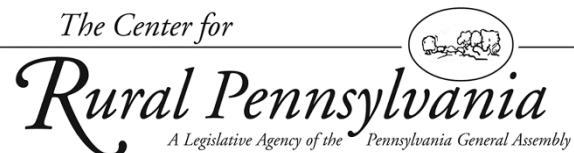


Analysis of Expenditures and Participation in Public School Sports

By: Brian J. Foster, Ph.D., and James E. Mattern, Ed.D.

Lock Haven University of Pennsylvania

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Key Findings

This research analyzed interscholastic athletic participation and expenditure data for Pennsylvania school districts. Using data from 2014-2017, the researchers examined the relationship between interscholastic athletic participation, school athletic expenditures, socioeconomic indicators, and Pennsylvania school district-level indicators.

Key findings:

1. Athletic participation is statistically related to several positive outcomes, including:
 - a. Decreased school suspensions in rural areas;
 - b. Increased Keystone Exam scores in urban areas; and
 - c. Increased graduation rates in urban areas.
2. Trends in participation rates were:
 - a. Rural boys: Football, outdoor track and field, and basketball were the three most popular sports. Noteworthy participation changes from 2014-15 to 2016-17 included lacrosse (+21 percent) and tennis (+16 percent).
 - b. Rural girls: Outdoor track and field, softball, and volleyball were the most popular sports. Noteworthy participation changes included swimming and diving (+26 percent) and soccer (+7 percent).
 - c. Urban boys: Football, outdoor track and field, and baseball were the most popular sports. Noteworthy participation changes from 2014-15 to 2016-17 were indoor track (+20 percent) and swimming and diving (-14 percent).
 - d. Urban girls: Outdoor track and field, soccer, and basketball were the most popular sports. There were generous increases in participation across most sports except gymnastics (-26 percent).
3. Urban districts spent significantly less than rural districts per student-athlete for travel, supplies and equipment, facilities, athletic training, and other expenditures. This occurred while rural districts received 15 percent less in contributions and purchases per student-athlete.
4. Total athletics expenses increased more rapidly for rural districts than for urban districts.

Executive Summary

There is significant evidence that sports participation has multifaceted benefits for youth participants. Prior research has shown that sports participation facilitates positive youth development in the short-term and these benefits continue into adulthood.

This research analyzed interscholastic athletic participation and expenditure data for Pennsylvania school districts and determined their relationship to socioeconomic and school district level indicators. Specifically, the researchers: 1) identified Pennsylvania public school sports participation enrollment for a period of 3 academic years (2014-15, 2015-16, and 2016-17) by gender and sport, 2) determined the average athletics expenditures and funding for nine categories over the same 3-year period, 3) acquired sociodemographic and school district data to determine relationships with sports participation and athletics funding and expenditures, and 4) constructed a narrative via qualitative interviews with athletic directors regarding sports participation and expenditure data. For all four objectives, the research compared rural and urban school districts.

The research included all 500 Pennsylvania public school districts, 235 of which are rural school districts and 265 of which are urban school districts, according to the Center for Rural Pennsylvania's definition.

For the study, the researchers used sports participation and expenditure data from the Pennsylvania Department of Education. To measure potential sociodemographic and academic outcomes of sports participation and expenditures, the researchers acquired household median incomes, racial enrollment profiles, law incidents frequency, suspension frequency, Keystone Exam performance (algebra, literature, and biology), graduation rates, truancy rates, and dropout rates for each school district. Finally, they conducted a qualitative analysis on the interview data to better understand the first-hand experiences of school athletic directors.

According to the research, sports participation data as of 2016-17 revealed that football, outdoor track and field, and basketball were the three most popular sports for rural boys. Noteworthy participation changes from 2014-15 to 2016-17 for rural boys included lacrosse (+21 percent) and tennis (+16 percent).

Outdoor track and field, softball, and volleyball were the most popular sports for rural girls. Noteworthy participation changes included swimming and diving (+26 percent) and soccer (+7 percent). Football, outdoor track and field, and baseball were the most popular sports for urban boys. Noteworthy participation changes from 2014-15 to 2016-17 for urban boys were indoor track (+20 percent) and swimming and diving (-14 percent). For urban girls, the most popular sports were outdoor track and field, soccer, and basketball. There were generous increases in participation across most sports except gymnastics (-26 percent).

The findings pertaining to expenditures revealed that in 2016-17, urban districts were spending significantly less than rural districts per student-athlete for five of seven expenditure categories, while receiving significantly more contributions and purchases per student-athlete. Rural districts spent 37 percent more on travel, 59 percent more on supplies and equipment, 125 percent more on facilities, 79 percent more on athletic training, and 52 percent more on other expenditures per student-athlete than urban districts. This occurred while receiving 15 percent less in contributions and purchases per student-athlete.

The findings also show that total athletics expenses were increasing more rapidly for rural districts than for urban districts. For example, from 2014-15 to 2016-17, travel fees for rural student-athletes increased 20 percent, while for urban student-athletes they decreased 14 percent. Supplies and equipment for rural student-athletes increased 50 percent, while for urban student-athletes they decreased 18 percent. Athletic training fees for rural student-athletes increased 63 percent, while for urban student-athletes they decreased 18 percent.

Regarding sociodemographic and academic indices, there were several significant relationships with sports participation. For rural school districts, as sports participation increased, the number of suspensions decreased. Sports participation also increased in cases where the racial makeup of the district was more White, non-Hispanic.

Urban districts also shared these findings but featured additional relationships with sports participation. As sports participation increased in urban districts, Keystone Exam scores increased in all

three subject categories (algebra, biology, and literature). Also, as sports participation increased, the graduation rate increased.

Regarding expenses per student-athlete and funding per student-athlete, for both urban and rural school districts there were no noteworthy relationships determined with any psychosocial variables examined in this study.

Finally, for the fourth objective, the research team collected all focus group responses with athletic directors and identified four primary themes: 1) sports participation is increasing for both males and females, 2) activity fees are a significant deterrent to participation, 3) athletic-related expenses are rising and athletic boosters are being tasked with funding the deficits, and 4) sports participation is associated with positive behavioral and academic outcomes. These four qualitative findings corroborate the quantitative findings in the first three objectives.

Drawing from the study results, the research team suggests that Pennsylvania state government recognize inherent disadvantages that students from rural districts face pertaining to athletics participation. Rural districts have fewer sports participants than urban districts due to lower school enrollments. The consequence of this is a greater total expense per participant while simultaneously receiving less funding per participant via non-school purchases and contributions. Increased state funding to rural districts would reduce inequities between rural and urban districts regarding athletics costs per participant. Reducing economic burdens on rural families to cover sports-related costs will in turn provide enhanced opportunities for rural students to participate in school sports.

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Introduction

Value of Youth Sports

There is significant evidence that sports participation has multifaceted benefits for youth participants. Bailey, Hillman, Arent, and Petitpas (2013) have suggested that youth physical activity is a vehicle for positive physical, emotional, intellectual, individual, and social growth. These growth factors, along with financial growth later in life, are the core components of their Human Capital Model. Sports participation facilitates positive youth development in the short-term, and these benefits continue into adulthood.

The positive physical effects of sports participation are now well documented. Participants develop greater strength, endurance and flexibility from engaging in sports, and these benefits are maintained into adulthood (Cote & Hay, 2002). Perhaps most importantly, physical activity is negatively correlated with obesity, and therefore greater sports participation is capable of alleviating the economic burden of health care (Masten, Velickovska, Tusak, & Blatnik, 2018).

Emotional growth refers to constructs that comprise mental health and well-being. Sport participation has been shown to produce multifaceted benefits in this regard. Donaldson and Ronan (2006) found that youth sports participation predicts stronger self-concept, and that as sports skill proficiency develops, there is an associated decrease in emotional and behavioral problems. Furthermore, sports participation can be a preventative measure against depressed mood (Gore, Farrell, & Gordon, 2001). Altogether, engagement in school sports enhances life satisfaction for its participants (Gilman, 2001).

Intellectual growth from sports participation is regularly demonstrated through enhanced academic performance (Taylor, Davies, Wells, Gilbertson, & Tayleur, 2015). For example, a study in Kansas concluded that 2008-2009 high school athletes in the state outperformed their non-athlete peers by earning better grades (80.5 percent of athletes with greater than 3.0 grade point average versus 69.5 percent of non-athletes) and graduating at a higher rate (98 percent of athletes versus 88 percent of non-athletes; Lumpkin & Favor, 2012). Non-athletes were also 15 times more likely to drop out of school than their athlete peers (Lumpkin & Favor, 2012).

Individual growth from sports participation is measured on factors such as character and integrity (Bailey et al., 2013). Sport participation has been shown to promote prosocial behavior in youth and a more positive school climate. Evidence of this was determined by Veliz and Shakib (2012) upon analyzing a nationally representative sample of 1,200 students. They found that as a school's sports participation rate increased, its number of serious crimes on school grounds decreased, as well as its total number of school suspensions. Furthermore, youth sports participation has been determined to be beneficial when participants seek jobs as adults (DiCola, 2006). This is due to the development of skills valued by employers, including "soft skills," such as teamwork and leadership.

Finally, social growth develops in sports participation by bringing youth together. Positive outcomes are most prevalent when youth are exposed to prosocial adults, such as parents and coaches who intentionally foster positive lessons focused on life skills and physical development through sports (Fraser-Thomas, Cote, & Deakin, 2005). School programs are able to create a structured environment that emphasize character in sports (Shields & Bredemeier, 1995).

National and State Trends in School Sports

To provide athletic opportunities to students, schools must possess the funds to successfully operate their programs. Nationally, athletics budgets appear to be fairly stable. Twenty-two percent of athletic directors reported an increase of at least 2 percent in their athletic budget from 2016-17 to 2017-18, with 19 percent reporting a decrease of least 2 percent (Coach & Athletic Director, 2018b). Athletic departments receive money from a combination of government, fundraising, and participation fees.

Data from the Pennsylvania Department of Education website shows that 265,492 boys and girls participated in Pennsylvania public high school sports for the 2016-2017 academic year. This is a 10 percent increase from 2014-2015, when the state sports participation total was 241,015 participants. Currently the most popular sports for boys are football, track and field, and basketball, while the most popular sports for girls are track and field, soccer, and softball. Across the country, athletic directors

report that lacrosse (boys and girls), golf (girls), and bowling (boys and girls) are the programs they have most recently added or are planning to add to their athletic programs (Coach & Athletic Director, 2018a).

Urban Schools vs. Rural Schools

According to the Center for Rural Pennsylvania's definition, a school district is considered rural when the number of persons per square mile in that district is fewer than 284. In Pennsylvania, there are 235 rural school districts and 265 urban school districts, for a total of 500 districts. Prior to this study, only a few studies on sports participation factors have focused on geographic aspects, such as the rural/urban divide (Hoekman, Breedveld, & Kraaykamp, 2017).

Regarding sports participation in U.S. high schools, studies suggest that rural school districts offer fewer sports programs and extracurricular activities than urban school districts. A study completed by Stearns and Glennie (2010) on North Carolina high schools found that school size and poverty levels impact the types and quantity of extracurricular and athletic opportunities. Generally, larger and more affluent schools are in urban settings and therefore have higher participation rates for extracurricular activities. Hamilton (2019) supports these findings by stating that, despite the positive impact sports can bring to students' lives, youth sports are declining in rural America. This is due to the cost of participation, lack of participants, and family relocation trends all coinciding.

Research on sports participation factors also extends outside of the United States. Van Tuyckom (2011) indicated in his study of the European Union that individuals living in rural areas engaged in less sporting activity than individuals living in urban locations. Another study completed in Taiwan supports these findings, indicating that, "participants who lived in rural settings were less interested in recreational sports than their urban counterparts" (Chen et al., 2017, p. 6).

Factors Affecting Sports Participation

Considering the multifaceted benefits of sports participation, it is worthwhile to examine factors that influence participation rates in public school sports. Two of the most prominent demographic factors are socioeconomic status and race/ethnicity. Johnston, Delva and O'Malley (2007) analyzed data from over 500 schools nationwide for the 2003, 2004, and 2005 school years. Their results indicated that participation in sports was more common for youth from higher socioeconomic status, a trend later supported by Eime, Charity, Harvey, and Payne (2015). Socioeconomic status is a particular concern in rural areas, as according to the U.S. Census Bureau (2011-15), the median household income is 4 percent lower in rural areas than urban areas, and the poverty rate is nearly 3 percent higher. In 2015-16, the national average for sports participation fees was \$302 per participant annually (Coach & Athletic Director, 2018c). These fees can deter students from lower socioeconomic status from participating. Johnston et al. (2007) also found that White students participate more than Black or Hispanic students, a fact supported by the Aspen Institute (2015).

Financial considerations have a strong impact on sports participation; specifically, state funding and pay-to-play policies or activity fees. Currently, high school funding by state governments in the U.S. is below 2008 levels in 35 states (Oliff, Mai, & Leachman, 2012). However, responses to decreases in state funding vary by state and school district. Using school district-level data, Chakrabarti and Setren (2011) found that, although instructional expenditures were maintained since 2004-05, other categories such as transportation, student activities, including athletics, and utilities suffered.

Despite the athletic budget cutbacks, sports participation nationwide has increased in this same period (Anderson, 2016), forcing schools to find alternative sources of funding. According to the National Interscholastic Athletic Administrators Association, as of 2010, 34 percent of high schools adopted pay-to-play policies where a family must pay a certain amount to the school for their child(ren) to participate in extracurricular activities. Pay-to-play fees may take the form of a flat rate charge per year or may be based upon the number of activities in which a child participates. Furthermore, parents are often taxed with paying additional team fees, as well as other out-of-pocket costs, such as equipment and

transportation (Anderson, 2016). In 2015-16, the national average for sports participation fees was \$302 annually per participant (Coach & Athletic Director, 2018c).

A negative consequence of pay-to-play fees is that they may keep lower socioeconomic individuals from participating in high school athletics. Hamilton (2019) found that 41 percent of families had at least one child participating in sports, and that of the 59 percent whose children were not enrolled in sports, 14 percent stated high costs were the reason. While some school districts have programs in place for lower income families to have participation fees waived, this is not possible for all districts. This can be detrimental for rural schools as they are located in regions more likely to experience poverty, according to the Center for Public Education (Hamilton, 2019). Rural counties are 17 percent more likely to experience poverty, and rural families are more likely to fall into “deep poverty,” defined as less than half of the national poverty level (Hamilton, 2019).

To accommodate for the financial burdens from decreased funding, and to alleviate the burden being placed on parents of pay-to-play fees, many high schools are looking for support from athletic booster clubs. A booster club is an organization with a mission to support the efforts of a sports team or organization (Myran-Schutte, 2020). Booster club activities may include: 1) raising money by printing approved promotional items, 2) financially supporting the program by providing additional funding for coaches, staff, and event workers, 3) organizing team events, such as pregame or postgame dinners or social events during the season, 4) performing, meeting or organizing in any way, in accordance with the above stated definition, that supports or “boosts” the program they are formed to support.

Another factor in the decline of youth sports participation is a lack of players and coaches. The lack of coaches is partly due to the migration from rural to urban areas. Social worker Goutham Menon termed the phenomena of talented professionals moving to urban environments “brain drain” (Hamilton, 2019). This migration pattern creates employment gaps in rural areas that need qualified head coaches, assistant coaches, and volunteers to help ensure the success of rural students. However, it is not just a lack of coaches needed to help coach these sports teams. In some rural areas, there are simply not enough

student-athletes for sports programs to continue. For example, despite the popularity of football, there are rural programs across the country that annually struggle to attract enough players to field a team.

Summary

Given the many benefits of sports participation, it is worthwhile to examine the current state of public school sports. It is important to collect and analyze Pennsylvania public school sports participation data so that government officials and sports administrators may adequately prepare to meet the demands of the next generation of high school student-athletes. An in-depth analysis of economic trends in public school sports across Pennsylvania is necessary so that government officials and sports administrators may fiscally prepare to maximize sports opportunities for the next generation of high school student-athletes.

Goals and Objectives

The overall goal of the research was to analyze interscholastic athletic participation and expenditure data for Pennsylvania school districts and determine their relationship to socioeconomic and school district level indicators. To achieve this overall goal, the researchers identified four specific objectives: 1) identify Pennsylvania public school sports participation enrollment for a period of 3 academic years (2014-15, 2015-16, and 2016-17), 2) determine the average athletics expenditures and funding over the same 3-year period, 3) acquire sociodemographic and school district data to determine relationships with sports participation and athletics funding and expenditures, and 4) construct a narrative via qualitative interviews regarding sports participation and expenditure data.

The first objective was to identify Pennsylvania public school sports participation enrollment for a period of 3 academic years (2014-15, 2015-16, and 2016-17). This objective was established to study the trends in sports participation over the 3-year timeframe, and included identifying sports participation enrollment by gender, sport, and urban/rural school districts. The purpose of presenting this data is so that government officials and sports administrators may prepare to meet the demands of high school student-

athletes. The data will permit researchers to view the percent enrollment change by gender and sport for both rural and urban school districts from 2014-15 to 2016-17.

The second objective was to determine the average athletics expenditures and funding for Pennsylvania public school districts over the same 3-year period. This objective was established to help the researchers identify the changes in expenditures and funding and to determine where these changes are taking place. To achieve this objective, researchers analyzed the specific expenses and funding within each school district's athletic department. The Pennsylvania Department of Education requires schools to report expenditure data in seven categories: travel, uniforms, supplies and equipment, facilities, coach compensation, athletic trainer compensation, and other. Schools must also report funding data in two categories, contributions and purchases. Contributions are any funding received through donations from booster clubs, alumni, and other non-school support. Purchases are gifts-in-kind. The objective would help the research team identify average values for each expense and funding category for rural and urban school districts, and identify how those values have changed from 2014-2015 to 2016-2017.

The third objective was to acquire sociodemographic and school district data to determine their relationships with sports participation and athletics' funding and expenditures to identify participation and funding relationships with eight variables: household median income, racial enrollment profile, law incidents frequency, suspension frequency, Keystone Exam performance (algebra, literature, and biology), graduation rate, truancy rate, and dropout rate. The secondary objective was to identify any differences in relationships between the aforementioned variables for urban and rural school districts. Upon completion, the researchers were able to determine the relationship that sports participation and sociodemographic variables have with each other and how athletics' funding and expenditures impact those relationships.

Finally, the fourth objective was to construct a narrative regarding sports participation and expenditure data. This qualitative research component was established to identify key themes arising from focus group interviews of high school athletic directors. The purpose of this objective was to compare and

contrast data from rural and urban athletic directors, and to determine if qualitative reports from athletic directors align with data collected and analyzed throughout the first three objectives.

Methodology

The first objective was to identify Pennsylvania public sports participation enrollment for a period of 3 academic years (2014-15, 2015-16, and 2016-17) by gender, sport, and urban/rural school districts. The data are publicly available as Microsoft Excel spreadsheets on the Pennsylvania Department of Education (PDE) website under the *Data and Reporting* tab as *Interscholastic Athletic Opportunity Disclosure Act*. The research team coded each school district as a rural district or an urban district, then reorganized the data to permit the calculation of the number of participants in each sport by gender and urban/rural designation. As per the Center for Rural Pennsylvania definition, a school district was considered rural when the number of persons per square mile in that district was fewer than 284. There are 500 school districts in Pennsylvania, with 235 classified as rural and 265 classified as urban.

The second objective was to determine the average athletics funding and expenditures and the percent expenditure changes over the same 3-year period. The data are publicly available on the same spreadsheets as the participation data from the first objective. Average totals for nine expenditure and funding categories were calculated for urban and rural school districts. In addition to determining actual percent changes in categories from 2014-2015 to 2016-2017, the researchers conducted a further analysis to include the 1.4 percent inflation change in the U.S. dollar between July 2014 and July 2016. In cases when data for a school district were incomplete, that school district was omitted from the final calculations (for this objective, as well as all other objectives). Of the 500 school districts in Pennsylvania, 374 districts provided data for 2014-2015, 375 districts provided data for 2015-2016, and 364 districts provided data for 2016-2017. The expenditure categories of athletic trainer compensation and facilities had fewer data points than other categories and this was noted in the results.

It must be noted that, per the PDE data, there are significant discrepancies between total expenses and total funding. This is not indicative of districts operating at a deficit. It can be explained by the procedure with which districts obtain funds to run their programs. Athletic departments are funded through state and local government subsidization, with the remaining expenses being paid through contributions or purchases. Athletic directors at each school district submit an athletics budget each year for the sport programs they oversee. The school district in turn distributes the funding received through the government to the athletic department. This government funding is not reported to PDE, nor are any revenues reported through the disclosure of interscholastic athletic opportunity. These unreported funding sources make up the difference between total expenses and total funding.

The third objective was to assess the relationship that four sociodemographic variables and four academic performance variables have with sport participation and athletics funding and expenditures at the school district level. The four sociodemographic variables were household median income, racial enrollment profile, number of law incidents per 1,000 students, and number of out-of-school suspensions per 1,000 students. Household median income was determined using 2010 U.S. Census values. Racial enrollment profile was found under Enrollment Reports on the PDE website, and, for the purposes of this study, was calculated as the percentage of White, non-Hispanic students. The number of law enforcement incidents and school suspensions were determined using data from PDE's Safe School Reports (PDE, Safe Schools Online, 2016-2017). The four academic performance variables were Keystone Exam performance (algebra, literature, biology), 4-year graduation rates, truancy rates, and dropout rates. Keystone Exam performance data for each subject were retrieved from the PDE website and calculated as the percentage of students earning a score of "advanced" or "proficient." Dropout rates and 4-year graduation rates were found on the PDE website. Truancy rates were retrieved from PDE's Safe School Reports. All data were entered into Statistical Package for the Social Sciences (SPSS) software. Pearson correlations were run on the variables, which is a statistical technique to determine the degree of relationship among variables. Linear regression, a statistical technique that displays the predicted value of

one variable based on the known value of another variable, was conducted on variables with significant correlation to gain a deeper understanding of variable relationships.

The fourth objective was completed by conducting three focus group interviews with current Pennsylvania high school athletic directors. The first two focus groups included a total of nine rural athletic directors and were held at the Pennsylvania State Athletic Directors' (PSADA) annual conference in Hershey, Pennsylvania in March 2019. Participants were conference attendees who volunteered to partake in the study. The third focus group included four urban athletic directors and was held at the PSADA Summer Meeting in York, Pennsylvania in July 2019. Urban athletic directors were exclusively recruited for this focus group to attain representation for urban school districts. The 13 athletic director participants approached the approximate 15 participants for which the study aimed. Altogether, 10 athletic directors were male and three were female. All members of PSADA were sent an email prior to both events asking for consideration in participating in the interviews; therefore, all participants were willing volunteers. The three total focus groups conducted was the number anticipated by the research team at the outset of the research. All discussions were recorded via tape recorder with no visual identification. Questions were posed in a manner whereby researchers facilitated open dialogue among participants. A list of questions posed is included in Appendix A. Following data collection, the research team employed an interpretational analysis procedure with the responses. Interpretational analysis assumes there is no inherent structure among the data, and it is the responsibility of the researcher to determine it (Tesch, 1990). First, interview data were divided into smaller segments of information, known as coding tags. Second, these coding tags were arranged into categories, where coding tags with similar meanings were grouped together. Finally, the meaning of each category was interpreted by the researchers to derive primary and secondary themes.

Results

Sports Participation

Sports participation data are in Table 1. All 500 Pennsylvania school districts were included in the analysis. Data revealed that football, outdoor track and field, and basketball were the three most popular sports for rural boys. Noteworthy participation changes from 2014-15 to 2016-17 for rural boys included lacrosse (+21 percent) and tennis (+16 percent).

Football, outdoor track and field, and baseball were the most popular sports for urban boys. Noteworthy participation changes from 2014-15 to 2016-17 for urban boys were indoor track (+20 percent) and swimming and diving (-14 percent).

Outdoor track and field, softball, and volleyball were the most popular sports for rural girls. Noteworthy participation changes included swimming and diving (+26 percent) and soccer (+7 percent).

Finally, for urban girls, the most popular sports were outdoor track and field, soccer, and basketball. There were generous increases in participation across most sports except gymnastics (-26 percent).

Table 1: Pennsylvania High School Athletics Participation Data by Urban/Rural Designation, Gender, and Academic Year

	Rural Boys 14-15	Rural Boys 15-16	Rural Boys 16-17	Rural Girls 14-15	Rural Girls 15-16	Rural Girls 16-17	Urban Boys 14-15	Urban Boys 15-16	Urban Boys 16-17	Urban Girls 14-15	Urban Girls 15-16	Urban Girls 16-17
Baseball	6,260	6,829 (+9)	6,510 (-5)	0	2	8 (+400)	9,479	10,556 (+11)	10,178 (-4)	0	2	0
Basketball	6,376	6,978 (+9)	6,883 (-1)	4,747	4,978 (+5)	4,722 (-5)	8,411	9,610 (+14)	9,232 (-4)	5,702	6,388 (+12)	6,314 (-1)
Bowling	136	170 (+25)	157 (-8)	123	121 (-2)	122 (+1)	786	933 (+19)	860 (-8)	563	575 (+2)	599 (+4)
Spirit	91	160 (+76)	44 (-364)	1,761	1,752 (-1)	1,896 (+8)	178	210 (+18)	127 (-40)	3,384	3,692 (+9)	3,790 (+3)
Cross Country	2,349	2,573 (+10)	2,593 (+1)	1,714	1,925 (+12)	1,908 (-1)	5,254	5,679 (+8)	5,899 (+4)	3,851	4,212 (+9)	4,312 (+2)
Field Hockey	61	123 (+101)	91 (-26)	1,683	2,026 (+20)	1,892 (-7)	139	358 (+158)	181 (-51)	5,229	5,574 (+7)	5,860 (+5)
Football	10,975	12,282 (+12)	11,537 (-6)	11	18 (+64)	23 (+28)	19,113	21,811 (+14)	20,727 (-8)	11	21 (+91)	13 (-38)
Golf	1,953	2,004 (+3)	1,970 (-2)	341	390 (+14)	424 (+9)	3,073	3,403 (+11)	3,296 (-3)	501	654 (+31)	704 (+8)
Gymnastics	1	2 (+100)	1 (-50)	59	69 (+17)	59 (-17)	1	8 (+800)	2 (-75)	159	149 (-6)	126 (-18)
Indoor Track	159	212 (+33)	178 (-19)	175	133 (-32)	179 (+35)	3,195	3,609 (+13)	3,849 (+7)	2,957	3,212 (+9)	3,453 (+8)
Lacrosse	452	438 (-3)	548 (+25)	564	544 (-4)	599 (+10)	5,521	5,701 (+3)	6,052 (+6)	4,533	4,594 (+1)	5,206 (+13)
Outdoor Track	8,268	7,786 (-6)	8,011 (+3)	6,488	6,749 (+4)	7,004 (+4)	9,600*	14,718* (+53%)	14,836* (+1)	11,273	11,785 (+5)	12,263 (+4)
Rifle	234	251 (+7)	275 (+10)	150	156 (+4)	171 (+10)	367	394 (+7)	434 (+10)	210	242 (+15)	269 (+11)
Soccer	4,917	5,725 (+16)	5,375 (-6)	4,443	4,677 (+5)	4,773 (+2)	9,581	10,744 (+12)	10,713 (0)	7,595	7,999 (+5)	8,311 (+4)
Softball	158	327 (+108)	222 (-47)	4,848	4,971 (+3)	5,016 (+1)	154	304 (+97)	186 (-63)	6,038	6,438 (+7)	6,612 (+3)
Swimming & Diving	923	987 (+7)	997 (+1)	1,031	1,238 (+20)	1,301 (+5)	4,334	3,851 (-11)	3,728 (-3)	3,941	4,086 (+4)	4,283 (+5)
Tennis	1,064	1,338 (+26)	1,231 (-8)	1,269	1,417 (+12)	1,396 (-2)	3,595	4,067 (+13)	3,924 (-4)	3,950	3,987 (+1)	4,207 (+6)
Volleyball	884	911 (+3)	961 (+5)	4,802	4,912 (+2)	4,868 (-1)	2,774	3,013 (+9)	3,011 (0)	5,710	5,991 (+5)	6,281 (+5)
Water Polo	0	0	0	0	0	27	386	490 (+27)	423 (-16)	6	363 (+6050)	374 (+3)
Wrestling	4,097	4,642 (+13)	4,297 (-7)	35	26 (-26)	89 (+242)	5,835	6,719 (+15)	6,382 (-5)	24	29 (-21)	18 (-61)
Total	49,358	53,738	51,881	34,244	36,104	36,477	91,776*	106,178*	104,040*	65,637	69,993	73,094

Notes: Figures are total number of students enrolled. A student who played multiple sports would result in a count being included for each sport played. Asterisks indicate inconsistent data reporting for outdoor track that likely renders data inaccurate. Numbers in parentheses indicate percent enrollment change from prior academic year rounded to nearest whole number.

Expenditures and Funding

Aggregate sports expenditure and funding data are in Table 2. To be included in the analysis, districts needed to have provided full data for the academic year to PDE. There were 374, 375, and 364 districts that provided full data for the 2014-15, 2015-16, and 2016-17 academic years, respectively. To enable

more meaningful comparisons, sport expenditures and funding data per student-athlete are presented in Table 3. This table was developed by taking the data from Table 2 and dividing each figure by the average number of student-athletes per school district. The findings revealed that, in 2016-17, urban districts were spending significantly less than rural districts per student-athlete for five of the seven expenditure categories, while receiving significantly more contributions and purchases per student-athlete. Rural districts spent 37 percent more on travel, 59 percent more on supplies and equipment, 125 percent more on facilities, 79 percent more on athletic training, and 52 percent more on other expenditures per student-athlete than urban districts. This occurred while receiving 15 percent less in contributions and purchases per student-athlete.

The findings also show that total athletics expenses were increasing more rapidly for rural districts than for urban districts. For example, from 2014-15 to 2016-17, travel fees for rural student-athletes increased 20 percent, while for urban student-athletes they decreased 14 percent. Supplies and equipment for rural student-athletes increased 50 percent, while for urban student-athletes they decreased 18 percent. Athletic training fees for rural student-athletes have increased 63 percent, while for urban student-athletes they decreased 18 percent.

Table 2: Pennsylvania High School Athletics Expenditure Data by Urban/Rural Designation and Academic Year

	Rural 2014- 2015	Rural 2015- 2016	Rural 2016- 2017	Rural 2016- 2017 IA	Urban 2014- 2015	Urban 2015- 2016	Urban 2016- 2017	Urban 2016- 2017 IA
Total Districts	149	146	147	147	225	229	217	217
Travel	\$37,795	\$40,243 (+6)	\$42,830 (+6)	\$42,230	\$53,273	\$54,179 (+2)	\$55,451 (+2)	\$54,675
Uniforms	\$9,753	\$10,055 (+3)	\$10,232 (+2)	\$10,089	\$18,803	\$17,808 (-1)	\$20,748 (+17)	\$20,458
Supplies & Equipment	\$28,559	\$34,054 (+19)	\$40,534 (+19)	\$39,967	\$46,497	\$43,185 (-7)	\$45,538 (+5)	\$44,900
Facilities#	\$43,300	\$41,189 (-5)	\$43,828 (+6)	\$43,214	\$70,860	\$117,074 (+65)	\$34,916 (-70)	\$34,427
Athletic Trainer Compensation*	\$25,419	\$37,461 (+47)	\$39,222 (+5)	\$38,673	\$39,460	\$38,905 (-1)	\$38,501 (-1)	\$37,962
Coach Compensation	\$146,168	\$157,002 (+7)	\$162,549 (+4)	\$160,273	\$261,155	\$298,120 (+14)	\$313,534 (+5)	\$309,145
Other	\$43,777	\$47,568 (+9)	\$48,200 (+1)	\$47,525	\$52,643	\$51,551 (-2)	\$55,992 (+9)	\$55,208
Total Expenses	\$334,771	\$367,572 (+10)	\$387,395 (+5)	\$381,971	\$542,691	\$620,822 (+14)	\$564,680 (-9)	\$556,775
Contributions	\$40,211	\$47,220 (+17)	\$45,472 (-4)	\$44,835	\$90,511	\$92,991 (+3)	\$94,256 (+1)	\$93,203
Purchases	\$48,407	\$55,099 (+14)	\$52,883 (-4)	\$52,143	\$99,346	\$110,552 (+11)	\$108,210 (-2)	\$106,695
Total Funding	\$88,618	\$102,319 (+15)	\$98,355 (-4)	\$96,978	\$189,857	\$203,543 (+7)	\$202,466 (-1)	\$199,898

Notes: Row titled "Total Districts" indicates number of school districts that provided full data to be used for calculations. All monetary figures are in U.S. dollars. Values are average per school district. Asterisk (*) next to athletic trainer compensation indicates fewer districts reported for this category than all others. Pound sign (#) next to facilities indicates small sample reporting facilities expenses for 2016-2017. IA = inflation adjusted (1.4%) since 2014-2015. Numbers in parentheses are percent changes from the prior academic year rounded to nearest whole number.

Table 3: Pennsylvania High School Athletics Expenditure Data by Urban / Rural Designation and Academic Year Per Student-Athlete

	Rural 2014- 2015	Rural 2015- 2016	Rural 2016- 2017	Rural 2016- 2017 IA	Urban 2014- 2015	Urban 2015- 2016	Urban 2016- 2017	Urban 2016- 2017 IA
Total Districts	149	146	147	147	225	229	217	217
Athletes Per District	396	382	376	376	558	703	668	668
Travel	\$95	\$105 (+11)	\$114 (+9)	\$112	\$95	\$77 (-19)	\$83 (+8)	\$82
Uniforms	\$25	\$26 (+4)	\$27 (+4)	\$27	\$34	\$25 (-29)	\$31 (+24)	\$31
Supplies & Equipment	\$72	\$89 (+24)	\$108 (+21)	\$106	\$83	\$62 (-34)	\$68 (+10)	\$67
Facilities#	\$109	\$108 (-1)	\$117 (+8)	\$115	\$127	\$167 (+31)	\$52 (-69)	\$52
Athletic Trainer Compensation*	\$64	\$98 (+53)	\$104 (+6)	\$103	\$71	\$55 (-23)	\$58 (+5)	\$57
Coach Compensation	\$369	\$411 (+11)	\$432 (+5)	\$426	\$468	\$424 (-10)	\$469 (+11)	\$463
Other	\$111	\$125 (+13)	\$128 (+2)	\$126	\$94	\$73 (-22)	\$84 (+15)	\$83
Total Expenses	\$845	\$962 (+14)	\$1030 (+7)	\$1015	\$972	\$883 (-9)	\$845 (-4)	\$835
Contributions	\$102	\$124 (+22)	\$121 (-2)	\$119	\$162	\$132 (-19)	\$140 (+6)	\$140
Purchases	\$122	\$144 (+18)	\$141 (-2)	\$139	\$178	\$157 (-12)	\$162 (+3)	\$160
Total Funding	\$224	\$268 (+10)	\$262 (-2)	\$258	\$340	\$289 (-15)	\$302 (+4)	\$300

Notes: Row titled “Total Districts” indicates number of school districts that provided full data to be used for calculations. All monetary figures are in U.S. dollars. Values are average per school district per student-athlete. Asterisk (*) next to athletic trainer compensation indicates fewer districts reported for this category than all others. Pound sign (#) next to facilities indicates small sample reporting facilities expenses for 2016-2017. IA = inflation adjusted (1.4%) since 2014-2015. Numbers in parentheses are percent changes from the prior academic year rounded to nearest whole number.

Psychosocial and Academic Indices

Data analysis for the third objective began by examining correlations between sports participation, sports funding, sports expenses, and eight psychosocial and academic performance variables (median income, law incidents, suspensions, algebra exam performance, literature exam performance, biology exam performance, graduation rate, truancy rate, dropout rate, and racial makeup) for the 2016-17 academic year. Rural school district data are presented in Table 4 and urban school district data are presented in Table 5.

Regarding rural school districts, as sports participation increased, the number of suspensions decreased. Sports participation also increased in cases where the racial makeup of the district was more White, non-Hispanic. Urban districts also shared these findings but featured additional relationships with sports participation.

As sports participation increased in urban districts, Keystone Exam scores increased in all three subject categories (algebra, biology, and literature), and graduation rates increased.

Regarding expenses per student-athlete and funding per student-athlete, for both urban and rural school districts there were no noteworthy relationships determined with any psychosocial variables examined in this study.

Table 4: Rural School District Correlations Between Sports Participation, Expenses, Funding, and Psychosocial Indicators for the 2016-17 Academic Year

	Sports Participation Ratio	Expenses per Participant	Funding per Participant
Median Income	-.19**	.10	.03
Law Incidents	.08	-.01	-.08
Suspensions	-.27**	.11	-.11
Exam – Algebra	.06	-.05	.03
Exam – Literature	.11	-.04	.01
Exam – Biology	.08	-.04	.06
Graduation Rate	-.02	-.06	.08
Truancy Rate	.02	.08	.03
Dropout Rate	-.01	.09	-.02
Race	.26**	-.20**	<.01

Notes: Figures are r-values on 0-1 scale. * indicates significance at .05 level. ** indicates significance at .01 level.

Table 5: Urban School District Correlations Between Sports Participation, Expenses, Funding, and Psychosocial Indicators for the 2016-17 Academic Year

	Sports Participation Ratio	Expenses per Participant	Funding per Participant
Median Income	.11	-.14	.03
Law Incidents	-.22**	.13	-.07
Suspensions	-.32**	-.01	-.11
Exam – Algebra	.34**	-.08	.15
Exam – Literature	.33**	-.05	.09
Exam – Biology	.34**	-.04	.16*
Graduation Rate	.45**	-.05	.14
Truancy Rate	-.16*	.10	-.02
Dropout Rate	-.12	.14*	-.03
Race	.42**	-.07	.23**

Notes: Figures are r-values on 0-1 scale. * indicates significance at .05 level. ** indicates significance at .01 level.

Qualitative Analysis

For the fourth objective, the research team collected all focus group responses and identified four primary themes: 1) sports participation is increasing for both males and females, 2) activity fees are a significant deterrent to participation, 3) athletic-related expenses are rising and athletic boosters are being tasked with funding the deficits, and 4) sports participation is associated with positive behavioral and academic outcomes. These four qualitative findings corroborate the quantitative findings in the first three objectives.

Sports Participation is Increasing for Both Males and Females

The first identified theme was that sports participation has increased for both males and females. Participants were unanimous that during the study time frame there was a rise in athletic participation for both male and female sports. Some participants further noted that demand for track and field has been growing recently, while sports that have historically seen high enrollment, like football, baseball, and wrestling, have seen declining participation.

One athletic director stated “I’m seeing increasing numbers in track and field and cross-country, track is especially becoming more popular with girls.”

A second athletic director agreed, saying “there’s been an increase in track and cross-country participation, while there’s been a decrease in participation for major sports like softball and baseball.”

A third athletic director said “football is decreasing for sure. Wrestling as well. Track and field is increasing. Other sports are staying the same.”

Activity Fees are a Significant Deterrent to Participation

From the interviews it was evident that athletic directors believed students were becoming more open to pursuing more novel sports opportunities at the expense of traditional sports, like football and basketball. Per Table 1, quantitative findings support a rise in participation rates for both males and females, as well as significant growth in track participation. In contrast, qualitative findings for the belief that wrestling and football were witnessing declines in participation were not supported by quantitative data. In cases where students were electing to not participate in athletics, the most common rationale provided by athletic directors was that the cost of student-athlete activity fees was the primary reason.

One athletic director stated declines in enrollment were “due to activity fees. Parents now have to pick and choose what their kids participate in... sports where students are not the star player, they are no longer participating in.”

A second athletic director stated “there is more responsibility on parents to cover costs, financially when it’s really hard, asking them to work concessions and pay for play in the public education environment.”

A third athletic director noted this is particularly harmful for rural athletes, saying “there is declining sport enrollment in rural areas compared to urban areas. Activity fees are to blame. Travel teams play a role in it as well. Rural kids, depending upon exposure, opportunities just aren’t available to a lot of kids.”

Athletic-Related Expenses are Rising and Athletic Boosters are Being Tasked with Funding the Deficits

The third identified theme was that athletic-related expenses have increased and athletic boosters are being tasked with funding the deficits. Participants indicated that, in recent years, athletic budgets included additional funds to cover unknown expenses, but now this is no longer the case. Participants also indicated that athletic boosters are expected to cover many of the expenses related to athletic tournaments, hotel fees for overnight stays, and uniforms.

One athletic director stated, “everything goes up a little every year. Our situation, every year when budgeting, we’re being told to cut \$30,000-\$40,000. Maybe 8-10 years ago there was a little fluff in the budget, but that’s no longer there. Boosters are expected to pay for a lot of different things, including tournaments, overnight stays, uniforms... booster relations are critical.”

A second athletic director noted that, every year, there are “increases in transportation expenses, like every other district. Officials, expenses go up a dollar or two... but a lot of what happens is due to boosters covering the costs. We don’t get new uniforms every year, we’re on a 5- or 6-year rotation. The budget isn’t growing, there’s not a lot to cut in there. It’s bare bones and we’re not getting extra money. Boosters are critical, they pay our tournament fees.”

A third athletic director highlighted an important effect of boosters, saying “boosters make up for any cuts in the program, (so I) haven’t had to charge students or parents because of their support.”

It was clear from interviews that athletic directors felt that boosters were essential for their programs to continue to function. When athletic directors were asked how reliance on boosters affected rural districts compared to urban districts, there was strong agreement among participants that rural districts were significantly disadvantaged, and also strong agreement regarding why this was the case, summed up in the following quote.

An athletic director stated, “urban areas have a better tax base, due to industry and different things, and this means more money in those areas. This means programs are thriving and students are

participating. Rural areas, there are a lot of farms, no big businesses, the tax base is coming from individuals and therefore results in less funding for schools through taxes.”

Furthermore, it was noted that in the past when athletics budgets were insufficient to meet participation and expenditure demands, there were government grants available for additional financial support. However, participants felt this option was no longer available.

Sports Participation is Associated with Positive Behavioral and Academic Outcomes

The fourth and final identified theme was that, in general, sports participation is associated with positive behavioral and academic outcomes. However, specific reasons for these relationships, as well as how participation in different sports affects these associations, were equivocal.

Regarding sports participation and athletics, one athletic director said, “I do think athletics plays a role in helping to curtail students that have some issues. It gives them something to get involved in and holds them to a higher standard. If they love the sport, they know they could lose it based on (poor) behavior.”

However, participants were divided on the thought that athletes participating in aggressive sports, such as wrestling and football, have issues with delinquent behavior more so than other sports. Participants were also divided on the belief that there were not significant differences between student-athletes’ delinquent behavior and non-athletes’ delinquent behavior. Equivocal views from focus group participants on this topic reflect equivocal views in the literature. Levin, Smith, Caldwell, and Kimbrough (1995) indicated that contact sports increase delinquent behavior, however Spruit, van Vugt, van der Put, van der Stouwe, and Stams (2016) found no relationship between sports participation and juvenile delinquency.

Regarding the effect of sports participation on academic performance, participants agreed that sports participation has a positive impact. Several participants noted that student-athletes are driven to meet minimum grade point average requirements to remain academically eligible for athletic activity.

One athletic director said, “a minimal percentage of kids that are failing even one class are student-athletes. The rest of it are kids that aren’t involved in anything, no sports, they are the majority of the ineligibility report.”

Other participants noted that athletics expose student-athletes to leadership figures and a structured environment.

One athletic director stated, “students with parents who don’t care, I think that’s where athletics come in. The coach, the athletic director, and others that care about them and the academics help them greatly.”

A second athletic director stated, “for students who don’t have secure homelife, attending a three-hour practice can be a safe haven to escape to.”

It was clear from the interviews that athletic directors believed sports participation was beneficial for academic outcomes.

Conclusions

Sport Participation

Demographic Analysis

Rural Boys. From 2014-15 to 2016-17, total enrollment in rural boys’ school sports increased 5 percent from 49,358 participants to 53,738 participants. As of 2016-17, football, outdoor track and field, and basketball were the three most popular sports for rural boys. Sixteen of the 20 sports measured experienced an increase in participation from 2014-15. Noteworthy participation increases from 2014-15 to 2016-17 for rural boys included lacrosse (+21 percent), tennis (+16 percent), and cross country (+10 percent). Rifle (+18%), bowling (+15 percent), and indoor track (+12 percent) also experienced double-digit percentage increases in enrollment, however these sports have considerably smaller enrollment numbers than the aforementioned sports. Only two sports experienced a decline in enrollment, the most notable of which was outdoor track (-3 percent). Spirit experienced a 48 percent decrease in participation, however total enrollment was sparse, with fewer than 100 participants across the state.

Rural Girls. From 2014-15 to 2016-17, total enrollment in rural girls' school sports increased 7 percent from 34,244 participants to 36,477 participants. As of 2016-17, outdoor track and field, softball, and volleyball were the most popular sports for rural girls. Seventeen of the 20 sports measured experienced an increase in participation from 2014-15. Noteworthy participation changes from 2014-15 to 2016-17 included swimming and diving (+26 percent), golf (+24 percent), cross country (+11 percent), and field hockey (+11 percent). Wrestling increased 154 percent, however total enrollment remains under 100 participants statewide.

Urban Boys. From 2014-15 to 2016-17, total enrollment in urban boys' school sports increased 13 percent from 91,776 to 104,040 (note: as indicated in Table 1, data reporting for urban boys outdoor track was inconsistent across the data collection timeframe). As of 2016-17, football, outdoor track and field, and baseball were the most popular sports for urban boys. Eighteen of the 20 sports measured experienced an increase in participation from 2014-15. However, unlike rural boys and rural girls, percent changes in enrollment were quite small with two exceptions - indoor track experienced a 20 percent increase in enrollment, while swimming and diving experienced a 14 percent decrease in enrollment.

Urban Girls. From 2014-15 to 2016-17, total enrollment in urban girls' school sports increased 11 percent from 65,637 to 73,094. Seventeen of the 20 sports measured experienced an increase in participation from 2014-15. As of 2016-17, the most popular sports were outdoor track and field, soccer, and basketball. There were generous increases in participation across most sports. Examples included golf (+41 percent), indoor track (+17 percent), and lacrosse (+15 percent). Gymnastics experienced a notable 26 percent decline in participation.

Rural vs. Urban. Participation data indicate that, on average, urban districts have approximately twice the total enrollment in school sports as rural districts. Most sports reflect this in their enrollment numbers. However, in comparison to urban boys' participation in 2016-2017, three sports stand out where rural boys participation lags well behind. Urban indoor track participants outnumber rural indoor track participants by a 21:1 ratio. Urban lacrosse participants outnumber rural lacrosse participants by an 11:1 ratio. Urban bowling participants outnumber rural bowling participants by an 11:2 ratio. In contrast,

among sports with significant enrollment, basketball had the smallest enrollment ratio discrepancy, with urban basketball players outnumbering rural basketball players by only a 3:2 ratio.

For girls, urban indoor track participants outnumbered rural indoor track participants by a 19:1 ratio. Urban lacrosse players outnumber rural lacrosse players by a nearly 9:1 ratio. In contrast, among sports with significant enrollment, softball had the smallest enrollment discrepancy, with urban softball players outnumbering rural softball players by only a 4:3 ratio.

Noteworthy Sports Analysis

Lacrosse. The National Federation of State High School Associations notes that lacrosse was the fastest growing high school sport from 2012-2017 (U.S. Lacrosse, 2017). Data from the current study indicate high school lacrosse in Pennsylvania experienced an 18 percent participation growth from 2014-15 to 2016-17. Athletic directors confirmed in interviews that they were witnessing an increase in demand for lacrosse playing opportunities. However, the ratio of urban lacrosse participants to rural lacrosse participants is much larger than it is for other sports. There are multiple reasons this may be the case. U.S. Lacrosse (2016) indicates that equipment for a new player can cost up to \$1,000, meaning the sport tends to be concentrated in more affluent communities. Lacrosse teams also require many participants to form a team, something rural schools with smaller enrollments may not be able to accomplish.

Indoor Track. In 2016-17, there were 357 rural Pennsylvania boys and girls who participated in indoor track, while there were 7,302 urban Pennsylvania boys and girls. Athletic directors noted in interviews that they have witnessed an increase in demand for track participation. Indoor track facilities tend to be concentrated in urban areas, thus preventing opportunities to rural participants.

Golf. Participation gains for boys were marginal, but rural and urban girls experienced participation gains of 24 percent and 41 percent, respectively, from 2014-15 to 2016-17. This finding is in line with national data indicating that girls high school golf participation increased nearly 11 percent from 2012-13 to 2016-17, according to the National Federation of High School Sports Associations. Athletic directors

may want to consider how to accommodate this increase in demand via necessary facilities, coaching, and equipment.

Expenditures and Funding

Travel

In 2014-15, both rural and urban districts were spending \$95 per sports participant on travel. By 2016-17, rural travel had increased to \$114 per sports participant while urban travel had decreased to \$83 per sports participant. It was noted in interviews with athletic directors that one of the key indicators of budget discrepancy between urban and rural districts is that urban districts often transport their athletes with charter buses while rural districts opt for school buses. Given that urban districts have more sports participants on average, it enables them to be more efficient with their travel costs.

Uniforms

Uniform costs for rural districts have remained stable, while they have slightly decreased for urban districts. As of 2016-17, rural districts were spending \$27 per participant on uniforms, while urban districts were spending \$31 per participant. Rural athletic directors noted in interviews that this difference is reflected in uniform cycles, with rural districts forced to wait longer to replace old uniforms than urban districts in order to save money.

Supplies and Equipment

Per Table 2, rural and urban district expenses for supplies and equipment were similar. In 2016-17, rural districts spent \$40,534 while urban districts spent \$45,538. However, given a higher number of participants in urban districts as per Table 3, this works out to \$108 per participant in rural districts and \$68 per participant in urban districts. A smaller number of participants drives up cost per participant for rural districts.

Facilities

Facilities was the one expense category where urban districts spent significantly more per sports participant than rural districts. In 2015-16, urban districts spent \$167 per participant while rural districts

spent \$108 per participant. This difference can be attributed to cost of living differences between urban and rural areas.

Athletic Trainer Compensation

In 2016-17, rural districts spent \$104 per sports participant on athletic training, compared to \$58 per sports participant in urban districts. This disparity may be explained by the number of student-athletes per district. Rural districts averaged 376 participants in 2016-17, while urban districts averaged 668. Every sports team requires an athletic trainer, so if a rural district has half as many participants as an urban district, that will result in athletic training costing twice as much per district.

Coach Compensation

As of 2016-17, coach compensation per participants was similar for rural and urban districts, with rural districts spending \$432 per participant and urban districts spending \$469 per participant. However, over the 2-year data period, rural coach compensation per participant increased 17 percent, whereas urban coach compensation per participant remained constant. The total number of participants in rural districts declined 5 percent during this time, while in urban districts it has increased 20 percent. Similar to athletic training, fewer sports participants in rural districts increase the cost per participant.

Contributions and Purchases

As of 2016-17, urban districts received \$302 per participant in funding, while rural districts received \$262 per participant. This is problematic for rural districts because it enhances the need to charge activity fees to make up the difference. Qualitative interviews with athletic directors from both urban and rural districts pointed to booster activity as the primary reason for the discrepancy. Participants from rural districts are significantly more likely to come from families of lower socioeconomic status (Hamilton, 2019). This in turn makes participation less likely, causing a vicious cycle that further increases operating costs.

Psychosocial and Academic Variables

Rural Districts

Sports participation was found to have small significant relationships with out-of-school suspensions ($r = -.27, p < .01$) and district racial makeup ($r = .26, <.01$). The results in this study show that behavior among students feature fewer negative incidents as more students participate in school sports, supporting findings from Veliz and Shakib (2012). While all athletic directors in the focus groups were not necessarily in agreement on a single prominent factor responsible for this finding, most agreed that a combination of factors, such as access to leadership figures and desire to remain eligible for sporting activities, played a role.

Urban Districts

In addition to the findings of rural districts above, urban districts had two additional findings. First, as sports participation in districts increased, law incidents in those districts decreased. This finding is in line with research showing that high school sports involvement reduces antisocial behavior (Samek, Elkins, Keyes, Iacono, & McGue, 2015). Second, as sports participation increased, performance on all three Keystone Exam subjects increased. This is also in line with previous research showing that sports participation and academic performance are linked for youth (Lumpkin & Favor, 2012; Taylor et al., 2015).

Drawing from the study results, the research team suggests that Pennsylvania state government recognize inherent disadvantages that students from rural districts face pertaining to athletics participation. Rural districts have fewer sports participants than urban districts due to lower school enrollments. The consequence of this is a greater total expense per participant while simultaneously receiving less funding per participant via non-school purchases and contributions. Increased state funding to rural districts would reduce inequities between rural and urban districts regarding athletics costs per participant. Reducing economic burdens on rural families to cover sports-related costs will in turn provide enhanced opportunities for rural students to participate in school sports.

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Appendix A

Athletic Director Focus Group Questions

Goal #1

1. What trends have you noticed in sport participation over the past three years?
 - Are males / females becoming more / less involved in athletics?
 - Are specific sports becoming more / less popular?
2. Do you believe there are differences in sport participation in the rural versus urban areas?

Goal #2

3. What has the trend been in athletic related expenditures over the past three years?
 - I.e. Travel, uniforms, supplies, equipment, staff expenditures
4. How has government funding for athletics changed in the past three years?
5. Do you believe there are differences in athletic related expenditures and revenues in the rural versus urban areas?

Goal #3

6. What effect do you perceive athletic participation has on delinquent behavior?
7. What effect do you perceive athletic participation has with academic performance, such as grades, graduation rates, and dropout rates?

Related Questions

8. What differences do you believe currently exist between urban and rural athletic programs in public schools?
9. Are any of your athletic programs pay-to-play?
 - Has there been any discussion to move towards this model?
10. Are any of your programs self-supporting?
 - I.e. Profits from ticket sales and concessions cover the costs
 - I.e. Boosters cover the costs
11. Have any athletic programs been added or eliminated over the past three years?
12. What is the support from administrators, teachers, and school board for athletics?

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