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Re-Assessing the Relationship between High School Sports Participation and Deviance: Evidence of Enduring, Bifurcated Effects*

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Abstract

Despite its longstanding popular appeal, the idea that athletic activity is a deterrent to crime and delinquency suffers from a distinct lack of empirical support. This paper tests the hypotheses that the relationship between high school sports participation and deviance varies by both type of deviant behavior and level of athletic involvement. The analysis is based upon longitudinal data focusing on the effects of involvement in high school sports, the country's largest institutional setting for youth sports participation, in early adulthood. We find that the relationship between athletic involvement and deviance varies significantly depending upon the deviant behaviors examined. Specifically, we find that shop-lifting decreases with sports participation, while drunken driving increases. Moreover, these effects extend further into the life course (age 30) than has been demonstrated in any previous study and hold across all our measures of sports participation. Several potential explanatory mechanisms are evaluated. The implications of these enduring, bifurcated effects are discussed.

Re-Assessing the Relationship between High School Sports Participation and Deviance: Evidence of Enduring, Bifurcated Effects*

High on the list of arguments sports proponents use to justify and legitimate athletic pursuits is the notion that participation in organized athletics is a deterrent against crime, delinquency, and deviance. The claim is well over a century old, going back at least to the “play movement” of the progressive era in the United States (Macleod, 1983; Cavallo, 1981) if not to the emergence of modern sport itself (Baker, 1988; Guttman, 1988). Not surprisingly, it was one of the first topics sociologists of sport took up when the subfield emerged in the 1970s (Segrave, 1980). And with the development of the “social problems industry in sport” (Pitter and Andrews, 1997)—the dramatic proliferation of sports and recreation-based social intervention and crime prevention programs such as boot camps, after-school programs and, most famously and controversially, midnight basketball leagues (Hartmann, 2001)—the idea that sports participation decreases deviance has been repeatedly echoed.

But how much do we really know about the deterrent effects of sport? What evidence exists that sport participation is related to decreases in crime and anti-social behavior? What

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mechanisms would account for such relationships if they do exist? And how enduring can we expect such effects to be?

Empirical answers to these questions are surprisingly difficult to come by. The idea was first empirically tested in the late 1960s by the sociologist W. Schafer (1969), inspired by advances in stratification research and the attention that James Coleman (1965) devoted to sport in his classic studies of youth and school culture. Building on this foundation, sociologists conducted a series of research projects in the 1970s that appeared to demonstrate a positive relationship (by way of sports decreasing criminal behavior) between participation in sports and delinquency, much as the idealized popular conceptions of sport as a means of deterrence purported (Buhrman, 1977; Landers and Landers, 1977; Segrave and Chu, 1978). In fact, Jeffrey Segrave (1980) considered the proposition that “athletes tend to be less delinquent than comparable nonathletes” to be so well-established that he argued new research needed to focus only on specifying the mechanisms that produced these effects (p. 82).

Inspired by these apparent results, theorists and policy advocates proposed a range of mechanisms that could account for the salutary effects of sport. In recent years, these have ranged from building self-discipline, character, and self-esteem (Ewing et al., 2002; Danish and Nellen, 1997) to reducing boredom and unsupervised leisure time by providing an outlet for aggressiveness and physical activity (Morris et al., 2003; Reid et al., 1994). In the tradition of “control theory” in criminology (e.g. Hirschi, 1969), more sociologically-oriented theorists have offered up explanations that point to social interaction with positive role models, conventional peer groups, and normative institutions such as schools (Spreitzer, 1994; Stark, Kent and Finke, 1987).

Important as this work has been, it is clear in hindsight that the early optimism about sport’s deterrent effects was premature. In the 1980s, researchers failed to find any consistent relationships between sports participation and deviance (McCormack and Chalip, 1988; Holland and Andre, 1987). Some suggested that this was a function of data shortcomings and underspecified analytical models in early studies. Because the initial studies were based upon cross-sectional data, it was problematic to test and verify the temporal sequencing of events suggested by deterrence theory. Moreover, any effects that were originally documented were very short term in nature. Finally, it was difficult with available data and methods to disentangle the correlation between sport and delinquency from the class and cultural variables known to select individuals into playing sports in the first place. The depth of the selection problem became especially acute in the subsequent decade as researchers began to document just how closely sport participation was linked to social class indicators such as education, income, and social capital (for advanced treatments, see: Spreitzer, 1994; Larsen, 1994; see also Eitle and Eitle, 2002).

Surprisingly little empirical research has even addressed these relationships in recent years.¹ To the extent analyses of the links between sports and delinquency can be found, they come in either the context of larger projects relating to leisure time usage and extracurricular activities (Cf. Eccles and Barber, 1999; Osgood et al., 1999; Osgood and Anderson, 2004; Begg, Langley and Moffitt, 1996; Agnew and Peterson, 1989), or general health and well-being studies (Crosnoe, 2002; Baumbert, Henderson and Thompson, 1998; Page et al., 1998; Kokotailo et al.,

¹One exception has come in the context of program evaluations of the recent wave of sport and recreation-based crime prevention programs, the so-called “social problems industry” in sport; however, efforts at evaluation have been often very limited and lacking in appropriate scientific controls or comparisons (Nichols and Crow, 2004; Witt and Compton, 1997). Thus, the general scholarly consensus is that we still lack reliable evidence as to the effectiveness (or ineffectiveness) of such sport and recreation-based interventions (Mulvey, Arthur and Reppucci, 2004; Sherman et al., 1998). Even strong public advocates of sport and recreation-based interventions have been forced to concede that “there is a lack of robust evidence of the direct impact of sport and physical activity on antisocial behavior and the sustainability of any outcomes” (Morris et al., 2003:2).

1996; Nattiv and Puffer, 1991). Some attention has been given to specific forms of deviant behavior such as substance abuse, but taken as a whole, the results have been uneven and inconclusive. In fact, the flagship journal of the American Medical Association (JAMA) concluded that “studies raise doubts about [the] benefits of athletics reducing unhealthy behavior among adolescents” (Skolnick, 1993).

Such criticisms and concerns have taken on even greater intensity of late as both popular and scholarly critics have pointed out a host of social problems in and around sport that would appear to undermine the basic tenets of sports deterrence theory. These have included increased use and abuse of performance-enhancing drugs and illicit drug use (Eitle, et al., 2003; Miller et al., 2002; see Ewing, 1998 for an exceptional argument on the link between sport participation and marijuana use), risky sexual behaviors and contraceptive use (Miller et al., 1999), and perceptions of increased violence, domestic abuse, aggressiveness and criminal behavior of professional athletes (Messner and Stevens, 2001; Benedict and Yager, 1999; Benedict, 1997). The cumulative effect of these critiques has not only called into question the notion that sport is a deterrent to delinquency but has also led to the more radical suggestion that sports may actually facilitate and promote anti-social behaviors. Feminist critiques of the hyper-masculine orientation of sport have played a key role in sensitizing research to this possibility (Cf. Burstyn, 1999; Birrell and Cole, 1994; for a recent empirical treatment, see: Kreager, 2004), as has Zuckerman’s (1994) work on how thrill-seeking activities can create a sense of invincibility or belief in being above the law. Indeed, the sport sociologist Eric Dunning has gone so far as to claim that the sports world is best characterized as having a bifocal, dualistic culture composed of clashing “Epicurean” and “Dionysian” forces that foster both pro-social, normative effects as well as less desirable, more narcissistic, and socially dysfunctional outcomes (Dunning and Waddington, 2003; see also: Eitzen, 2003).²

In light of these contradictory theories and equivocal evidence, we suggest the need for a new conceptual model of the relationships between sports participation and delinquency—one that allows for the possibility of both positive and negative effects, and that in addition explores the factors and conditions that shape these differential trajectories. Some of the factors a full version of this model would contain include: different types of delinquent behavior; the level, intensity and type of athletic participation; the socio-institutional context under which sport was practiced; and peer group influences and interactions.

A great deal of speculation could be offered up at this point about how these various factors and circumstances might combine to dictate or mediate the impact of sports participation on various forms of deviance and delinquency (and the direction of these relationships). We will not, however, elaborate such a broad theoretical framework abstractly. Instead, our goal in this paper is to conduct an analysis of two key elements of a basic, bifurcated model: namely, that sport produces both pro-social and anti-social behaviors and that these two-way effects vary by type and intensity of athletic involvement.

In the remainder of the paper we explore the empirical evidence for these hypothesized bifurcated effects focusing on high school sport participation and its impacts into young adulthood. Given over seven million youth, representing slightly more than half of all students

²Criminologists and economists have not explicitly theorized the sports-deviance link as far as we are aware. However, if sport is treated as part of the larger landscape of after-school activities or structured (and unstructured) leisure time, mechanisms and theories from other work correspond to Dunning’s bifocal model. For example, using measures of relatively minor criminal behavior similar to those used in this paper, Hirschi (1969) argued those more involved in conventional activities were less likely to participate in illegal behavior. Other theoretical work on routine activities (Cohen and Felson, 1979) argues daily patterns of behavior and interaction are associated with criminal offending. In a series of works, Osgood and colleagues advance this tradition by concluding that individuals with more unstructured social time were likely to be involved in criminal behavior (Osgood et al., 1996; Osgood and Anderson, 2004). On the other hand, economists Jacob and Lefgren (2003) have suggested that sports-based after school programs can serve to exacerbate delinquency through negative peer effects.

enrolled in public high schools, participate in some type of interscholastic sports program (National Federation of State High School Associations Report, 2004; United States Department of Education, National Center for Education Statistics Report, 2005), high school sports participation is the cornerstone of youth sport culture in the United States and a benchmark institutional site for assessing the relationship between sport and later life outcomes. Assessing the long term impacts of high sports participation is thus an important first step toward a more thorough analysis of the old and still politically salient question of whether and how sports participation is related to later crime and deviance. Baseline findings on this topic may also contribute to more general theories about the (variable) social impact of sport, the meaning of deviance, and the relationship between the two.

The paper proceeds as follows. First, we introduce the longitudinal data set on which our analysis is based and the measures and methods used for analysis. Second, we present our findings, which indicate significant relationships between sports involvement in high school and various measures of social deviance into early adulthood. Finally, we discuss the implications of these results for theory development and future research, as well as for program design and public policy formation.

DATA and MEASURES

To assess the lasting impact of high school sports, we use data from the Youth Development Study (Mortimer, 2003). The Youth Development Study (YDS) is a longitudinal survey of 1000 young men and women in Saint Paul, Minnesota. The respondents were selected randomly from a list of enrolled 9th grade students in the Saint Paul school district. During high school, surveys were administered in classrooms and subsequent surveys were administered by mail. Respondent attrition has been relatively low, with over 75% (n=763) of the respondents remaining in the survey through the most recent wave of data collection, wave 13 (for more information on panel data attrition in the YDS, see Mortimer 2003:37–43). In this analysis, we included respondents who had full information on all the variables selected in our specifications. Beginning in 1988, when respondents were freshmen in high school, individuals were asked about a range of work and school dimensions, sports activities, social activities, family relations, and delinquent involvement. At the time of the data collection, 2002, respondents were ages 29–30. The descriptive statistics for all variables are presented in Table 1.

For our dependent variables, we use multiple measures of crime. Our first measure, total delinquency at age 29–30, is a summary scale of a range of delinquent behaviors: the number of times in the past year respondents report involvement in fighting or hitting someone, drunk driving, shoplifting, workplace deviance, and providing alcohol to minors. Possible responses ranged from 0 to 5 or more for each item; these items were then summed to form the scale score. To test prior theoretical assertions on bifurcated effects, we also conducted item specific analysis of any participation in shoplifting and drunk driving.

To assess the relationships among social background, sport, and later anti-social behavior, the analysis includes gender, race, educational attainment, marital status, employment status, and whether the respondent had children. Additionally, the models include a global assessment of civic orientation (coded 1 for those who felt it was very or extremely important for them to participate as a citizen in the community). Moreover, because theft may be a function of financial need, and drunk driving may be associated with socialization patterns, we account for financial independence (Table 3, predicting shoplifting) and the amount of time respondents spend socializing with work friends (Table 4, predicting drunk driving) in the appropriate models.

We also included several variables that theorists and previous researchers of the pro-social outcomes of sport have suggested may mediate the relationship between sport and crime. Perhaps the most familiar of these include self-esteem and locus of control, both of which are believed to increase with sport involvement and which, in turn, have deterrent effects on deviant behavior. The Youth Development Study measures both self-esteem and control orientation, and these indicators are included when estimating the impact of sports involvement on later behavior. Because prior research speculates that family background variables may be responsible for the relationship between sport and behavior (Cf. Fejgon 1994; Eitle and Eitle 2002), parent's education level is included in analysis.

Any lasting impact of sport may also result from the time management skills or networks accrued through sport involvement. It may be, for instance, that sport involvement limits deviance by restricting the amount of time individuals have for unstructured activities. Conversely, involvement in sport may increase involvement in crime by affording individuals a network of possible collaborators. To account for these possibilities, the analysis has a contemporaneous indicator of the amount of time (in hours per week) respondents participate in athletic/club activities. Finally as a key predictor on the crime side, we included measures of prior criminal behavior using lagged measures of deviance while in high school.³ Accounting for earlier crime helps parcel out unmeasured heterogeneity that may bias the estimates of the sport-crime relationship.

Prior criminological and sociological work has concluded that civic, peer, and criminal involvement, as well as social-psychological and life course variables are significantly associated with later illicit and conforming behavior (Osgood et al., 1995; Sampson and Laub, 1993; Warr, 1993; Uggen, 1998).⁴ In sum, when modeling the sport-crime relationship our analysis specifically considers some of many of the known predictors of crime and many of key mechanisms used to explain a relationship between sport and later crime (e.g., self-esteem).

Our focal independent variables include three different retrospective measures of high school sports participation. One is a dichotomous measure of whether the respondents were involved in any high school sports. Our second measure captures the intensity of sport participation by measuring the amount of time respondents participated in high school sports, ranging from 0 to 4 years. Third, we tap the salience of athletics with a question asking respondents how important sports were to them in high school. Possible response categories ranged from 0 (not important at all) to 4 (extremely important).

While retrospective data have certain limitations, the YDS has unique features and strengths that enable an assessment the relationship between dimensions of high school sports and adult anti-social behavior. First, to our knowledge, no other data set measuring the different dimensions of sport participation have been available in a longitudinal study that also contains appropriate crime indicators.⁵ Second, the YDS data extend well into early adulthood and thus provide an opportunity to test the long-term implications of sport participation. In fact, given the number of youth involved in sports and the scarcity of research on the lasting importance of sports, an assessment of the long term impact of sport may be the most important policy and academic contribution of the analysis. Finally, as evidence of the quality of the data, it is worth

³On the YDS, the high school crime indicators are measured as dichotomous indicators. Thus, the general deviance in high school is a variety scale.

⁴Age is not controlled because all respondents were in the same grade when the survey started and are therefore approximately the same age.

⁵Some data have measures of both sport and crime, for instance the National Longitudinal Study of Adolescent Health, yet the data do not extend as far into the life course as the Youth Development Study. Other data, for instance High School and Beyond, extends further into the life course, but does not have developed measures of crime (for more information on these data, see Krueger 2004., Fejgin, 1994).

noting that a host of prior work has used the YDS to examine both criminal and illicit behavior during both adolescence and the transition to adulthood. (e.g. Johnson, 2005; Staff and Uggen, 2003; Uggen, 2000; Uggen and Janikula, 1999).

To conduct these analyses, we estimate a series of models to examine the relationship between measures of high school sports participation and various measures of deviance at age 30. The results of these analyses allow us to derive several meaningful inferences about the relationship between high school sports participation on deviance in early adulthood.

RESULTS

We began by estimating the relationship among three measures of high school sports participation on our aggregate indicator of overall deviance in early adulthood (ages 29–30).

The results of these models—reported in Table 2—are not encouraging for proponents of the traditional sport-as-deterrent-to-deviance hypothesis. The relationship between crime and other variables in the model is generally consistent with the patterns established in previous general studies that have not included sport variables. For instance, marriage decreases crime while prior delinquency is significantly associated with current deviance. The positive association between employment and crime is no doubt affected by including workplace deviance in our composite measure of adult crime. Given the age of the sample, workplace deviance is clearly an importance dimension of adult anti-social behavior. However, regardless of how involvement in sports is measured, it appears unrelated to a composite indicator of adult deviance. Specifically, no statistically significant relationship between sport participation and deviance exists for any of the three measures of athletic involvement—participation, intensity, or salience.

Informed by our prior theoretical assertions about the multiple and potentially bifurcated impacts of sport participation, item specific analysis of our composite dependent variable was then undertaken. In this phase of analysis, models were specified to explore the relationship of sports participation with select component parts of our aggregate deviance variable. This analysis revealed several significant, long-term relationships. Importantly, however, these relationships were not unidirectional but rather worked in contrasting directions depending upon the type of behavior being analyzed. In short, some indicators of deviance exhibited a “positive” (decreasing later deviance) relationship with sports participation, while others demonstrated a “negative” (increased later anti-social behavior) pattern—results which cancel each other out in the model using a summary scale of delinquency.

Exploratory analysis with minimal controls indicated stark differences in how sports participation impacted deviant behaviors well into early adulthood. In particular, there was evidence that sports participation increased some types of anti-social behavior (speeding, driving drunk, angry or violent behavior at work), while decreasing other types of crime (shoplifting, work fraud, minor citations such as parking violations).⁶ The relationship between high school sport participation and later-life drunk driving and shoplifting were the strongest and most consistent in these data. As a result, further analysis was conducted to assess the nature and strength of these relationships.

Table 3 reports logistic regression estimates of the effects of three measures of sports involvement on adult shoplifting. In contrast to the initial composite model, these results are precisely the sort that deterrence theorists would predict: namely, that measures of high sports involvement are inversely related to likelihood of shoplifting at age thirty. While the

⁶Available upon request

dichotomous measure of sport involvement is non-significant (model 1), measures of sports importance and time in sports (models 2 and 3) are negatively associated with later shoplifting.

To further highlight and better represent these relationships, we transform these logistic regression estimates into percentage increases or decreases in the likelihood of committing crime. Transforming the logistic estimates in this fashion shows that for each unit increase in the number of years in high school sport—for instance the difference between participating two years instead of one, or three years instead of two—there is a 24 percent decrease in the likelihood of shoplifting (logit $-.279$: Table 3, model 3). Moreover, as opposed to those who did not participate at all, those involved in high school sports for four years are 68 percent less likely to report having shoplifted at age thirty. This pattern is also evident for the measures of sports importance (Table, 3 model 2): for each unit change in sports importance, there is a 26 percent (logit $-.301$) decline in the likelihood of self-report shoplifting at age thirty. On the extreme ends of the response scale, individuals who report that sports were extremely important to them are 60 percent less likely to shoplift than those who did not consider sports at all important to them in high school.

Thus, the estimates presented in Table 3 indicate that the effects of high school sports are evident more than a decade after the end of high school and, in contrast to the non-significant findings for a general indicator of deviance, provide powerful evidence that sports can produce lasting and long term pro-social effects. These effects are found even when controlling for prior criminal behavior, social background and social-psychological processes commonly thought to be associated with both sport participation and crime.

The beneficial effects of high school sport on adult shoplifting directly contrast with the estimates found for drunk driving.

As shown in Table 4, there is clear and consistent evidence that involvement in high school sport is associated with an *increase* in adult drunk driving. Though the inverse of the models presented in Table 3 on shoplifting, these relationships are present even when controlling significant processes such as prior crime, social background and patterns of socialization, and social psychological processes, and hold once again for all three measures of athletic participation.

The analysis indicates those who participated in varsity or junior varsity sports are approximately 65 percent (logit $.502$) more likely to report having driven drunk in the last year. Additionally, for each unit change in how important respondents viewed high school sports, they are 20 percent (logit $.182$) more likely to drive drunk and for each additional year of participation in high school sports, respondents are 19 percent (logit $.174$) more likely to report drunk driving at age thirty. In fact, relative to those who did not view sports as at all important, those who view sports as extremely important are 74 percent more likely to report driving drunk in the past year, and relative to those who did not play high school sports, those who participated for four years are twice (101 percent) as likely to report drunk driving in the last year. In short, rather than deterring future drinking and driving, participation in high school sport appears to support or facilitate the behavior.

In sum, the results presented in Tables 2, 3, and 4 demonstrate that broad, unidirectional claims about the effects of high school sports are difficult to support. Instead, we find evidence of both positive and negative adult outcomes. These relationships are present even when statistically controlling for relevant background variables as well as prior and contemporaneous criminal behavior and prior measures of orientation to civic involvement. Nor can they be explained by traditional social-psychological factors or social background variables. Moreover, these relationships are consistent across multiple measures of both sports involvement, and, perhaps most significantly, they reach considerably further into the life

course than has been documented in any previous studies of the relationship between sport and later-life outcomes and behaviors (even that which has focused on unidirectional processes and claims). The consistency and magnitude of our findings indicates that high school sports participation plays an important role in understanding some types of adult delinquent behavior, and that this role varies dramatically depending upon the specific social behaviors under consideration.

DISCUSSION AND CONCLUSION

The main findings of this analysis of the relationship between high school sports participation and deviance are two-fold. First and perhaps most basic, high school sports participation is significantly and consistently associated with deviant behaviors—specifically, drunken driving and shoplifting—and this relationship extends much further into the life course than has been documented previously. Here it is important to note that these relationships hold for three different measures of sport participation, in spite of controls for competing determinants of deviant behavior ranging from prior criminal behavior and civic engagement to social background and psychological characteristics. This in itself is an important result, one which suggests that the impact of sports participation is more powerful and long lasting than previous researchers have found or even dared to consider. However—and this is the second main point—these effects are not of a single, unidirectional nature; rather, both negative (for shop lifting) and positive (for drunk driving) relationships exist. The tendency toward some deviant behaviors appears to be mitigated by involvement in sport, while the tendency toward others is accentuated. These bifurcated results imply that the relationship of sport participation to social deviance (and conformity) is not only strong but complex and multifaceted.

The significant but bifurcated long term impacts of high school sport participation have important implications for theory, future research and public policy. On the theory front, the implications are fairly straight forward: scholars must move beyond simplistic arguments about sport facilitating *either* deviant *or* normative behavior toward developing more nuanced theories of the relationship between athletic activity and deviant behavior. This study, of course, is based upon the presupposition that such theories are best developed on the basis of empirical research. Future research has at least two contributions to make.

First and most basic, future research will need to validate and confirm the long-term, bifurcated results found in this study. This will require, among other things, making use of other, larger or more nationally representative data sets as well as employing more sophisticated analytical techniques such as propensity matching models or advanced selection correction models. The latter, in particular, would allow researchers to make greater causal inferences on the lasting impact of sport participation on adult behavior.

Next research would be well served to analyze and further specify the mechanisms that produce such divergent effects. The present analysis provides some guidance on this point. For example, as discussed, some scholars have recently postulated that the effect of sports participation in curbing criminal activity is through the immediate structure and time demands such activities impose, and the notion that sport contributes to the development of normative psychological traits and qualities has long been championed by advocates of athletics. Neither would appear to be supported by our findings. In the latter case, we see no empirical evidence of the impact of psychological measures mediating the relationship between sport and later behavior; and while time use/social control theories may be appropriate for explaining a relationship between sport and deviance prevention in adolescence, this perspective is clearly inadequate as an explanation for the long term effects presented in this paper.

Unfortunately our models offer little empirical assistance in the way of interpreting the more deviant forms of behavior that also appear, *contra* long-standing deterrence claims, to be associated with sports participation. It does not appear inconsistent with the available evidence to suggest that the aggressive and overtly masculine competitive culture of some sports (Hartmann, 2003a; Sabo, 1994; Messner, 1992; Fine, 1987) may be at the root of much of the violence, drug use (both illicit and performance enhancing), and sexual aggression seemingly associated with sport. Similarly, we believe that the thrill-seeking, hyper-physical nature of contemporary athletics likely has a good deal to do with the relationship between sport participation and drunk driving. And it is impossible to rule out the claim that the social status of athletes and athletics may create in some young athletes a sense of entitlement and belief that they are above the law.

These considerations gives rise to the question of why the more problematic or exaggerated aspects of sporting culture are ascendant for some behaviors and not others. Part of the empirical answer to the question, we believe, will have to do with the fit between particular characteristics of sport and the experiential dimensions and societal legitimacy of various forms of social behavior. It may also involve the variability of peer group influences as they are structured in and mediated through sports settings. Additionally, we believe that the different contexts and conditions under which sport is engaged may also play an important role in understanding how sport participation is related to later deviant behaviors, and perhaps even to the conceptualization and construction of deviant behavior itself. As these various factors are analyzed empirically, the ultimate question will be whether the diverse relationships between sports participation and deviance can be explained by a general, unified theory (that can accommodate empirical variations) or whether these divergent effects reflect fundamentally different underlying mechanisms that require a more multi-dimensional model.

Here it is worth noting that deviance scholars would surely profit from the extensive research on the relationship between sports participation and pro-social outcomes such as educational aspirations and attainment. Arguably the most studied and empirically mature topic in the entire subfield of sport sociology (for recent and representative examples, see: Eitle and Eitle, 2002; Fejgin, 1994; Melnick, Sabo and Vanfossen, 1993), research on the relationships between educational outcomes and sport participation has yielded important theoretical and methodological innovations. These include the impact of variations in sport experiences (McCormick and Chalip, 1988; Chalip et al., 1984), the mediating effects of identity (Crosnoe, 2002), gender (Miller et al., 1999), and social context (Guest and Schneider, 2003; McNeal, 1999) on various social attainment and achievement markers.

The implications of our initial findings for sport policy and sport-based risk reduction program design and implementation are also considerable. At a very basic level, the finding that multiple indicators of sports participation are significantly associated with various forms of anti-social behavior well into early adulthood should warn sport policy makers and administrators against complacency—either in terms of assuming that their services will continue to be valued or that competitive physical activities will automatically benefit the young people who participate in them. The bifurcated findings presented here would appear to be particularly salient for the wealth of sports-based social outreach, intervention, and risk-prevention programs that have been constructed in recent years under the rubric of social intervention, risk prevention, and public safety. Our results clearly indicate that sport is not inherently or automatically a positive social force—its impact likely depends, therefore, both upon how the program is put into practice and on the specific types of anti-social behaviors that are being investigated. This puts the emphasis, we believe, on creating sports opportunities that are structured so as to accentuate the pro-social tendencies of sports activities, on the one hand, and to try to mitigate against the more problematic outcomes, on the other hand, that also exist. Not to attend to these realities

is to run the risk of reproducing and perpetuating the very behaviors sports proponents and policy makers purport to prevent.

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Table 1

Descriptive Statistics

| <i>Variables</i> | <i>Description</i> | <i>Coding</i> | <i>Mean</i> | <i>Standard Deviation</i> |
|---|---|--|-------------|---------------------------|
| <i>Controls</i> | | | | |
| Female | Self-reported sex of respondent | Male=0 Female=1 | 56% | .50 |
| White | Self-reported race of respondent | Other =0 White=1 | 75% | .43 |
| Marriage | Does the respondent report being married? | 0 = No 1 = Yes | 46% | .50 |
| Educational Attainment | Does the respondent report earning at least an associate's degree? | 0 = No 1 = Yes | 38% | .49 |
| Parents Educational Attainment | Does either of the respondent's parents report earning at least an associate's degree? | 0=No 1=Yes | 37% | .48 |
| Children | Does the respondent report having any children? | 0 = No 1 = Yes | 56% | .50 |
| Employment | Does the respondent report having a job? | 0 = No 1 = Yes | 84% | .37 |
| Civic Orientation | Does the respondent feel it is very or extremely important to participate as a citizen in the community (measured when respondents were 18-19)? | 0 = No 1 = Yes | 48% | .50 |
| Self Esteem | I feel I have a number of good qualities. | 1 = Strongly Disagree 2 = Disagree 3 = Agree 4 = Strongly Agree | 3.53 | .55 |
| Workplace Socialization | How often do you get together with people from work in your time off the job? | 1 = More than once a week 2 = Once a week 3 = 2 or 3 times a month 4 = Once a month 5 = Several times a year 6 = Rarely | 5.10 | 1.67 |
| Control Orientation | I have little control over the things that happen to me. | 1 = Strongly Disagree 2 = Disagree 3 = Agree 4 = Strongly Agree | 1.76 | .64 |
| Current Sports Participation | Hours per week that the respondent participates in athletic clubs and organizations | 0-50 Hours | 3.48 | 4.42 |
| High School Drunk Driving | While in high school, did the respondent drive after having too much to drink? | 0 = No 1 = Yes | 26% | .44 |
| High School Total Deviance | A composite indicator of high school theft measuring whether the respondent was involved in fights, drinking, drinking and driving, and theft while in high school. | 0 = No 1 = Yes for each act, range 0 - 4. | 1.31 | 1.38 |
| High School Theft | While in high school, has the respondent taken something from a store without paying for it? | 0 = No 1 = Yes | 32% | .47 |
| Financial Stability | During the past year, what share of your household living expenses were you able to pay? | 0 - 100% | 92% | 21.72 |
| <i>Deviance</i> | | | | |
| General Delinquency Scale | How many times in the past year has the respondent -Been in a physical fight -Driven drunk -Shoplifted -Sold or gave alcohol to minors -Falsely called in sick | 0, 1, 2, 3-4, 5+ (for each item) | 8.15 | 2.79 |
| Drunk Driving | In the past year, has the respondent driven after having too much to drink? | 0=No 1=Yes | 21% | .41 |
| Shoplifted | In the past year, has the respondent taken something from a store without paying for it? | 0=No 1=Yes | 5% | .21 |
| <i>High School Sports Indicators</i> Participation | Did the respondent participate on a school varsity or junior sports team? | 0=No 1=Yes | 46% | .50 |

| <i>Variables</i> | <i>Description</i> | <i>Coding</i> | <i>Mean</i> | <i>Standard Deviation</i> |
|-------------------|---|--|-------------|---------------------------|
| Time in Sports | How many years did the respondent participate in sports while in High School? | 0, 1, 2, 3, 4 years | 1.48 | 1.72 |
| Sports Importance | How important where playing sports while in high school? | 1= Did not play, not at all 2= Somewhat 3= Very 4=Extremely | 1.29 | 1.50 |

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Table 2
Regression Estimates: The Effects of High School Sports on General Delinquency in Adulthood

| <u>Variables</u> | <u>Model 1</u> | <u>Model 2</u> | <u>Model 3</u> |
|---------------------------------|----------------|----------------|----------------|
| Female | -.063 (.19) | -.015 (.21) | -.029 (.22) |
| White | -.222 (.28) | -.186 (.25) | -.189 (.24)** |
| Marriage | -.665 (.24)** | -.673 (.22)** | -.665 (.22)** |
| Parents Educational Attainment | -.290 (.24) | -.247 (.23) | -.228 (.23) |
| Educational Attainment | -.259 (.25) | -.221 (.24) | -.251 (.14) |
| Children | .324 (.25) | .321 (.23) | .343 (.23) |
| Employment | .952 (.30)** | .949 (.29)** | .961 (.28)** |
| Civic Orientation | -.264 (.22)** | -.351 (.21)** | -.359 (.20)** |
| High School Total Deviance | .620 (.08) | .652 (.08)** | .659 (.07)** |
| Control Orientation | .243 (.18) | .248 (.18) | .242 (.18) |
| Self Esteem | -.206 (.21)** | -.214 (.20)** | -.210 (.20)** |
| Current Recreational Activities | .098 (.02)** | .096 (.02)** | .096 (.02)** |
| Sports Participation | .122 (.22) | | |
| Sports Importance | | .062 (.07) | |
| Time in Sports | | | .064 (.06) |
| Intercept | 1.090 (.99) | .998 (.94) | .970 (.94) |
| R-Square | .22 | .23 | .23 |

**
p < 0.05

Table 3
 Logistic Regression Estimates: The Effects of High School Sports on Shoplifting in Adulthood

| Variables | Model 1 | Model 2 | Model 3 |
|---------------------------------|----------------|----------------|----------------|
| Female | .553 (.48) | .054 (.38) | .055 (.39) |
| White | -.580 (.51) | -.695 (.41) | -.646 (.42)** |
| Marriage | -.787 (.39)** | -.794 (.38)** | -.779 (.38)** |
| Parents Educational Attainment | -.409 (.52) | -.117 (.44) | -.087 (.44) |
| Educational Attainment | .579 (.54) | .488 (.43) | .527 (.45) |
| Children | -.568 (.52) | -.398 (.43) | -.415 (.43) |
| Employment | -.739 (.58)** | -.493 (.50)** | -.509 (.50)** |
| Civic Orientation | -1.471 (.58)** | -1.37+ (.48)** | -1.383 (.48)** |
| Financial Stability | -.011 (.008)** | -.009 (.007)** | -.010 (.007)** |
| High School Theft | .701 (.35)** | .679 (.34)** | .704 (.32)** |
| Control Orientation | -.131 (.36) | -.112 (.33) | -.143 (.33) |
| Self Esteem | -.204 (.34) | -.205 (.33) | -.179 (.33) |
| Current Recreational Activities | .035 (.03) | .041 (.03) | .039 (.03) |
| Sports Participation | -.347 (.49) | | |
| Sports Importance | | -.301 (.15)** | |
| Time in Sports | | | -.279 (.14)** |
| Intercept | .099 (1.68) | .247 (1.56) | .217 (1.54) |
| -2 log likelihood | 170.75 | 228.96 | 228.58 |

**
 p < 0.05

Table 4
 Logistic Regression Estimates: The Effects of High School Sports on Drunk Driving in Adulthood

| Variables | Model 1 | Model 2 | Model 3 |
|---------------------------------|----------------|----------------|---------------|
| Female | -.868 (.22)** | -.756 (.22)** | -.782 (.22)** |
| White | .079 (.29) | .240 (.27) | .221 (.28) |
| Marriage | -.228 (.24) | -.318 (.24) | -.315 (.24) |
| Parents Educational Attainment | .054 (.24) | .081 (.07) | .092 (.24) |
| Educational Attainment | -.709 (.26)** | -.728 (.25)** | -.763 (.25)** |
| Children | -.294 (.25) | -.373 (.24) | -.334 (.24) |
| Employment | .419 (.41) | .245 (.39) | .253 (.39) |
| Civic Orientation | -.111 (.22) | -.237 (.22)** | -.238 (.22)** |
| Workplace Socialization | -.157 (.07)** | -.132 (.06)** | -.133 (.06)** |
| High School Drunk Driving | .625 (.23)** | .754 (.22)** | .772 (.23)** |
| Control Orientation | -.144 (.18) | -.166 (.19) | -.161 (.18) |
| Self Esteem | .243 (.22)** | .238 (.22)** | .228 (.22)** |
| Current Recreational Activities | .042 (.02)** | .045 (.02)** | .047 (.02)** |
| Sports Participation | .502 (.23)** | | |
| Sports Importance | | .182 (.07)** | |
| Time in Sports | | | .174 (.06)** |
| Intercept | -1.037 (1.148) | -1.124 (1.124) | -1.121 (1.12) |
| -2 log likelihood | 525.81 | 557.32 | 555.02 |

**
 p < 0.05