last 7 w/ 60+ min. phys. act. (0-7)	+0.58	(0.42,0.73)	p<.01
cigarette use past 30 days (0/1)	-0.04	(-.06,-.02)	p<.01
alcohol use past 30 days (0/1)	-0.17	(-.20,-.14)	p<.01
binge drinking past 30 days (0/1)	-0.12	(-.17,-.07)	p<.01
marijuana use past 30 days (0/1)	-0.14	(-.17,-.11)	p<.01
Grade Point Average (0-4)	+0.070	(0.02,0.11)	p<.01

Note: NSDUH is comparison sample for GPA, and YRBSS is for the other measures

These shorter-term effects were converted to long-term cost savings. Each additional minute of moderate-to vigorous physical activity per day is estimated to save $3.80 if measured over 10 years or $38 if measured over the lifetime. Education can have a very large economic impact: preventing grade retention yields $250,000 over the lifetime, a one-point GPA increase leads to $42,000 in gains, and graduation from high school leads to $1.6 million in economic benefits. The economic gains from high school graduation include $1.2 million in attributable gains to the student in long-term earnings and benefits due to high school and subsequent education and $430,000 in positive externalities to the rest of society. Preventing adolescent alcohol use is associated with $18,000 in lifetime benefits, preventing cigarette use with $12,000 and preventing marijuana with $2,100. Each arrest leads to costs to the court system, prison system, and future recidivism; we estimate $12,000 in lifetime savings per arrest averted. For each Club member, there is an estimated $5,400 in gains from parental earnings if Club participation does indeed lead to job retention.

Table 3: Estimated Financial Impact per Outcome

	Per Student with	Long-Term Present Value ($)
Physical Activity	1 additional minute of moderate-to vigorous physical activity per day	$3.80* – $38†**
Education	Retention GPA: one point (e.g., C to B) increase Graduation from high school	$250,000‡-$340,000§ $42,000‡** - $60,000§ $1.6 Million
Substance Use	Alcohol use Cigarette use Marijuana use	$18,000‖ $12,000‖ $2,100‖
Crime	Arrest	$12,000‖
Parental Earnings	Per child in Club	$5,400¶

* Ten-year impact
† Lifetime impact (maintained effect)
‡ Base case value based on graduation rates for the overall population
§ Based on graduation rates for low-income students (<2x federal poverty level)
‖ Lifetime impact
¶ Annual impact
** value used as base case for calculation of economic benefits

Overall, Clubs are estimated to generate $13.8 billion in benefits in comparison to the 1.4 billion in annual operating costs, which leads to a ROI benefit-to-cost ratio of 9.6 (Table 4). The biggest benefits are from parental earnings, improved grades, and reduced alcohol use. Club participation benefits parents as it helps them retain their jobs, leading to over $10 billion in earnings. For members, club participation increases physical activity, which is expected to lead to $91 million dollars in long-term healthcare cost savings from averted obesity. Twenty thousand fewer members will smoke tobacco, saving $250 million over their lifetimes. Club participation leads to 81,000 fewer members drinking and 69 million fewer members smoking marijuana. These are expected to have over $1.5 billion in lifetime benefits. Improvements in grades are expected to lead to almost $1.5 billion over the club members' lifetimes as they increase their likelihood of graduation and continuation on to college. Overall, the benefits to just the members themselves are expected to exceed $3.4 billion over their lifetimes.

Table 4: Results of the Overall Club Experience

	Benefits in Childhood (thousands)	Lifetime Economic Benefits ($ millions)	Costs ($millions)	ROI Benefit-to-Cost Ratio
Days/week with >60 minutes of activity	277	$ 91		
Members averted smoking tobacco	20	$ 250		
fewer members drinking	81	$ 1,464		
fewer members smoking marijuana	69	$ 148		
GPA letter grade improvements	35	$ 1,481		
Subtotal of benefits to members		$3,434		
parental job retention	344	$ 10,348		
TOTAL		$ 13,783	$1,441	**9.6**

Estimated impact from one year of Club Attendance for all members in the US.

4b. Specific Club Programs

We also analyzed the results of several Club programs (Table 5). Project Learn is estimated to generate $18,000 in lifetime benefits from increased GPA's, yielding a ROI of 8. By increasing physical activity through Triple Play, members may achieve lifetime economic benefits of $270, which would have a positive ROI of 1.4.

Table 5: Results per Member

	Program Costs	Benefits in Childhood	Lifetime Economic Benefits	ROI Benefit-to-Cost Ratio
Programs (per member)				
	Project Learn $2294/member	11% increase in GPA	$18,000	8.0
	Triple Play $196/member	7.04 minutes/day physical activity	$270	1.4

4c. Uncertainty estimates

The ROI estimates are subject to uncertainty. In this section, we review how the ROI estimate change as estimates of the effects of club participation on childhood outcomes and estimates of financial impacts per member. Estimates of the effects of Club participation on childhood outcomes are ranged between the low and high values of the 95% confidence intervals. Estimates of the financial impacts per member are varied based on the ranges in Table 4, or if ranges are not shown, they are varied from a low of zero to a high 50% above the base estimate.

The ROI results are most sensitive to factors that had the largest impact on cost savings: parental earnings, grades, and alcohol use (Table 6). The lowest benefit-to-cost ratio was found under the assumption that clubs had no impact on the ability of parents to keep their jobs, leading to a ratio of benefit-to-cost ratio of 2.4. Even in this extreme case, the benefit-to-cost ratio was still above 1.0.

Table 6: Sensitivity of Overall BGCA ROI to Assumptions

	ROI Benefit-to-Cost Ratio	
Estimate Varied	**Low**	**High**
Effects of Club participation on childhood outcomes (from Tables 2a and 2b)		
Days/week with >60 minutes of activity	9.5	9.6
Members averted smoking tobacco	9.5	9.6
Fewer members drinking	9.5	9.6
Fewer members smoking marijuana	9.6	9.6
GPA letter grade improvements	9.3	9.8
Estimates of the financial impacts per unit of outcome changed (from Table 3)		
Physical Activity	9.5	9.6
Cigarette use	9.4	9.7
Alcohol use	8.5	10.1
Marijuana use	9.5	9.6
Education	9.6	10.0
Parental Earnings	2.4	13.2

Table 7 shows how the ROI's for specific programs varies as the assumptions change. The ROI of Project Learn is relatively insensitive to the financial value placed on improved grades. The base case assumption (from Table 5) was $18,000 per one point increase in GPA, using estimates based on a general population of students. This was the preferred estimate because it was based on a general population, including a mix of low-income and other students. If we use the higher estimate of $26,000 per point of GPA, using assumptions based on exclusively low-income populations, the ROI for Project Learn would increase modestly to 11. In the case of Triple Play, our best estimate is $270 in lifetime benefits per participant, which makes the reasonable assumption that the health benefits of physical activity last for the full lifetime. Under a more conservative assumption that the benefit period is restricted to 10 years, however, the ROI is no longer favorable (0.14). This highlights the sensitivity to assumptions about how long the health benefits would last, from an increase in physical activity in childhood.

Table 7: Sensitivity of Program ROI

	Lifetime Economic Benefits (per participant)		**ROI Benefit-to-Cost Ratio**	
	Low	**High**	**Low**	**High**
Project Learn				
Financial value of one point GPA increase (e.g., C to B)	$18,000	$26,000	8.0	11
Triple Play				
Financial value of 1 additional minute of moderate-to-vigorous physical activity per day	$27	$270	0.14	1.4

5. DISCUSSION

5a. Summary of Findings

The Club services and programs are estimated to have tremendous value to both members and the community. Overall, Clubs have a ROI benefit-to-cost ratio of 9.6, indicate that the full economic benefits are considerably higher than the costs. A majority of the gains come from parental earnings, increased grades, and reductions in alcohol use. The favorable ROI holds even with conservative estimates about key parameters.

5b. Interpretation and Comparison to Previous Findings

These benefit-to-cost ratio values are similar to the results from previous studies, which found ratios ranging from 4 to 19. The present study measured outcomes in a different manner, using data from the NYOI survey data, as compared to general national samples from YRBSS and NSDUH. The present study also included some additional effects such as physical activity, but left out others, such as averted teenage pregnancies and ripple effects of investments. In general, however, this study reinforces the conclusions of previous studies that Clubs have very high positive returns on investment.

5c. Limitations and Opportunities for Improving Evidence

The results shown do not account for many potentially significant benefits of Club participation, such as reduced teenage pregnancy, reduced involvement in crime, and increased financial literacy, leadership skills, civic engagement. Presumably, if there were better ways to measure the short and long-term effects of Clubs' impact on these outcomes, the measured overall impact would be greater.

The estimates in this report rely on many assumptions, as described earlier. Most notably, the estimates of benefits in childhood rely on the assumption that we are able to construct a reasonable counterfactual (what would have happened to Club members, without participation). For some of the specific Club programs, this assumption is bolstered by the availability of evaluation studies that used experimental or quasi-experimental research designs and collected data specifically for the purpose of controlling for potential confounding factors. This assumption is more questionable,

however, for the estimates of the overall Club experience and for some of the specific programs with evaluations using weaker research designs. NYOI data are rich in terms of relevant outcomes and mediating factors, but have relatively little information about members' socioeconomic and family context. Also, some of the evaluations of specific programs were conducted many years ago and may no longer reflect the current state of programs.

There are a number of possibilities for strengthening the ROI evidence through additional research and data collection. For assessing the impact of overall Club participation, it would be valuable to collect more information in the NYOI, or in a supplemental survey, about factors that could be used to establish a more robust comparison group (e.g., parents' education; household zip code; adverse childhood events; number of household moves; better measure of family income). Another possibility is to conduct an intention-to-treat (ITT) quasi-experimental analysis, comparing young people in schools or neighborhoods with very high participation in Clubs, versus young people in comparable schools or communities. In the ITT approach, the comparison would focus on young people in the Club communities regardless of actual participation in Clubs; this would eliminate potential confounding related to self-selection into Clubs. Yet another possibility would be a randomized trial using an encouragement design; although people obviously cannot be mandated to join Clubs, they could be randomly assigned to be recruited intensively in non-coercive ways. Again, the analytic approach would be ITT, comparing people who were randomly assigned to "encouragement" versus controls (with no systematic attempt to recruit into Clubs). Finally, additional randomized trials of specific Club programs will be valuable, given that there have been very few trials to date. Ideally these trials will incorporate economic analyses, by collecting detailed information about program costs as well as outcomes that can be translated into economic benefits.

In addition to improving the evidence on childhood benefits of Club programs, there are opportunities to improve the evidence on how these childhood benefits lead to longer-term economic outcomes. One possibility, which would be difficult but valuable, is to include long-term follow-up data collections in randomized trials where strong initial effects are found. It will also be useful to continue to prioritize the measurement of childhood outcome measures for which there is solid evidence on the linkages with longer-term effects, such as high school graduation and involvement in crime.

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