Sports Innovation Journal, 2023, 1, 36–54
https://doi.org/10.18060/27047

Are We Punishing Success? An Evaluation of the Indiana Tournament Success Factor and Implications for Interscholastic Policy

James Johnson, David Pierce, and Davis Matz

In 2012, the Indiana High School Athletic Association approved the Tournament Success Factor (TSF). This innovative policy was designed to improve interscholastic competitive balance by reclassifying individual teams above their enrollment based on success in their postseason tournament. To date, there have been five two-year cycles of TSF reclassifications, and some critics argue the policy unfairly penalizes the student-athletes on teams who must play up in classification after the successes of their predecessors. To determine if this critique was justified, as well as identify patterns and potential policy adjustments, this study investigated 93 cases of how teams performed after moving up in classification due to the TSF. Results indicate that 55.9% of teams did not have enough postseason success at the next level in the first cycle after moving up to remain in the higher classification, and 79.5% did not by the end of two cycles. Additionally, reclassifications happen at a disproportionately high rate for private schools relative to the number of private high schools throughout the state. Historically, six and eight years prior to moving up show significant differences between teams that have some success at a higher classification and teams that demonstrated isolated success with an immediate return to a lower classification. Based on the results, it appears a reasonable policy innovation would be to increase the TSF point value from 6 to 7 that is needed to trigger the move up in classification, or use a historical metric that includes TSF points over prior cycles. These changes would eliminate most of the isolated cases of success and target the most successful programs that should be competing at a higher classification, which meets the spirit of TSF.

Keywords: interscholastic sport, success factor, competitive balance, sport policy

James Johnson, EdD, is a professor of sport administration in the School of Kinesiology at Ball State University. His research interests include intercollegiate and interscholastic sport leadership. Email: jejohnson1@bsu.edu

David Pierce, PhD, is a professor and director of the Sports Innovation Institute in the Department of Tourism, Event, and Sport Management at IUPUI. His research interests include sports innovation, engaged learning practices, and youth sports leadership. Email: dpierce3@iupui.edu

Davis Matz is a master's student in the sport administration program in the School of Kinesiology and an athletic communications intern at Ball State University. His research interests include interscholastic competitive balance. Email: davis.matz@bsu.edu

Introduction

Ensuring competitive balance has been a catalyst of sport policy for centuries. A colloquial term level playing field represents the sentiment that factors impacting competition should be relatively equal, so the skill and strategy of the competitors determines a victor. The Uncertainty of Outcome Hypothesis (UOH) posited by Rottenberg (1956) reflects the premise that competitive balance generally exists when the outcome is uncertain. Moreover, an uncertain outcome is desired to keep fans interested and attending games (Eckard, 2017). Literature has supported the UOH as a sound theory, noting that parity is good for interest, turnout, and revenue (Brown, 2020; Caro, 2012; Depken, 2006; Doria & Nalebuff, 2021; Eckard, 1998, 2017).

Competitive balance policies exist at every sport level. In children's sport, age or grade restrictions are common. Weight classes in boxing and wrestling ensure parity through physical similarities. Unbalanced scheduling, revenue sharing, neutral site games, performance enhancing drug restrictions, shot clocks in basketball, and tee distances in golf are a few examples in amateur and professional sport (Sanderson & Siegfried, 2003). Equipment specifications like wooden bats in baseball or carbon fiber prosthetics in disabled sport also improve competitive balance. The overwhelming number of innovations and policies suggest there is value placed on competitive balance, whereby safety, fair competition, and parity are prioritized (Brown, 2020; Doria & Nalebuff, 2021).

The specific competitive balance issue addressed by this research is a policy known as the Indiana Tournament Success Factor (TSF). The TSF moves teams up or down in high school enrollment classifications based on their postseason tournament success. Similar to other competitive balance policies at different sport levels, the core of this policy rests on the notion that similar-sized and resourced schools should exhibit a relatively similar amount of success over time. Thus, the problem this study addressed is whether the TSF is effective to ensure competitive balance, or whether there are legitimate criticisms to justify a policy change.

Competitive Balance in Interscholastic Athletics

Many of the competitive balance policies that exist at the youth, college, and professional levels also exist in interscholastic sport. There are, however, some unique interscholastic environments that demand distinctive solutions. In particular, interscholastic postseason tournament competition allows teams to compete for a state title, the most prestigious athletic accomplishment for a high school student-athlete that often results in communities rallying around their schools for a shared purpose (Coakley, 2016).

Every state in the United States (US) has an interscholastic governing body that creates policy for state tournament competitions. Enrollment is the dominant variable that determines classifications. Schools of the same relative size compete against each other to ensure teams have a similar number of students from which athletic teams are constructed. In addition to enrollment classifications, some states employ supplemental competitive balance tactics. In a 2015 national assessment, Johnson et al. found eight states had multipliers, a number used to multiply the enrollment of private schools to create an artificial enrollment used for classification. Multipliers are used because private schools have been found to have a disproportionate amount of success relative to public high schools (Epstein, 2008; Johnson et al., 2015; Johnson et al., 2019; Scott et al., 2019). Four states had separate playoffs for public and private schools, and 17 states had some form of additional policy such as a socioeconomic calculation whereby less affluent school districts could drop in classification. One of the additional policies is termed a *success factor* and reclassifies schools based on athletic success. Three states (i.e., Connecticut, Indiana, and Rhode Island) had such a policy innovation. Since 2015, other states have considered or adopted partial success factors.

Indiana Tournament Success Factor

The TSF was adopted by the Indiana High School Athletic Association (IHSAA) in June 2012 after years of consideration as a *competition clause* where back-to-back state champions would move up an enrollment classification. The idea of the competition clause was supported by the Indiana Football Coaches Association due to repeat state championships by the same schools, many of which were private. The coaches association continued to modify the concept with additional points for achievement and labeled the idea a *tradition factor*. Then-IHSAA Commissioner Bobby Cox embraced the concept but noted there was not a perfect competitive balance solution that would please all stakeholders (Lazerus, 2011). Cox acknowledged that change was needed after years of declining attendance at state championships and noted "when you have the same matchups year after year, people don't come watch it (Neddenriep, 2012, para. 6). Thus, the TSF was adopted with at least some consideration to enhancing competitive balance.

In its current form, the TSF is a competitive balance formula applied to postseason team-sport competition. The formula is based on traditional enrollment classifications divided into four classes for all team sports except soccer (three classes) and football (six classes). Single A includes schools with the smallest enrollments and 6A (football) has the largest enrollments. The TSF is applied after school enrollments are determined. The number of success points are based on the prior two years of tournament performance and is team specific. A team with

6+ points in the two-year cycle moves up a classification for the following two years. Points are accumulated as follows: 1 point for a sectional championship, 2 points for a regional championship, 3 points for a semi-state championship, and 4 points for a state championship. Teams that accumulate enough points (4 points before 2015-16, 3 points 2015-16 to 2017-18, and 2 points after 2017-18) remain in the higher classification. Teams earning less than 2 points move back to a lower classification (IHSAA, 2022). The policy is summarized in Table 1.

Table 1. Summary of Current IHSAA TSF Points System

Point Values Based on Success	
Championship	**Points**
Sectional	1
Regional	2
Semi-State	3
State	4
Two-Year Point Cycle to Determine Move Up	
Stay at current enrollment classification	0-5
Promoted to next class	6-8
If Already Moved Up – Next Two-Year Cycle	
Return to previous class	0-1
Remain at new class	2-5
Promoted to next class	6-8

In the only study to analyze the TSF, Johnson et al. (2014) focused attention on the success of public and private high schools. In particular, they found the most successful teams (i.e., final two in state title game) represented a disproportionately high number of private schools. They also found smaller classifications have more private school success, and metropolitan areas surrounding Indianapolis demonstrate the most state champions. Additionally, of the 17 schools reclassified to that point in time, 11 (64.7%) were private. The authors noted, "The fact that 64.7% of reclassified programs were private when only 14% of the schools in the state are private is powerful" (p. 60). This point is important considering the TSF is not a policy specific to public or private high schools and avoids the legal scrutiny that might exist if separate playoffs or multipliers existed that specifically targeted private schools (Johnson et al., 2018).

In addition to the public and private imbalance that is an ongoing point of contention for Indiana and other states struggling with disproportionate private school success (Johnson et al., 2015), there is one enduring critique that has existed since the TSF's inception (Johnson et al., 2014). Specifically, the TSF has been criticized for punishing success. Critics argue that moving a team up a classification after two years of success is a penalty for incoming student-athletes following their talented predecessors. One football coach explained it this way, "You have two strong years at most schools and you'll go into a rebuilding year at some point. Those schools will be going into a rebuilding year the same year they get bumped up to a higher class" (Terlep, 2012, para. 14). In Illinois, which has a version of a success factor applied to private schools, the St. Viator baseball team lived this scenario and prompted their athletic director to explain it this way:

> We happened to put two successful years together with incredible talent and hardworking kids and great coaching, and our previous 50 years we won one sectional. So because of two years of really great play and great coaching and great kids and great effort, now all of the sudden we have to go play (some) schools that are four times the size of us. I don't understand the purpose of it. (Christle, 2017, para. 16)

It is possible this punitive scenario is isolated to a few teams, and that many teams could deserve—or enjoy—a prolonged reclassification to play better competition. After the TSF adoption, Commissioner Cox noted:

> I've had just the opposite reaction, that they will enjoy the opportunity to play other schools they haven't played before because they're not in that class. And test their kids even further to see how good their team really is. (Sokeland, 2012, para. 24)

Cox also noted that "people will say I'm punishing success. No, I'm not. I'm allowing success to have an opportunity for greatness, to get better, to step up their game to the next level" (Lazerus, 2011, para. 22).

A decade after the policy's implementation, now is an appropriate time to evaluate the TSF more critically considering the difference in perspectives between Cox's early position and those from coaches or athletic directors whose teams have moved up and struggled. Is the TSF reclassifying programs to allow success to pursue greatness, or is it more often punishing success? Are there better ways to implement this policy? For example, is a two-year window the appropriate timeframe to make reclassification decisions? As one coach noted, "The span of years is too little. It needs to be over a four- or five-year span … you could have a couple players be dominant. They graduate and then you go back to just being competitive" (Krah, 2017, para. 14). Moreover, determining how many teams move up, remain up, and if the TSF meets the spirit of its original design

is critical for interscholastic competitive balance for Indiana or other states considering success policies.

Purpose

Three research questions (RQ) were developed to examine whether there is evidence to suggest the TSF has the potential to punish teams that move up a classification. Identifying patterns in the implementation and outcomes of this policy could aid in creating meaningful change to better meet the spirit of the TSF.

RQ1: What impact do demographic variables (i.e., enrollment classification, geographic location of the school, public or private, gender) have on team performance in the cycle after moving up in classification?

RQ2: What are the patterns of moving up or down classifications using the TSF?

RQ3: Is there a relationship between past success and points scored in the cycle after moving up?

Method

A descriptive analytical historical design (Sterling et al., 2017) was used to evaluate all team classification changes up or down as a result of the TSF. During this time, five two-year reclassification cycles were observed that aligned with the IHSAA enrollment reclassification cycles. Since the first cycle of reclassifications in 2013-14, the TSF has resulted in 172 unique instances of teams moving up or down as a result of their success, or lack thereof. A total of 107 teams moved up in classification and 65 moved down after moving up. In the last cycle of reclassifications (2021-22), however, there were 14 move-ups that have not had an opportunity to move back down. As a result, this study analyzes the 93 move-ups that had at least one complete two-year cycle after the promotion. These 93 move-ups represented 82 unique teams at 63 unique high schools, representing 15.3% of all IHSAA member schools. Three schools had three teams move up, 15 schools had two teams move up, and 64 schools saw only one team move up. Football accounted for the most move-ups (20.4%), followed by volleyball (17.2%) and girls' basketball (15.1%). Move-ups were fairly evenly split between the four cycles, with 2019-20 accounting for the largest year of move-ups (30.1%). Table 2 demonstrates demographic group categories and sizes.

For RQ1, the historical patterns were combined with descriptive data that were collected from publicly available information on the IHSAA website. Historical data on postseason results, TSF totals, sport, high school, enrollment

Table 2. Demographic Group Categories and Sizes of All Move-Ups

Variable	*N*	Pct.
Gender		
Girls	50	53.8%
Boys	43	46.2%
Operation		
Private	53	57.0%
Public	40	43.0%
Classification Prior to Moving Up		
Lowest class size	36	38.7%
All other class sizes	57	61.3%
Location		
Town < 10,000 population	33	35.5%
City > 10,000 population	60	64.5%
Cycle		
2013-14	19	20.4%
2015-16	26	28.0%
2017-18	20	21.5%
2019-20	28	30.1%
Sport		
Football	19	20.4%
Volleyball	16	17.2%
Girls Basketball	14	15.1%
Baseball	12	12.9%
Softball	11	11.8%
Girls Soccer	9	9.7%
Boys Basketball	7	7.5%
Boys Soccer	5	5.4%

classification, and public/private status were recorded. Information about city and town population was mined from census data.

For RQ2, each move-up was recorded as a unique event because it represented a two-year team performance. Each team had different players in different timeframes, so capturing each reclassification of a team, instead of focusing only on school, provided needed specificity. It was also prudent to isolate each move-up so that a longer timeframe relative to a specific move up or down could be documented.

For RQ3, each two-year reclassification period, the number of TSF points were recorded up to 10 years before and six years after the reclassification. Point totals at -10, -8, -6, -4, -2 (i.e., the cycle that earned the move up), +2 (i.e., the next cycle after moving up), +4 (i.e., two cycles after moving up), and +6 were documented. These timeframes allowed researchers to isolate patterns in team performance over a longer period than the two-year evaluation cycle currently used. Years after a move down was stopped at year +6 due to no available data after that time. Most teams did not have a 6+ point value because it has not been six years since moving up. All instances of a move up had TSF points entered for -10, -8, -6, and -4. These values were collected for all teams even if those years predated the adoption of the TSF policy. The decision to use multi-year totals allowed for larger patterns of perennial success to emerge over longer time periods. Thus, the longer time

periods provided data about whether success was isolated to the most recent two years, perhaps due to an unusually strong class of student-athletes, or whether a specific team had a pattern of success (i.e., tradition) for longer than the two-year evaluation cycle.

Data Analysis

For RQ1, four Chi-square tests of association were conducted to identify relationships between variables defined in Table 2 (i.e., gender, public/private operation, classification, location) and the number of points earned in the cycle after moving up (i.e., TSF +2). For RQ2, descriptive information using frequencies and measures of central tendency were used to determine the number of reclassifications up and down. Timeframes of the reclassifications and patterns relative to the direction of teams' movement and TSF points before and after the reclassification were then calculated. To determine patterns of success after a team moved up, TSF points were calculated in the cycle after moving up (i.e., +2), as well as the two-year cycle (i.e., +4). For RQ3, an analysis of variance (ANOVA) was used to determine if there were differences among success based on points earned in the two years immediately following a move up and past performance as measured by the accumulation of TSF points over previous cycles.

Results

For RQ1, Chi-square tests of association revealed that none of these variables demonstrated a significant association with points scored in TSF +2. This result indicated that none of the demographic groups are disproportionately affected after moving up.

For RQ2, the two-year cycle following a move up (i.e., +2) was evaluated first. This moment in time measures how teams competed at a higher classification and whether they would move down, stay at that classification, or move up again. The first group, *Move Down,* comprised 52 (55.9%) teams scoring 0 or 1 points. The second group, *Remain,* comprised 34 (36.6%) teams scoring between 2 and 5 points. The third group, *Move Up Again,* comprised seven (7.5%) teams scoring 6+ points. Table 3 shows how many points were scored in the cycle after moving up.

Next, the four-year cycle following a move up (i.e., +4) was evaluated. There were 65 teams that recorded point values in the second cycle after a move up. Of the 39 *Move Down* teams, 25 (64.1%) scored less than 2 points in the next cycle even though they were back in their original classification, and 35 (89.7%) did not score enough points to be moved back up. In contrast, 16 of the 26 (61.5%) *Remain* or *Move Up Again* teams scored enough points in the next cycle to not be moved back down. Stated differently, only 10.3% of *Move Down* teams earned

Table 3. TSF Points Scored in Cycle After Moving Up

Points	*N*	Pct.
0	40	43%
1	12	12.9%
2	12	12.9%
3	11	11.8%
4	7	7.5%
5	4	4.3%
6	5	5.4%
7	1	1.1%
8	1	1.1%
Total	**93**	**100%**

Table 4. TSF Points Scored in Consecutive Two-Year Cycles After Moving Up

	Points in TSF +4		
TSF +2 Group	*0-1 pts*	*2-5 pts*	*6-8 pts*
Move Down ($n = 39$)	25	10	4
Remain ($n = 20$)	7	11	2
Move Up Again ($n = 6$)	3	3	0
Total ($N = 65$)	**35**	**24**	**6**

**N = 65 because 28 cases have not yet recorded a TSF +4 score*

enough points to move back up compared to 61.5% of *Remain* or *Move Up* teams. Table 4 analyzes the TSF points scored in consecutive cycles after moving up.

As an additional way to determine how many teams had moved down by the end of two cycles (i.e., within four years of being moved up), 78 teams were investigated that had either moved down in TSF +2 or recorded a TSF score in both cycles. The 15 instances of teams recording a score of 2 or more in TSF +2 but not recording a score in TSF +4 could not be included in this analysis. This analysis showed that 62 of 78 (79.5%) teams had moved down by the end of the second cycle. So, within four years of moving up, 79.5% of teams did not have enough success to stay at the elevated classification.

Table 5. TSF Point Totals for Each Two-Year Cycle Before a Move Up (not aggregated)

Points Scored in TSF +2	TSF-10	TSF-8	TSF-6	TSF-4	TSF-2
Move Down: 0-1 points ($n = 52$)	1.60	1.69	2.08	2.17	6.63
Remain: 2-5 points ($n = 34$)	1.45	2.00	2.12	2.44	6.91
Move Up Again: 6-8 points ($n = 7$)	2.43	2.71	4.14	3.86	7.29
Mean	1.61	1.88	2.25	2.40	6.78

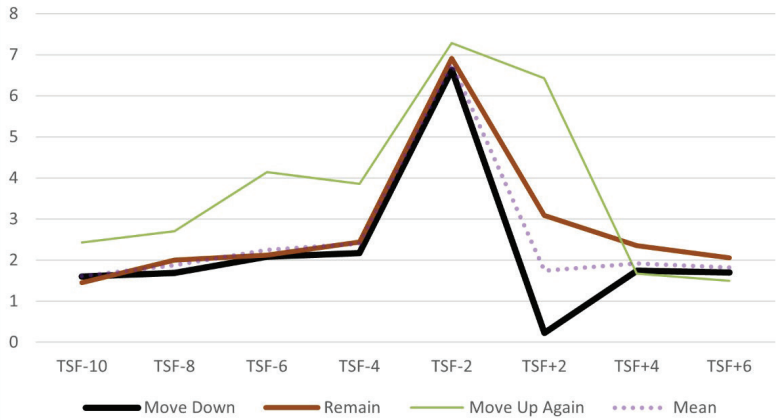

Figure 1. TSF point totals for each two-year cycle before and after a move up.

For RQ3, point totals for each group at each past two-year cycle (i.e., -2, -4, -6, -8, -10) were calculated by aggregating the point totals for that cycle and prior cycles. For example, *Move Down* averaged 6.63 points in TSF -2, and 2.17 points in TSF -4. Thus, the cumulative TSF point score for *Move Down* at TSF -4 is 8.80. The point totals for each group at each cycle are presented in Table 5 and Figure 1, and the aggregated point totals at each cycle are presented in Table 6 and Figure 2. ANOVA and subsequent post-hoc testing on Table 6 revealed that the *Move Up Again* group scored significantly more points at TSF -6 and TSF -8 than the *Move Down* group.

Table 6. Aggregated TSF Points Earned at Each Cycle and ANOVA Results

Points Scored in TSF +2	TSF-10	TSF-8	TSF-6	TSF-4	TSF-2
Move Down: 0-1 points ($n = 52$)	14.2	12.6	10.88	8.80	6.63
Remain: 2-5 points ($n = 34$)	14.88	13.42	11.42	9.35	6.91
Move Up Again: 6-8 points ($n = 7$)	20.43	18.00	15.29	11.14	7.29
Mean	14.90	13.29	11.41	9.18	6.78
F	2.945	3.33	3.55	2.40	2.69
p	.058	.040*	.033*	.096	.073

*$p < .05$ – Significant difference between the *Move Down* and *Move Up* Again groups.

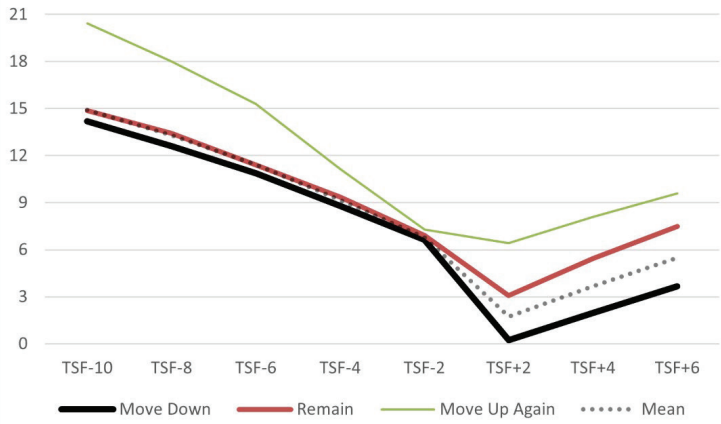

Figure 2. Aggregated TSF points earned at each cycle (historical success).

RQ3 can also be answered by examining the correlation between points scored in TSF +2 and the cumulative points scored in prior cycles. Pearson correlation was significant at each cycle, as presented in Table 7. There is a significant positive correlation between the points scored in TSF +2 and aggregate points scored in each of the five prior cycles. This is even true at TSF -2 when all teams scored 6, 7, or 8 points to trigger a move up. To illustrate further, a Fisher's exact test revealed that teams that scored 6 points in TSF -2 (i.e., 29 of 43, 67.4%) were 2.4 times more likely to score less than 2 points in TSF +2 than teams scoring 7 or 8 points in TSF -2 (i.e., 23 of 50, 46%) ($p < .05$, odds ratio 2.4).

Table 7. Correlation Between Points Scored in TSF +2 and Aggregated Historic Cycles

Cycle	Pearson Correlation
TSF -2	.240*
TSF -4	.211*
TSF -6	.227*
TSF -8	.245**
TSF -10	.235*

* $p < .05$. ** $p < .01$

Discussion

After a decade in existence, the Indiana TSF has produced enough data for administrators to identify patterns and consider policy changes. For RQ1, the negative Chi-square results reveal that after initiating the 6-point trigger to move up, the policy is not disproportionately affecting different types of teams in the next cycle. Movement back down, staying in place, or moving up is based on tournament success and not related to gender, public/private, enrollment classification, or location. These results are positive for the TSF because the policy appears to be operating as it was intended after identifying teams earning 6 or more TSF points. Examining demographic characteristics of teams before moving up, however, revealed that 57% of the teams that move up as a result of TSF points were private schools. This finding is important because in Indiana, 86.3% are public schools and 13.7% are private schools. If 57% of the teams to move up a classification are private, but only 13.7% of the schools in Indiana are private, that is strong evidence to suggest private schools are disproportionately more successful than public schools. Private schools may not be more successful after moving up, but they are certainly more likely to be successful enough to move up initially.

The public/private findings were similar to the findings from Johnson et al. (2014) in their early assessment of the TSF and consistent with a growing body of literature that indicates private schools are disproportionally successful in high school athletics despite multiple policy implementations across the US designed to suppress inherent advantages (Johnson et al., 2015; Johnson et al., 2019; Scott et al., 2019). Moreover, there is evidence that parents of public school student-athletes do not understand how private schools operate and often believe private schools can recruit athletically (Stoffer et al., 2021). This misunderstanding, combined with disproportionate success, could cause animosity toward private schools that have historically led to discussions on targeted policies implemented in other states (e.g., multipliers or separate playoffs; Epstein, 2008; Johnson et al., 2015; Johnson et al., 2018). Practically, these findings are crucial to understanding how the TSF affects public and private schools differently than targeted approaches. Although the TSF's purpose is not to target private schools, it is clear the TSF is working to eliminate any inherent advantages private schools may possess (Epstein, 2008; Johnson et al., 2018). This appears to be a strength of the TSF, as it can avoid legal or public relations ramifications often found when

private schools are targeted with competitive balance policies like multipliers or separate playoffs (Johnson et al., 2018).

RQ2 was answered by finding that 55.9% of teams that move up move back down within two years and 79.5% do so within four years. Examining the pattern of performance across the two cycles after moving up, 89.7% of schools that moved down in the first cycle stayed down in the second cycle, while 61.5% of schools that stayed or were promoted in the first cycle stayed up or were promoted again in the second cycle. These findings suggest a majority of teams that have successful postseason tournament finishes are minimally successful at a higher classification. When one considers the mean TSF -2 value was 6.78, which equates to nearly a state championship and a state runner-up (i.e., being in the state championship game two years in a row and winning one time), it is logical to discern that success in two-year periods prior to moving up is due to something unsustainable. That is, there is something about those teams in a specific two-year period that allows them to be successful in their normal enrollment classification but does not impact them enough to be successful in a higher classification. The obvious answer is a gifted group of student-athletes. After these student-athletes graduate or leave, most teams find little success at the next classification. Thus, it is likely in many cases the criticism of punishing success is a reality.

A closer examination of individual teams that move down after the first available two-year cycle confirms many instances of isolated success based on unique talent. For example, the North Harrison girls' basketball team had not won a sectional championship in six years but won two semi-state titles in 2015-16 and 2016-17 and were moved up from Class 3A to Class 4A. This isolated spurt of success was fueled by three players who went on to play college basketball. After moving up and losing these players, North Harrison scored 0 points at the higher classification (i.e., +2), and then scored 0 points again back at its normal classification (i.e., +4). North Harrison is not unique. In fact, North Harrison is one of the 25 schools noted in Table 4. Their story has been repeated many times for teams with little historical success and isolated athletic talent (Christy, 2017; Engelhardt, 2017; Sokeland, 2022; "The Tribune," 2018). This pattern appears to confirm that the TSF is punishing some players, coaches, and communities who are playing up in classification in the two years that follow a uniquely successful group of student-athletes.

Although there appears to be many cases where the TSF is punishing players who follow successful student-athletes, 24.6% of teams have enough success at the next classification to stay or be promoted over two cycles after moving up. These are the teams for which the TSF appears most applicable, and many have unique circumstances that cause consistently high levels of success. For example, Delaware County is home to three volleyball programs that have moved up in

classification (i.e., Yorktown, Wapahani, and Wes-Del). An explanation for such high levels of volleyball success in a relatively small geographic area may not be clear to the average fan. However, Delaware County houses one of the most successful club volleyball programs in the nation. The Munciana Volleyball training facility is within walking distance of Yorktown High School and a short drive for players in Delaware and surrounding counties. Players in this area start early and involve themselves in Munciana throughout middle and high school, producing strong high school teams. In fact, four of the five public volleyball programs to move up are located within 25 miles of Munciana. This is one example of how some teams may have an inherent and historical advantage that justifies moving teams up after success. Other unique situations, such as rapidly expanding communities, geographical advantages, exceptional grassroots or training facilities, a culture of long-term program development, or school resources could also provide advantages not associated with the average program (Siwik et al., 2015).

RQ3 revealed additional patterns in the 10 years before and four years after move-ups. The fact that TSF -2 was the highest average score (i.e., 6.78) is expected since this is the number that caused a move up. However, when investigating the years prior to a team moving up, there is not strong evidence that most teams had enough historical success to justify a move. This is further evidence that punishing success is likely occurring for many teams with the current policy. Perhaps the most telling result is the differentiation among the *Move Down* and the *Move Up Again* groups. When comparing these two groups, the *Move Up Again* group had a historical success of 2.34 more TSF points than the *Move Down* group four years before the initial move up (i.e., -4 cycle), 4.41 more TSF points six years before the move up (i.e., -6 cycle), and 5.4 more TSF points eight years before a move up (i.e., -8 cycle). These historical numbers clearly demonstrate teams in the *Move Up Again* category also had more historical success than the teams that had less than 2 TSF points after moving up. Thus, the significant findings from the ANOVA indicate a second historical evaluation, in addition to the current 6-point trigger, may be a more appropriate way to determine which teams should be moved up. This second metric could better discern teams whose quality makes them consistently more competitive compared to teams that have isolated success due to unusual circumstances or rare athletic talent.

Policy Innovation

The TSF is a novel approach to solve interscholastic competitive balance issues focusing exclusively on tournament success. The results of this evaluation reveal important information that could justify policy change. First, although there are approximately 20% of cases where teams that have moved up do not move down within four years, 80% of teams do move down in that timeframe. Moving up

does not appear appropriate if the majority of move-ups are from teams with little historic success that result in moving back to their previous classification within the next two classification cycles. This result confirms additional metrics could better assess whether moving up is the appropriate response.

There is evidence for two potential policy changes. First, the IHSAA should consider changing the number of points needed to trigger a move up from 6 to 7 since the average two-year score for all teams moving up was 6.8, and teams that scored 6 points are 2.4 times more likely to score less than 2 points in TSF +2 than teams scoring 7 or 8 points. If this policy change had been in place with the existing data, 43 of 93 (46.2%) move-ups would not have occurred. This policy change is supported because 29 of those 43 teams (67.4%) that scored 6 points immediately moved down. The outcomes are presented in Table 8. Expanding this analysis out to TSF +4, 75% of teams that scored 6 points moved down and then stayed down compared to only 43% of teams that scored 7 points and 31% of teams that scored 8 points. This change would also ensure that teams won at least one state championship in a two-year period.

Table 8. Differentiating Teams Based on New Seven-Point Trigger

	Points in TSF +2			
Points in TSF -2	0-1 pts	2-5 pts	6-8 pts	Total
6 pts	29	13	1	43
7-8 pts	23	21	6	50
Total	52	34	7	93

Second, the IHSAA should consider including a two- or three-cycle historical point total to determine if a team should move up. To make this policy change, three questions must be answered.

1. Is there a relationship between past and future performance (i.e., RQ3)?
2. How many cycles should be included?
3. At what point value should a move up be trigged based on the number of cycles?

First, the inclusion of historical performance has already been established in RQ2 and supported by the means and significant relationships shown in Tables

6 and 7. Second, the adoption of three cycles (i.e., six years) is based on the significant ANOVA result in Table 6 at TSF -6 that shows there is a significant difference between *Move Up Again* and *Move Down*. While there was a significant difference at TSF -8, and it could be used if desired, using three cycles (i.e., six years prior to a move up) is more practical and parsimonious. Evaluating historical success beyond six years is difficult given changes in coaching, facilities, and enrollments. Additionally, six years allows for the saturation of one or two extremely talented student-athletes to make their mark. The authors also recognize that even though the statistical result is not significant at TSF -4, it might be a pragmatic cycle at which to apply the historical criteria.

Third, the number of points scored in those three cycles needs to be determined. Table 6 shows the mean number of points scored when adding TSF -2, TSF -4, and TSF -6 is 11.41 points. Therefore, either 11 or 12 points should be used as the trigger value to move teams up using a three-cycle window. Using

Table 9. Aggregated TSF Point Totals at the -6 Cycle

Points	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
N	5	13	10	11	7	9	5	7	4	5	4	1	2	2	5	0	2

12 points as the cutoff, 55 of 93 (59.8%) move-ups would not have occurred. Additionally, if a 12-point trigger was used, 32 of the 52 (61.5%) *Move Down* teams would not have moved up. These 32 teams are ones that had little historical success, perhaps from isolated high levels of talent. Using 11 points as the cutoff, 46 of 93 (49.5%) move-ups would not have occurred. See Table 9 for aggregated TSF totals at the -6 cycle (i.e., three historical two-year cycles). Each of these assumptions is based on the IHSAA retaining the current trigger for a move up of 6 points in a cycle. Most importantly, using an additional historical trigger would largely eliminate the biggest criticism of the policy, while still reclassifying schools with the greatest amount of recent and historical success. In essence, the TSF would transform from a short-term blunt instrument into a more sensitive historical application.

The recommendation to adjust the first trigger and add a second trigger, like any adjustment to a competitive balance policy, would not be perfect. There would be outliers and unique circumstances. Those unique situations could be evaluated using an additional layer of evaluation, perhaps a waiver or appeal process. While such a recommendation is beyond the scope of this study, a more sensitive double trigger would ensure a small number of appeals because there would be less schools reclassified and presumably less schools with isolated

success. Ultimately, these changes would have a specific effect on individual student-athletes and their experiences. Playing up a classification could mean the difference between a memorable run in a state tournament or a first-round loss in a sectional. Playing at the appropriate level is the basis of enrollment classifications meant to ensure competitive balance and increase enjoyment.

From a broader policy perspective, the results of this study can be used by states that are considering or modifying success policies. Similar to the adoption of the TSF in Indiana as a result of football imbalance, adopting a success metric would likely be a result of higher-than-expected success for a particular set of schools or programs resulting in a strong (potentially emotional) desire to rectify the imbalance. This study can serve as a cautionary point of reference for state associations to resist too much change without considering historic data. Thus, from a student-experience perspective, it would seem most reasonable to ensure less punishment than too much, and adjust as necessary. If data-driven evaluation occurs, a success factor policy appears to be a reasonable solution to neutralize unique advantages that cause disproportionate success.

Theoretically, this study supports the Uncertainty of Outcome Hypothesis and the notion that competitive balance is impacted by enrollment classifications. Using classifications is an effective and logical policy that allows programs with similar resources to be similarly competitive. Classifications can, however, be abused if success factors are too punitive. Academicians that study interscholastic competitive balance would be wise to consider enrollment as one of the primary factors that contribute to uncertainty of outcomes. Future research, however, would justify examining factors beyond enrollment and success to create an even more precise competitive balance.

In conclusion, the strength of the TSF and similar success policies are their ability to reclassify based on success rather than the nature of the schools (e.g., public/private, socioeconomic status, location). Therefore, the effectiveness of the policy is largely dependent on what state associations define as too much success. Regardless of the success benchmark, it is the contention of the authors that for success metrics similar to the TSF, both a recent evaluation and a longer historical evaluation should occur to avoid punishing athletes for the successes of their predecessors.

References

Brown, J. (2020). The creation and regulation of sports equipment: Implications for the future. *Entertainment and Sports Law Journal. 18*(8), 1-11. https://doi.org/10.16997/eslj.236

Caporale, T., & Collier, T. C. (2015). Are we getting better or are they getting worse? Draft position, strength of schedule, and competitive balance in the National Football League. *Journal of Labor Resources, 36*(3), 291-300. https://doi.org/10.1007/s12122-015-9206-z

Caro, C. A. (2012). College football success: The relationship between recruiting and winning. *International Journal of Sports Science & Coaching. 7*(1), 139-152. https://doi.org/10.1260/1747-9541.7.1.139

Christie, B. (2017). IHSA attempt to level playing field irritates many private schools. *Chicago Tribune*. https://www.chicagotribune.com/suburbs/winnetka/sports/ct-wtk-ihsa-success-factor-private-schools-tl-0803-20170803-story.html

Coakley, J. J. (2016). Sports and society: Issues and controversies (12th ed.). McGraw-Hill.

Depken, C. A., & Wilson, D. P. (2006). NCAA enforcement and competitive balance in college football. *Southern Economic Journal. 72*(4), 826-845. https://doi.org/10.1002/j.2325-8012.2006.tb00740.x

Doria, M., & Nalebuff, B. (2021). Measuring competitive balance in sports. *Journal of Quantitative Analysis in Sports. 17*(1), 29-46. https://doi.org/10.1515/jqas-2020-0006

Eckard, E. W. (1998). The NCAA cartel and competitive balance in college football. *Review of Industrial Organization. 13*(3), 347-369. https://doi.org/10.1023/A:1007713802480

Eckard, E. W. (2017). The uncertainty-of outcome hypothesis and industrial organization of sports leagues: Evidence from U.S. college football. *Journal of Sports Economics. 18*(3), 298-317. https://doi.org/10.1177/1527002515576002

Engelhardt, G. (2017). IHSAA wrestles with public/private school problem. *Athletic Business*. https://www.athleticbusiness.com/operations/programming/news/15149915/ihsaa-wrestles-with-public-private-school-problem

Epstein, T. L. (2008). Prep plus: Evaluating the motivations for and effects of enrollment multipliers and other measures in high school sports. *Texas Review of Entertainment and Sports Law, 10,* 1-22.

IHSAA. (2018). *By-Laws & Articles of Incorporation,* 17-18, https://ihsaapublic.blob.core.windows.net/portals/0/ihsaa/documents/about%20ihsaa/2018-19%20By%20Laws.pdf.

IHSAA. (2022). *Tournament Success Factor Rule (2-5) Reclassification of Schools in Team Sports*. https://www.ihsaa.org/sites/default/files/documents/Tournament%20Success%20Factor.pdf

Johnson, J. E., Giannoulakis, C., & Scott, B. F. (2017). Interscholastic competitive balance: An examination of state athletic association administrators. *Journal of Sports Management, 31*(3), 256-273. https://doi.org/10.1123/jsm.2016-0226

Johnson, J. E., Lower, L. M., Scott, B. F., & Manwell, A. K. (2018) The public/private divide: An analysis of American law relative to recruiting and transfer policies in interscholastic athletics. *Journal of sport Policy and Politics, 10*(3), 493-508. https://doi.org/10.1080/19406940.2018.1428214

Johnson, J. E., Manwell, A. K., & Scott, B. F. (2019). An examination of competitive balance within interscholastic football. *Journal of Amateur Sport, 5*(1), 21-49. https://doi.org/10.17161/jas.v5i1.6708

Johnson, J. E., Pierce, D. A., Tracy, D. R., & Haworth, G. J. (2014). The public vs. private debate: A case study of Indiana interscholastic sport and the tournament success factor. *Global Sport Business Journal, 2*(3), 44–62.

Johnson, J. E., Tracy, D. R., & Pierce, D. A. (2015). National review of interscholastic competitive balance solutions related to the public-private debate. *Journal of Amateur Sport, 1*(1), 29-51. https://doi.org/10.17161/jas.v1i1.4920

Krah, S. (2018). IHSAA tournament success factor has Hornung-led Providence Pioneers moving up to class 3A in 2018. *Indiana RBI.* https://takeoutyourscorecards.wordpress.com/2017/12/04/ihsaa-tournament-success-factor-has-hornung-led-providence-pioneers-moving-up-to-class-3a-in-2018/

Lazerus, M. (2011, November 23). Lazerus: Pinpointing the parochial problem. *Chicago Post Tribune*.

Neddenriep, K. (2012, November 25). High school football: Tournament success factor coming at the right time. *USA Today*. https://usatodayhss.com/2012/high-school-football-tournament-success-factor-is-coming-at-the-right-time

Popke, M. (2012, December). Demand to close gap between public, non-public schools increases. *Athletic Business*. http://www.athleticbusiness.com/articles/article.aspx?articleid=3938&-zoneid=9

Rottenberg, S. (1956). The baseball players' labor market. *Journal of Political Economy, 64*(3), 242-258. https://doi.org/10.1086/257790

Sanderson, A. R., & Siegfried, J. J. (2003). Thinking about competitive balance. *Journal of Sports Economics. 4*(4), 255-279. https://doi.org/10.1177/1527002503257321

Scott, B. F., Johnson, J. E., Lower, L. M., & Wanless, E. A. (2019). Competitive balance in interscholastic basketball: An examination of policy and non-policy factors. *Journal for the Study of Sports and Athletes in Education, 13*(3), 191-213. https://doi.org/10.1080/19357397.2019.1674592

Siwik, M., Lambert, A., Saylor, D., Bertram, R., Cocchiarella, C., & Gilbert, W. (2015). Long term program development (LTPD): An interdisciplinary framework for developing athletes, coaches, and sport program. *International Sport Coaching Journal, 2*(3), 305-16. https://doi.org/10.1123/iscj.2015-0075

Sokeland, J. (2012, August 22). Providence faces "penalty" for its soccer success. *Courier Journal*. http://blogs.courier-journal.com/indianahss/2012/08/22/providence-soccerpossibly-penalized-by-ihsaa-success-factor/

Sokeland, K. (2022). Is it a challenge to move? Local coaches weigh in following recent IHSAA reclassification. *Evansville Courier & Press*. https://www.courierpress.com/story/sports/high-school/2022/04/21/ihsaa-class-coaches-indiana-high-school-sports-2023-classification/7304958001/

Sterling, J. J., Phillips, M. G., & McDonald, M. G. (2017). Doing sport history in the digital present. *Journal of Sport History, 44*(2), 135-145. https://doi.org/10.5406/jsporthistory.44.2.0135

Stoffer, G., Johnson, J., Walker, K., & Dalgety, M. (2021). Indiana public high school parents' perceptions of interscholastic competitive balance. *Journal of Amateur Sport, 7*(1). https://doi.org/10.17161/jas.v7i1.14554

Terlep, R. (2012, June 23). IHSAA will now weigh tourney success in class slots. *The Elkhart Truth*.

The Tribune. (2018). IHSAA should reconsider reclassification process. *The Tribune*. https://tribtown.com/2018/02/03/local_sports_roundup__february_3-2/