

# The Impact of Swiss-Style Tournaments of Esports Team Performance: An Examination of the League of Legends World Championships

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## Abstract

Esports—video game competitions—has experienced significant worldwide growth over the past decade. Alongside this has been a concomitant rise in academic research focused on this unique digital setting. At the same time, most esports research has placed emphasis on either defining the setting and scope of the industry or analyzing consumer interest and perceptions of esports and related services and activities. From this perspective, the current work advances the research into esports by examining whether changing the tournament design of top-level esports competitions impacts overall team performance. Specifically, using regression analysis of match data from multiple League of Legends World Championships, we find that recent format changes result in more unbalanced matches. The results indicate that tournament design is critical in the development and management of esports and other forms of competitions.

## Keywords

Tournament Theory, Esports, Swiss-Style, Performance

## 1. Introduction and Context

Esports—often defined as competitive video gaming—has undergone significant commercial growth in recent years with top-level esports competitions drawing tens of millions of viewers and participants worldwide (Newman et al., 2022). This boom has resulted in drastic increases in revenue for video game publishers, software companies, and other related organizations who now are able to draw in hundreds of millions of dollars annually (Funk et al., 2018). As such, this growth has also attracted interest from numerous researchers, as esports represents a new

digital sport ecosystem through which scholars can further examine business operations and management (Flegr & Schmidt, 2022), consumer behavior (Qian et al., 2020b, 2022), and the structure and value of the industry (Jalonen, 2019; Wong & Meng-Lewis, 2023). At the same time, there have been limited examinations focused on the economics of esports, with such studies almost entirely focused on determinants of wages and performance (Shenkman et al., 2022) or consumer behavior (Watanabe et al., 2021).

From this vantage, one critical aspect of esports that has yet to be examined from an economic lens is how the structure, rules, and regulations of competition may impact team performance. That is, within the economic literature there is an extensive body of work focused on how the design of competitions can impact the performance of teams and players (Lenten, 2016), and hence also affect the interest of fans and consumers (Gong et al., 2022; Hausman & Leonard, 1997). Moreover, esports provides a unique context to further study contest design in sport for the following reasons:

**Work-world similarity:** Esports competitions closely mirror office work, with players using computers to achieve objectives. Performance metrics in esports, such as keystrokes per minute, are more analogous to workplace productivity measures than traditional sports metrics.

**Digital equality and fairness:** Esports competitions occur in a digital realm governed by programmed algorithms, ensuring a more level playing field. Unlike some traditional sports where equipment costs can significantly influence outcomes, esports players generally start on equal footing. The digital nature also eliminates the need for in-game referees, reducing potential human errors.

**Data granularity:** The digital environment allows for extensive, highly detailed data collection on player and team performance. Some games can capture data at incredibly high frequencies, such as 30 times per second in Dota 2, providing unprecedented insights into performance.

For the purpose of this research, we focus on the League of Legends (LoL) World Championships. LoL is a multiplayer online battle arena (MOBA) game developed by Riot Games who have been one of the major developers in the gaming and esports industry over the last several decades. Specifically, a game of LoL involves two teams with five players on each team whose goal is to control the three lanes of travel between their respective starting territory known as “bases.” The ultimate objective is to advance across the lanes of the map and destroy the “Nexus”—the main structure located in the opponent’s base. The five players on each team select different champions, all of whom have their own unique abilities and serve important roles. Essentially, the roles can be considered as similar to positions in traditional sport, with a LoL player choosing a role between: top lane, middle lane, bottom lane, Jungler, and support. As it is a five-versus-five player sport that is focused on penetrating into an opponents territory with players having different roles/positions, LoL is often equated to being similar to basketball in theory.

The LoL World championships, often referred to as the “Worlds” is the summit of LoL competition and is one of the most important and highest attended and watched esports competitions in the world. The Worlds, which bring together the top teams from the entire globe to determine the world champion in LoL, have been held annually since 2011, with nine different teams having won the title during that time frame. The tournament takes a multi week format including a qualifying play-in stage for teams to advance to the main competition. A group stage to determine the eight teams that will advance to the knockout rounds, and then the knockout stage that is composed of quarterfinals, semifinals, and the final. In the most recent (2023) LoL Worlds, the competition introduced a new format for the group stages, instead of placing teams into groups with the top two teams from each group advancing, they instead organized a Swiss style competition. Specifically, the LoL Swiss format requires a team to win three matches to advance to the knockout rounds and matches teams up based on their record as they progress through the Swiss format. For example, a team that wins its first match will then be paired against another team that also won for their second match. Similarly, a team with two losses would get paired against a team with two losses, and these matches are continued to be played out until eight teams have won three matches to advance to the knockout rounds.

The introduction of the Swiss format was done for several reasons. First, in previous years there had been cases where groups had been entirely deadlocked with equal records in the group stage, requiring tiebreakers for teams to advance. Because of this, it is argued many top-level teams were not able to advance to the knockout rounds because of the group stage format and bad luck in terms of the draw and seeding of the group stages. In this sense, a Swiss stage eliminates the need for tiebreakers and requires all teams that advance to do so based on their own performance (Csató, 2017). Second, the move to Swiss format was argued to be beneficial because it allows for more evenly paired matches throughout the group stages, instead of having teams that easily dominate all of their competition at this stage of the tournament. As such, it was argued that the Swiss style format would allow for better competition, more upsets, and thus generate greater interest from fans and enhance revenue (Krumer & Lechner, 2017).

Based on all of this, the current research advances the literature into esports and contest design by examining whether the change in tournament format from group stages to Swiss style had an impact on team performance at the LoL Worlds. Specifically, using data from the LoL World Championships, we analyze whether the introduction of the Swiss format has increased the chances of upsets within the competition. By doing so, we provide one of the first critical examinations of tournament design and incentives within the professional esports industry, advancing the theoretical and empirical understanding in this setting. Moreover, the findings also provide important managerial implications for esports contests and other competitions in understanding whether teams and individuals respond to certain performance incentives within digital gaming environments.

## 2. Literature Review and Theory

Tournament theory has been widely used in the sports economics literature to study the design of sport competitions and their relation to performance and incentives (Price et al., 2010). Notably, numerous studies have examined how the performance of professional basketball teams may be impacted by talent allocation policies of the respective leagues they are members of (Gong et al., 2022; Soebbing & Mason, 2009). Specifically, tournament theory indicates that in a rank-order tournament, prize money should increase as one rises through the rankings so that those competing at the highest level will exhibit maximum effort (Taylor & Trogdon, 2002). Moreover, it is argued that there should be a convex relationship between prize money and rankings (Connelly et al., 2014), as this creates a structure that progressively increases the rewards for those of higher ranks, and thus elicits greater effort from those at the top. For example, in a golf tournament, the tournament organizers will scale the prize money so that a golfer moving from 4<sup>th</sup> place to 3<sup>rd</sup> place will receive significantly more for moving one place in the rankings than a golfer moving from 30<sup>th</sup> to 29<sup>th</sup> place. Such prize structures are common in sport, including golf, tennis, and even the FIFA World Cup, as they are believed to incentivize athletes to provide high levels of effort in competition to enhance their own earnings (Frick, 2003). In turn, it is believed that this will lead to enhanced performance from competitors in the later stages of a sport competition, leading to more entertaining contests that will draw the interest of sport consumers, media, and other stakeholders (Frick & Simmons, 2008).

At the same time, one of the drawbacks of a convex prize system is that it does not provide much incentive to those contestants who are in the middle or lower end of the rankings to put forth greater effort (Connelly et al., 2014). That is, where moving one spot at the top end of a golf tournament could result in increased earnings of hundreds of thousands of dollars, moving one spot near the bottom of a tournament may only provide a return of a few thousand dollars. In the case of professional sport leagues such as the National Basketball Association (NBA), the prize system for team performance over the course of the regular season is divided into two groups. The top performing teams in the league qualify for the playoffs and get the chance to compete for the league championship, while those who did not have good enough records to make the playoffs are entered into a lottery to decide the order to draft new talent (Price et al., 2010). However, this can also introduce other issues such as tanking, the practice of purposely underperforming, as certain teams may determine it is in their best interest once they have been eliminated from the playoffs to try and lose as many games as possible to maximize their probability of being able to secure the best new talent entering the league. In response to this, the NBA has altered its draft format and league regulations several times, including changing the odds of receiving the top pick as well as fining teams that rest their star players.

## 2.1. Tournament Design

Tournament design is a critical aspect of sports economics and management, with significant implications for competitive balance, effort allocation, and overall performance. The theoretical underpinnings of tournament design draw from various economic and game theory concepts, each offering unique insights into how different structures can influence participant behavior and outcomes. One fundamental theory in tournament design is the incentive-effort model proposed by Lazear and Rosen (1981). This model suggests that the structure of rewards in a tournament significantly influences the effort levels of participants. In the context of professional team sports, this theory helps explain why different league formats (e.g., regular season, playoffs) can elicit varying levels of effort from teams depending on their standing and the stakes involved.

As such, different sport competitions and leagues have utilized different formats and designs to elicit effort and performance by teams. Generally, there are several types of competition format. For professional team sport, most leagues tend to use a regular season format, where teams will play scheduled contests through the course of a season, the final rankings of which will either determine the champions (such as in European football) or participation in playoffs (North American system). Even within the regular season, there are different incentives to perform based on where a team is ranked within the league standings. For example, in the NBA, an eight-place team may be highly motivated to maximize effort to ensure that the team is able to qualify for the playoffs, whereas the first-place team having secured their playoff berth, may attempt to reduce their effort in order to conserve energy for the playoffs. Conversely, in the English Premier League, a team in eighth-place will likely have very little to play for near the end of a season as there are no playoffs for them to compete in. At the same time, the first-place team will likely need to maximize its effort to maintain their status in order to win a championship.

The concept of strategic interaction, as explored in game theory, is particularly relevant to tournament design. Fudenberg and Tirole's (1991) work on dynamic games provides a framework for understanding how teams might adjust their strategies over the course of a tournament. This is evident in scenarios where teams may reduce effort after securing a playoff spot or in group stages where teams might collude to achieve mutually beneficial outcomes, as in the infamous "Disgrace of Gijon" incident where West Germany beat Austria 1-0 in the 1982 World Cup. After West Germany scored 10 minutes into the match, both teams realized it was best for both of them to advance if the score remained the same and resulted in both teams passing the ball around their defenders for the entire match with no attempts to score. Because of this incident, FIFA was forced to change the format of the World Cup group stages to attempt to avoid similar poor quality of play in top-level tournaments. Another crucial theoretical consideration is the balance between competitive intensity and fairness. Szymanski (2003) discusses the importance of maintaining competitive balance in sports leagues, which

can be influenced by tournament design. This theory helps explain why leagues implement mechanisms like draft systems or financial regulations to prevent dominant teams from consistently outperforming others, thereby maintaining fan interest and league sustainability.

Another type of tournament design that can be used in competition is the aforementioned Swiss-style that has been implemented by the LoL World Championships starting in 2023. Simply, the Swiss style is a format that creates a pool of competitors with set performance criterion in terms of the number of wins needed to advance (Sauer et al., 2024). Teams are then paired together in the initial round of matches and will continue to play opponents with similar records until they advance to the next round or are eliminated from the tournament (Sziklai et al., 2022). For example, in the 2023 LoL Worlds, the number of wins needed to advance was set at three, meaning that only eight of the sixteen teams would advance to the knockout stage. Some teams were able to advance from the Swiss round by winning their first three games (JD Gaming and Gen. G) while others were eliminated after losing all three opening matches (Team Liquid and Team BDS). As such, the system continues to pair teams based on their records until the last round where six teams with two wins and two losses face each other to determine the final teams that advance to the knockout round.

The Swiss-style tournament, while less common in traditional sports, has been the subject of theoretical analysis in other competitive domains. Csató (2013) provides a mathematical framework for analyzing the fairness and efficiency of Swiss-system tournaments, which can be applied to understand their potential benefits in esports contexts like the League of Legends World Championships. The concept of information revelation in tournaments, as discussed by Rosen (1986), is particularly relevant to the Swiss-style format. This theory suggests that tournament structures can be designed to reveal information about participant quality progressively. The Swiss system, by pairing teams with similar records, effectively implements this concept, potentially leading to more accurate rankings and exciting matchups. At the same time, Moldovanu and Sela's (2001) work on optimal contest design provides insights into how prize structures can be tailored to maximize effort across all participants. This is particularly relevant when comparing elimination brackets to Swiss-style tournaments, as the latter may provide more incentives for mid-level teams to maintain high effort levels throughout the competition. Furthermore, the concept of dynamic seeding, as explored by Dagaev and Sonin (2018), is relevant to understanding how the Swiss system might affect competitive balance and outcome unpredictability. Their work suggests that dynamic tournament structures can lead to more balanced and exciting competitions, potentially explaining the appeal of the Swiss format in esports.

Based on all of this, the implementation of the Swiss-style tournament in the LoL World Championships represents a significant departure from traditional sports tournament designs. This shift aligns with theoretical predictions about the

benefits of more dynamic and adaptive tournament structures. For instance, the Swiss system's ability to create matches between teams with similar performance records throughout the tournament addresses concerns raised by tournament theory about effort allocation and competitive balance (Szymanski, 2003).

However, the relative scarcity of empirical research on Swiss-style tournaments in sports contexts highlights a critical gap in the literature. While theoretical models suggest potential benefits in terms of fairness and competitive intensity, real-world applications in high-stakes sports environments remain understudied. This gap underscores the importance of the current research, which provides one of the few empirical examinations of how a Swiss-style tournament impacts performance in a major esports competition.

By analyzing the effects of this tournament design change, this study contributes to the broader theoretical discourse on optimal tournament structures in sports. It offers insights into how theories of incentive design, competitive balance, and information revelation play out in the rapidly evolving world of esports. Moreover, this research has the potential to inform future tournament design decisions in both traditional sports and esports, potentially leading to more engaging and fair competitions. In conclusion, the theoretical landscape of tournament design is rich and multifaceted, drawing from economic, game theory, and sports management principles. The introduction of the Swiss-style format in a major esports tournament provides a unique opportunity to test and extend these theories in a new context. This study not only advances our understanding of tournament design in esports but also contributes to the broader theoretical discourse on how competitive structures influence performance and outcomes in sports.

## 2.2. Esports

Over the last several years, the number of papers focused on esports has risen drastically in academic journals. From the perspective of management and the social sciences, esports research has predominantly been published within the fields (and related sub-disciplines) of sport management and internet research. Notably, within the sport management literature, the lineage of esports research can be traced from early studies that have focused on defining what esports is and debating its place within the sport management literature (e.g., Cunningham et al., 2018; Jenny et al., 2018; Pizzo et al., 2022; Smith & Skinner, 2022). Moving beyond this, scholars have begun to place greater emphasis in analyzing consumer behaviors related to esports, especially in regards to viewership patterns and other marketing behaviors (Hong, 2023). Generally, findings have suggested that esports consumers, while similar in some aspects to traditional sport fans, have their own unique characteristics and attributes (Jang et al., 2021; Macey et al., 2022; Xiao, 2020). In this manner, it is not suitable to simply consider esports as an extension of traditional sport, and thus new theoretical and methodological approaches should be considered in studying behaviors in this context (Qian et al., 2020a).

One area of research that has been focused on esports from a competitive standpoint has been the sports economics literature. Specifically, a handful of research has analyzed how performance and other factors have impacted the compensation provided to top-level esports athletes (Parshakov & Zavertiaeva, 2018). Within these studies, it is found that players who come from countries with higher Gross Domestic Products (GDP) were likely to have higher prize winnings from esports tournaments. The reasoning behind this is that countries with higher GDPs likely have more advanced technological and internet infrastructure, thus providing a greater level of access to the populations interested in competing in esports. At the same time, although this line of research has provided important insights into pay and performance in the context of esports, there have been almost no studies examining the performance of esports athletes and teams within competitions (Coates & Parshakov, 2016). That is, although performance has been included within studies, it is typically an explanatory or control variable used when modeling compensation or consumer demand in esports (Meier et al., 2022; Parshakov & Zavertiaeva, 2018; Watanabe et al., 2021).

Considering the above literature, the current work advances the research focused on esports in a number of ways. To begin with, the paper extends the esports literature by providing one of the first empirical examinations of the performance of teams within a top-level competitive tournament. At the same time, this study also advances the work on tournament theory by analyzing how the use of a Swiss-style tournament format impacts the performance of competitors. As such, the findings from this study provide important theoretical and empirical evidence to advance the understanding of tournament theory and performance within the context of esports.

### 3. Methods

#### 3.1. Research Design

Building upon the existing literature in esports and tournament theory, this study employs a quasi-experimental design to examine the impact of the Swiss-style format on match outcomes in the League of Legends (LoL) World Championships. We utilize data from the 2021 and 2023 tournaments, providing a comparative analysis before and after the format change to Swiss-style format. This approach allows us to leverage the unique characteristics of esports, including its work-world similarity, digital equality, and data granularity, as highlighted in the literature. As will be noted in the following sections, the data collection involves comprehensive match-level information from the official LoL Esports website and betting odds data from Odds Shark, which is then analyzed using regression analysis. This approach aligns with previous research on tournament theory in sports (Connelly et al., 2014; Soebbing et al., 2013), and following these previous works we control for potential confounding factors and test for multicollinearity and heteroscedasticity to ensure the reliability of our results.

As such, this research design allows us to examine how the Swiss-style format

affects team performance and competitive balance, contributing to the broader theoretical discourse on tournament design in sports. By focusing on esports, we extend existing theories into a new digital context, potentially informing future tournament structures in both traditional sports and esports. The granular data available in esports provides a unique opportunity to test hypotheses about incentive structures and performance that may be challenging to examine in traditional sports contexts.

### 3.2. Data

In order to examine the impact that the change to a Swiss-style format had on match outcomes in the LoL World Championships data was gathered from the 2023 and 2021 LoL Worlds. We omit the 2022 LoL Worlds from this study because no betting outcome day was available for this competition. To begin with, we all match-level data was gathered from the LoL Esports website<sup>1</sup> that is operated by Riot Games, the publisher of LoL. This includes the teams in each match, the score and outcome of each match, and the round of the competition. Additionally, we gathered betting data for every match from Odds Shark in order to determine which team was favored in each match and to calculate the win probability for each match. All variable definitions are included in **Table 1**, and the summary statistics for all measures are included in **Table 2**.

**Table 1.** Variable definitions.

Variable	Definition
Upset	Whether the team with lower win probability won the match (1 = Yes)
ScoreDiff	Difference in score between the two teams in a match
WinDiff	Difference in win probability between the two teams in a match
FavoredElim	Favored team facing elimination with a loss
UnderdogElim	Underdog team facing elimination with a loss
FavoredQual	Favored team advances to next round with a win
UnderdogQual	Underdog team advances to next round with a win
PlayIn	Play-in round of the LoL World Championship (1 = Yes)
Swiss	Swiss round of the LoL World Championship (1 = Yes)
Quarterfinal	Quarterfinals of the LoL World Championship (1 = Yes)
Semifinal	Semifinals of the LoL World Championship (1 = Yes)
Final	Finals of the LoL World Championship (1 = Yes)

<sup>1</sup><https://lolesports.com/en-US/>.

**Table 2.** Summary statistics.

Variable	Observations	Mean	Std. Dev.	Min	Max
Upset	107	0.2991	0.4600	0	1
ScoreDiff	107	0.5421	1.3051	-3	3
WinDiff	107	0.0785	0.0834	0.0002	0.3193
FavoredElim	107	0.2991	0.4600	0	1
UnderdogElim	107	0.3458	0.4779	0	1
FavoredQual	107	0.3178	0.4678	0	1
UnderdogQual	107	0.3178	0.4678	0	1
PlayIn	107	0.1121	0.3170	0	1
Swiss	107	0.3084	0.4640	0	1
Knockout	107	0.0654	0.2484	0	1
Quarterfinal	107	0.0748	0.2643	0	1
Semifinal	107	0.0374	0.1906	0	1
Final	107	0.0187	0.1361	0	1

There are two dependent variables used within this study. First, Upset, measures when a team with a lower win probability defeats a team that was favored by them. This is a binary measure that is created by using betting odds data to determine the favored and underdog team in each match, and then pairing these market expectations to the actual outcome of the match. When the team that was favored by the betting odds won the match, the match was coded as a “1” for Upset, with all other matches coded as 0. The second dependent variable is ScoreDiff which is a measure of the score difference between the favored and underdog team in each LoL World Championship match. As noted in **Table 2**, the range for ScoreDiff is from 3 to -3, as the greatest number of matches a team could win in a LoL match is 3. Thus, a value of “3” represents when a favored team won by sweeping their opponent in all three matches, while a score of -3 means that the underdog swept the favored team in all three matches. As all these values are present within the data set, it means that there have been cases in the two LoL World Championships examined where underdogs have swept the favored team in competition.

Continuing to the independent variables within this research, we first control for the difference (WinDiff) in quality between two teams facing each other by using the betting odds data to calculate the difference in win probability between the favored and underdog team. Overall, the average value for WinDiff was 0.078, meaning that the favored team usually had a 7.8% greater probability of winning a match. The lowest observed win probability difference was 0.02%, while the highest was 31.9%. Next to control for the other factors that may impact

performance, we measure whether the favored (FavoredElim) or the underdog (UnderdogElim) team was facing elimination if they lost the observed match. Similarly, we also include measures to control for whether the favored (FavoredQual) or underdog (UnderdogQual) were able to qualify to the next round of the competition by winning the observed match.

Finally to account for tournament specific structure we include additional control variable. To answer the research question in regards to whether the Swiss style tournament impacts the number of upsets or the outcome of matches, we include a dummy variable Swiss that measures as “1” for all matches played during the Swiss rounds of the 2023 LoL World Championships. Likewise, to account for the other stages of the tournament, we include variables to measure the play-in round (PlayIn), as well as the quarterfinals (Quarterfinals), semifinals (Semifinals), and Finals (Finals) of each tournament. Finally, we include a variable to measure the year of the tournament to account for any other differences that may have existed between the 2023 and 2021 LoL World Championships.

### 3.3. Econometric Analysis

Following previous research focused on tournament theory in sport (Connelly et al., 2014; Soebbing et al., 2013), we utilize multivariate regression analysis to estimate the results from our data. In this, we set up a basic model where the outcome of a LoL match is a function of match characteristics such as the difference in strength between the teams and the tournament design. We specify this function in equation (1) as:

$$P_i = f(M_i, T_i) \quad (1)$$

In this, the outcome or performance within a match is denoted by P, which is a function of match and tournament characteristics. From this, we can then expand our equation to include all of our independent variables to take the form of:

$$\begin{aligned} \text{Outcome} = & \alpha_0 + \beta_1 \text{WinDiff} + \beta_2 \text{FavoredElim} + \beta_3 \text{UnderdogElim} \\ & + \beta_4 \text{FavoredQual} + \beta_5 \text{UnderdogQual} + \beta_6 \text{PlayIn} + \beta_7 \text{Swiss} \quad (2) \\ & + \beta_8 \text{Quarterfinals} + \beta_9 \text{Semifinals} + \beta_{10} \text{Finals} + \beta_{11} \text{Year} + \mu \end{aligned}$$

Before estimating the final version of the models for this research, variance inflation factor (VIF) scores were estimated for each variable in both models. As the scores for all variables were below 10, multicollinearity was not an issue. Additional tests were also conducted to test for heteroscedasticity in the STATA 15 software, but the results indicated no presence of heteroscedasticity within the data. As such, two finals models were estimated using an Ordinary Least Squares (OLS) regression, with the first model using Upset as the dependent variable and the second model utilizing ScoreDiff as the dependent variable.

## 4. Results

First considering the R-squared values for the regression results, the R-square for model 1 (Table 3) and 2 (Table 4) were 0.1831 and 0.3128 respectively. This means

that the model analyzing upsets explained about 18 percent of the variation within the data, while the model examining the score difference in matches explained about 31 percent of the variation in the data. Returning to the proposed research questions focused on the impact that the introduction of a Swiss-style format had on outcomes within the LoL World Championships, the variable Swiss was negative and significant in the first model and positive and significant in the second model. Specifically, this means that in a Swiss-style format during a LoL tournament there was less likely to be an upset during these rounds when compared to other rounds of the tournament. At the same time, positive result from model two indicates that there was a higher score difference in matches played during the Swiss round of the LoL World Championships. These findings run somewhat counter to the hypothesized results, as theory suggests that the equal pairings that occur at each round of a Swiss-style tournament should provide greater opportunity for close matches with lower score difference and a higher potential for upsets.

**Table 3.** Model 1: Dependent variable is Upsets.

Variable	Coeff.	Std. Err.	p-value
WinDiff	-1.0882	0.6100	0.078
FavoredElim	-0.1742	0.1884	0.358
UnderdogElim	0.0119	0.1700	0.944
FavoredQual	-0.2502	0.1173	0.036**
UnderdogQual	0.4341	0.1390	0.002***
PlayIn	-0.6705	0.2492	0.008***
Swiss	-0.5655	0.2056	0.007***
Quarterfinal	-0.2857	0.2000	0.156
Semifinal	0.0030	0.2374	0.990
Final	0.4139	0.3184	0.197
Year	0.2662	0.0875	0.003***
constant	-538	177	0.003***

**Table 4.** Model 2: Dependent variable is ScoreDiff.

Variable	Coeff.	Std. Err.	p-value
Diff	2.8847	1.3948	0.041**
HomeElim	0.6908	0.4270	0.109
AwayElim	0.0624	0.3511	0.859
HomeQual	0.4619	0.2711	0.092

## Continued

AwayQual	-0.9496	0.3182	0.004***
PlayIn	2.9798	0.9332	0.002***
Swiss	2.3374	0.8080	0.005***
Quarterfinal	1.7047	0.6469	0.010***
Semifinal	-0.0231	0.6493	0.972
Final	-1.5367	0.6283	0.016**
Year	-1.0911	0.3847	0.006***
constant	2,205	777	0.006***

These counterintuitive results could be interpreted in several ways. First, teams might be taking time to adapt to the new format, leading to more predictable outcomes in the short term. Second, the Swiss format might be more effective at revealing true skill differences, leading to fewer upsets but larger score margins. Third, the psychological pressure of the new format might affect underdog teams more severely, leading to wider score margins. One potential reason for these findings could be the fact that Riot Games has only used the Swiss format for one year, and thus the small sample size has limited the opportunities for more upsets to occur. This highlights the need for longitudinal studies to draw more robust conclusions about the format's impact.

Turning to the rest of the independent variables, the difference in team strength was insignificant in model 1 but was positive and significant in model 2. This suggests that while the difference in team strength did not play a role in the number of upsets, it did have an impact on the score difference in a LoL Worlds match, with matches with higher difference in win probability more likely to have a higher score difference. This interesting finding points to the competitive nature of LoL at the highest level, where even underdogs can secure victories, albeit usually by smaller margins. Next, having the favored or underdog team playing in an elimination game did not impact the likelihood of an upset or the score difference in a match.

Continuing, Model 1 found that when a favored team was facing the potential to advance to the next round with a win they were less likely to be upset. On the other hand, underdogs were more likely to cause an upset when they were able to advance in the LoL World Championships with a win in a match. The score difference models (**Table 4**) found that favored teams were not likely to have a higher score difference when they were able to move further in a tournament, while underdog teams had a significantly lower score difference with their favored opponent. Overall, the findings from these match characteristic models indicate that teams in the LoL World Championships were more likely to perform when they were able to be rewarded with advancement to latter rounds of the tournament with

greater prize money than when they were facing elimination from the competition. These results provide valuable insights into team psychology and performance under pressure, highlighting the motivational aspects of tournament structures.

Next, focusing on variables controlling for the various stages of the LoL World Championships, it was found that the play-in games were negative and significant in Model 1 and positive and significant in Model 2. This indicates that teams there were less upsets in the play-in rounds of the LoL Worlds with higher score differences in matches than normal. This could indicate a larger skill gap between teams at this stage. Within the elimination stages, the quarterfinals, semifinals, and finals were all insignificant in relation to the upsets (**Table 3**), but quarterfinals had a positive relationship with score difference while the finals had a negative relationship with the score difference of a match. This would indicate that within the knockout rounds of a tournament, there were less likely to be upsets, and that while there could be large blowouts within the quarterfinals of a tournament, there was less likely to be a large score difference in the finals. These findings suggest that as the tournament progresses, matches become more closely contested, especially in the finals, which could be indicative of the increasing pressure and stakes as teams advance through the tournament.

## 5. Conclusion

Overall, the results from this research indicate that the change from a group stage format to a Swiss-style tournament in the LoL World Championships has not increased the number of upsets or created more closely contested matches during this stage of the competition. Indeed, the results from our study indicate quite the opposite, with the Swiss-stage of the 2023 LoL Worlds having significantly less upsets and even greater score differential in matches than at other stages of either the 2021 or 2023 LoL World Championships. As there is limited empirical evidence within sport regarding the use of Swiss-style tournaments, the findings from this study raise the question of whether further introducing this type of contest design in sport would be beneficial for competitions. As the goal of a sport competition should be to maximize the performance of teams while also introducing a level of uncertainty of outcome that is entertaining to fans, the findings from this study highlight that the Swiss-style tournament has had the opposite effect at the LoL World Championships.

There are a number of potential limitations within this study. The primary limitation is the lack of data under the Swiss format in the LoL World Championships, as they have only been conducted in this format for one year starting in 2023. If Riot Games continues to use this format for the competition, future research should further examine whether the use of this style of tournament has an impact on team performance and match outcomes. Another limitation of this research is in being able to draw generalizations between esports competitions and traditional sport. Although League of Legends can be compared to basketball in

that they are both invasion sports that have five players in different positions on each team seeking to outscore their opponents, there is still a fundamental difference between digital video game competitions and sport played physically in-person. As such, there is a need for more research examining the Swiss-style tournaments in traditional sport, and whether this competition format does have impacts on outcomes.

In conclusion, this paper provides an important advancement within the esports literature, in moving beyond focusing on consumer behavior and athlete compensation, and instead considering the nature of contests design. Curiously, although Swiss-style tournaments are supposed to generate more exciting contests throughout a tournament, as they continuously match teams with equal records, the findings from this study suggest that the use of a Swiss-style format led to a decline in the number of upsets in the tournament. One potential reason for this is the manner in which teams with the LoL World Championship were seeded in the Swiss tournament. Notably, Weibo Gaming who ended up finishing second in the competition, was upset twice in the Swiss stage where they lost to Gen G. (5<sup>th</sup> place) and KT Rolster (6<sup>th</sup> place) as they were placed together on the same side of the Swiss bracket. The very fact that the second-best team in the competition ended up being upset twice, would seem to indicate that there is some success in the Swiss format. However, there were upsets in 2023 Championship using the Swiss-style format, the results highlight that there were more upsets in previous years when using a group stage format. Moreover, most of the upsets that occurred in the 2023 finals were highly ranked teams beating other top-tier competition.

Finally, it should be noted that the findings from this research can also be used to improve the contest design of esports competitions, in this case, the League of Legends World Championship. Overall, if the organizers are seeking to increase the number of potential upsets to create more entertainment for fans, it would seem that a return to the previous format using group stages to determine those who advance to the knockout rounds would be more suitable. However, if the goal of the tournament is to try and pair teams against each other based on competitive balance, the Swiss format could be an appropriate approach to structuring the early stages of the tournament. Indeed, as sport competitions must contend with balancing multiple objectives—competitive parity, consumer interest, team welfare, etc., it is critical for esports and even traditional sport organizations to consider different competition formats to try and maximize the benefits for all stakeholders.

### Conflicts of Interest

The author declares no conflicts of interest regarding the publication of this paper.

### References

- Coates, D., & Parshakov, P. (2016). Team vs. Individual Tournaments: Evidence from Prize Structure in Esports. *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.2787819>
- Connolly, B. L., Tihanyi, L., Crook, T. R., & Gangloff, K. A. (2014). *Tournament Theory*.

- Journal of Management*, 40, 16-47. <https://doi.org/10.1177/0149206313498902>
- Csató, L. (2013). Ranking by Pairwise Comparisons for Swiss-System Tournaments. *Central European Journal of Operations Research*, 21, 783-803. <https://doi.org/10.1007/s10100-012-0261-8>
- Csató, L. (2017). On the Ranking of a Swiss System Chess Team Tournament. *Annals of Operations Research*, 254, 17-36. <https://doi.org/10.1007/s10479-017-2440-4>
- Cunningham, G. B., Fairley, S., Ferkins, L., Kerwin, S., Lock, D., Shaw, S. et al. (2018). Esport: Construct Specifications and Implications for Sport Management. *Sport Management Review*, 21, 1-6. <https://doi.org/10.1016/j.smr.2017.11.002>
- Dagaev, D., & Sonin, K. (2018). Winning by Losing. *Journal of Sports Economics*, 19, 1122-1146. <https://doi.org/10.1177/1527002517704022>
- Flegr, S., & Schmidt, S. L. (2022). Strategic Management in Esports—A Systematic Review of the Literature. *Sport Management Review*, 25, 631-655. <https://doi.org/10.1080/14413523.2021.1974222>
- Frick, B. (2003). Contest Theory and Sport. *Oxford Review of Economic Policy*, 19, 512-529. <https://doi.org/10.1093/oxrep/19.4.512>
- Frick, B., & Simmons, R. (2008). The Allocation of Rewards in Athletic Contests. *The Business of Sports*, 2, 1-24.
- Fudenberg, D., & Tirole, J. (1991). *Game Theory*. MIT Press.
- Funk, D. C., Pizzo, A. D., & Baker, B. J. (2018). Esport Management: Embracing Esport Education and Research Opportunities. *Sport Management Review*, 21, 7-13. <https://doi.org/10.1016/j.smr.2017.07.008>
- Gong, H., Watanabe, N. M., Soebbing, B. P., Brown, M. T., & Nagel, M. S. (2022). Exploring Tanking Strategies in the NBA: An Empirical Analysis of Resting Healthy Players. *Sport Management Review*, 25, 546-566. <https://doi.org/10.1080/14413523.2021.1970972>
- Hausman, J. A., & Leonard, G. K. (1997). Superstars in the National Basketball Association: Economic Value and Policy. *Journal of Labor Economics*, 15, 586-624. <https://doi.org/10.1086/209839>
- Hong, H. J. (2023). Esports: The Need for a Structured Support System for Players. *European Sport Management Quarterly*, 23, 1430-1453. <https://doi.org/10.1080/16184742.2022.2028876>
- Jalonen, H. (2019). The Value of E-Sports Is in the Eye of the Beholder, but Can E-Sports Operators Influence What the Spectators See? *Advances in Applied Sociology*, 9, 306-329. <https://doi.org/10.4236/aasoci.2019.97023>
- Jang, W. W., Byon, K. K., Baker III, T. A., & Tsuji, Y. (2021). Mediating Effect of Esports Content Live Streaming in the Relationship between Esports Recreational Gameplay and Esports Event Broadcast. *Sport, Business and Management: An International Journal*, 11, 89-108. <https://doi.org/10.1108/sbm-10-2019-0087>
- Jenny, S. E., Keiper, M. C., Taylor, B. J., Williams, D. P., Gawrysiak, J., Manning, R. D. et al. (2018). Esports Venues: A New Sport Business Opportunity. *Journal of Applied Sport Management*, 10, 34-49. <https://doi.org/10.18666/jasm-2018-v10-i1-8469>
- Krumer, A., & Lechner, M. (2017). First in First Win: Evidence on Schedule Effects in Round-Robin Tournaments in Mega-Events. *European Economic Review*, 100, 412-427. <https://doi.org/10.1016/j.eurocorev.2017.09.006>
- Lazear, E. P., & Rosen, S. (1981). Rank-Order Tournaments as Optimum Labor Contracts. *Journal of Political Economy*, 89, 841-864. <https://doi.org/10.1086/261010>
- Lenten, L. J. A. (2016). Mitigation of Perverse Incentives in Professional Sports Leagues

- with Reverse-Order Drafts. *Review of Industrial Organization*, 49, 25-41. <https://doi.org/10.1007/s11151-015-9494-8>
- Macey, J., Tyrväinen, V., Pirkkalainen, H., & Hamari, J. (2022). Does Esports Spectating Influence Game Consumption? *Behaviour & Information Technology*, 41, 181-197. <https://doi.org/10.1080/0144929x.2020.1797876>
- Meier, M., Maier, C., Mattke, J., & Weitzel, T. (2022). Esports: Explaining Willingness to Pay for Streaming Services. *Communications of the Association for Information Systems*, 50, 286-307. <https://doi.org/10.17705/1cais.05011>
- Moldovanu, B., & Sela, A. (2001). The Optimal Allocation of Prizes in Contests. *American Economic Review*, 91, 542-558. <https://doi.org/10.1257/aer.91.3.542>
- Newman, J. I., Xue, H., Watanabe, N. M., Yan, G., & McLeod, C. M. (2022). Gaming Gone Viral: An Analysis of the Emerging Esports Narrative Economy. *Communication & Sport*, 10, 241-270. <https://doi.org/10.1177/2167479520961036>
- Parshakov, P., & Zavertiaeva, M. (2018). Determinants of Performance in eSports: A Country-Level Analysis. *International Journal of Sport Finance*, 13, 34-51.
- Pizzo, A. D., Jones, G. J., Baker, B. J., Funk, D. C., & Kunkel, T. (2022). Sensemaking of Novelty: The Dynamic Nature of Integrating Esports within a Traditional Sport Organization. *Sport Management Review*, 25, 383-405. <https://doi.org/10.1080/14413523.2021.1935609>
- Price, J., Soebbing, B. P., Berri, D., & Humphreys, B. R. (2010). Tournament Incentives, League Policy, and NBA Team Performance Revisited. *Journal of Sports Economics*, 11, 117-135. <https://doi.org/10.1177/1527002510363103>
- Qian, T. Y., Wang, J. J., Zhang, J. J., & Hulland, J. (2022). Fulfilling the Basic Psychological Needs of Esports Fans: A Self-Determination Theory Approach. *Communication & Sport*, 10, 216-240. <https://doi.org/10.1177/2167479520943875>
- Qian, T. Y., Wang, J. J., Zhang, J. J., & Lu, L. Z. (2020a). It Is in the Game: Dimensions of Esports Online Spectator Motivation and Development of a Scale. *European Sport Management Quarterly*, 20, 458-479. <https://doi.org/10.1080/16184742.2019.1630464>
- Qian, T. Y., Zhang, J. J., Wang, J. J., & Hulland, J. (2020b). Beyond the Game: Dimensions of Esports Online Spectator Demand. *Communication & Sport*, 8, 825-851. <https://doi.org/10.1177/2167479519839436>
- Rosen, S. (1986). Prizes and Incentives in Elimination Tournaments. *The American Economic Review*, 76, 701-715.
- Sauer, P., Cseh, Á., & Lenzner, P. (2024). Improving Ranking Quality and Fairness in Swiss-System Chess Tournaments. *Journal of Quantitative Analysis in Sports*, 20, 127-146. <https://doi.org/10.1515/jqas-2022-0090>
- Shenkman, E., Coates, D., Chadov, A., & Parshakov, P. (2022). Team vs. Individual Tournament: An Organizer's Dilemma. *Journal of Economic Behavior & Organization*, 198, 476-492. <https://doi.org/10.1016/j.jebo.2022.04.012>
- Smith, A. C. T., & Skinner, J. (2022). Sport Management and COVID-19: Trends and Legacies. *European Sport Management Quarterly*, 22, 1-10. <https://doi.org/10.1080/16184742.2021.1993952>
- Soebbing, B. P., & Mason, D. S. (2009). Managing Legitimacy and Uncertainty in Professional Team Sport: The Nba's Draft Lottery. *Team Performance Management: An International Journal*, 15, 141-157. <https://doi.org/10.1108/13527590910964928>
- Soebbing, B. P., Humphreys, B. R., & Mason, D. S. (2013). Exploring Incentives to Lose in Professional Team Sports: Do Conference Games Matter? *International Journal of Sport Finance*, 8, 192-207.

- Sziklai, B. R., Biró, P., & Csató, L. (2022). The Efficacy of Tournament Designs. *Computers & Operations Research*, 144, Article 105821. <https://doi.org/10.1016/j.cor.2022.105821>
- Szymanski, S. (2003). The Economic Design of Sporting Contests. *Journal of Economic Literature*, 41, 1137-1187. <https://doi.org/10.1257/jel.41.4.1137>
- Taylor, B. A., & Trogdon, J. G. (2002). Losing to Win: Tournament Incentives in the National Basketball Association. *Journal of Labor Economics*, 20, 23-41. <https://doi.org/10.1086/323930>
- Watanabe, N. M., Xue, H., Newman, J. I., & Yan, G. (2021). The Attention Economy and Esports: An Econometric Analysis of Twitch Viewership. *Journal of Sport Management*, 36, 145-158. <https://doi.org/10.1123/jsm.2020-0383>
- Wong, D., & Meng-Lewis, Y. (2023). Esports: An Exploration of the Advancing Esports Landscape, Actors and Interorganisational Relationships. *Sport in Society*, 26, 943-969. <https://doi.org/10.1080/17430437.2022.2086458>
- Xiao, M. (2020). Factors Influencing Esports Viewership: An Approach Based on the Theory of Reasoned Action. *Communication & Sport*, 8, 92-122. <https://doi.org/10.1177/2167479518819482>