An Analysis of Goals Scored in the Maltese Football Premier League 2018-2019

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Abstract: Given that goal scoring is the ultimate performance objective in football, the present case study aimed at a thorough dissection of a census of goals scored during the BOV Premier League 2018/19 season in Malta. A quantitative methodology was used, incorporating a range of descriptive and inferential statistical techniques for the analysis of the large pool of data collected. From a total of 495 goals scored in the 182 matches played throughout season 2018/19, 491 goals were considered in this study. Video recordings were downloaded from InStat, and the relevant data operationalised according to pre-set criteria using notational analysis. The paper presents spatio-temporal descriptive statistics about the goal-scoring patterns and trends, as well as results from several post hoc hypothesis tests. Findings indicated that while a majority of the time the first team to score went on to win the match, this trend tapered off towards the end of the season, with the outcome of matches rendered increasingly unstable as the season progressed. The majority of goals resulted from possession play, followed closely by direct play. Most goals materialised in the second half of play, with the final 15-minute phase of the match, specifically, producing the highest proportion of goals overall. Through spatial analysis this study looks at the pitch location where goal actions started and ended, as well as the goal net location in which the goals were finally scored. The paper ultimately presents these empirical findings with a view to informing match analysts, coaches and other stakeholders wishing to generalise the patterns and trends identified, to substantive strategic considerations for the continuing enhancement of performance standards in local football.

Keywords: Football; goal scoring; match analysis; Malta Premier League

Introduction

According to the Malta Football Association (2019), football is objectively the most popular sport across the Maltese islands. In every competition, scoring is ultimately what matters the most, and can be regarded as the ultimate performance indicator of every team (Hughes & Churchill, 2005). The aim of this study was to analyse a complete census of the goals scored during the BOV Premier League 2018/19 season in Malta, with a view to identifying persistent patterns and trends in Maltese football. This season was the last to be played fully before the Covid-19 pandemic disruptions in local fixtures, since seasons 2019/20 and 2020/21 were discontinued. Given the lack of local research in this area, this paper aspires to make a contribution to the emerging foundations of empirical match analysis in local football with a detailed presentation of goal-scoring statistics. We present our findings with a view to informing both local practice, as well as the broader field of scholarly literature on match analysis in football.
Existing literature is appraised first, followed by a presentation of our main questions and hypotheses, as well as how these were addressed methodologically throughout the study. The findings are then presented in some detail, combined with data visualisations designed to assist tacticians and strategists in local football to derive intuitive understanding of their implications and prospective applications. In our conclusion we further discuss such applications of our findings in practice, ultimately with the aim of contributing to the broader enterprise of raising performance standards, and encouraging more research in local football.

The literature

Goal Rates and Mechanisms

Scoring goals is the ultimate objective of every football team, paramount for success in the sport (Hughes and Churchill 2005; Kubayi 2020). The identification of goal-scoring patterns and successful attacking strategies is arguably one of the most important endeavours in modern elite football (Pratas et al. 2018) were fully analysed. Studies that fitted all the inclusion criteria were organised according to the research approach adopted (static or dynamic, with such understanding providing potentially crucial information to football coaches seeking a competitive edge (Firdaus et al. 2015). In elite football, relatively few goals are actually scored, with more than 30% of games ending with just one goal or none (Anderson and Sally 2013). Anderson and Sally (2013) showed that across a decade of English Premier League football, the most common score line was a 1-1 draw, a result which occurred 11.63% of the time, just a whisker ahead of a 1-0, 2-1, and 2-0 home win, a goalless draw, and a 1-0 away win. They also stated that between 1993 and 2011, the average number of goals per game was 2.66 across England’s, Germany’s, Spain’s, Italy’s, and France’s top leagues. More recently, in season 2013/14, an average of 2.75 goals per game were reported in these same leagues (England’s Barclays Premier League, Spain’s La Liga, Germany’s Bundesliga, Italy’s Serie A, and France’s Ligue 1), while in South America, more specifically in the leagues of Argentina, Chile, and Brazil, there was an average of 2.4 goals scored per match. An analysis of all the FIFA World Cup tournament matches from 1930 to 2010 revealed an average of 2.9 goals per match, while the 2013 Confederations Cup, the 2013/14 UEFA Champions League, and the Euro 2012 produced an average of 2.1, 1.5, and 1.2 goals per game respectively (Njororai 2014). Furthermore, the Euro 2020 tournament produced an average of 2.78 goals per game, rising to 3.2 goals per game during the knockout stage, specifically, as opposed to 2.61 during the group stage (UEFA 2021).

Several studies have also investigated types and styles of play leading to goal scoring. Leite’s (2016) Euro 2012 analysis concluded that 53.95% of the goals resulted from organised attacks, 17.10% from counter-attacks, and 28.95% from set-plays. Mitrotasios and Armatas (2012) reported that 72.4% of the goals in the same tournament resulted from open play, mainly following positional play (60%). Set-plays accounted for the remaining 27.6% of goals, with corner-kicks (47.7%) and free-kicks (33.3%) having the highest conversion rates into goals. Set-plays also resulted in 25-30% of goals scored in the Italian and Spanish top leagues during the 2017-18 season (Papadopoulos et al. 2021), with a similar percentage also reported in the Turkish Super League across five consecutive seasons (Cerrah et al. 2016) corner, free kick and penalty. Quantifying the proportions of goals resulting from set-plays represents an enticing dimension of performance analysis when considering individual teams or entire tournaments. For instance, Kubayi (2020) found a 17% increase in goals resulting from set-pieces between the 2014 and 2018 editions of the World Cup, the latter of which saw 39% of the total goals resulting from set-plays.
Goal Temporality

With a temporal interest in goal scoring, researchers revealed a consensus that most goals tend to be scored in the second half of the match, and more specifically, in the final 15-minute period. Examining four major European Leagues (the English Premier League, French Football Ligue 1, Italian Serie A, and Spanish Football Liga) across three consecutive seasons, Alberti et al. (2013) high-intensity, intermittent exercise and evidence from previous studies has shown that players experience fatigue toward the end of a match. Some preliminary observations indicate that goal scoring increases over time during the game; however, these preliminary results were obtained analysing minor soccer leagues and/or using a limited amount of matches. The aim of this study was to examine the goal scoring patterns in four major European leagues (English Premier League, French Football Ligue 1, Italian Serie A and Spanish Football Liga concluded that, in all the leagues, the scoring rate was highest in the last fifteen minutes of the game. Similarly, from 558 goals analyzed in the Greek Super League, the highest proportion of goals (22.5%) was scored between the 76th and 90th minute (Armatas et al. 2009). Across eight consecutive seasons, a more recent study of the same league supported the claim that more goals are scored in this time period than any other (Firdaus et al. 2015). The relationship between goal-scoring and the last 15 minutes of the match persists across all the ten major European Leagues (Belgium, England, France, Germany, Italy, Portugal, Russia, Spain, Turkey, and Ukraine), whereby 22.8% of the 8,200 goals from 3,100 matches were scored in this period (Leite 2017).

When considering the influence of the first team scoring on the outcome of the match result, an analysis of the Euro 2012 concluded that in 75.9% of the cases, the teams that scored first won the respective match (Mitrotasios and Armatas 2012). In their work on the Greek Super League during the 2007-2008 season, Armatas et al. (2009) reported a similar result (74.9%), and showed that there was a significant difference between scoring first in wins as opposed to draws and losses. In top European competitions, it has also been observed that home teams scored first in 57.8% of the matches and went on obtain the 84.85% of the points won in these games (Lago-Peñas et al. 2016).

Spatial Analysis of Goals Scored

Research exploring the position on the pitch from which goals are scored takes on an increasingly tactical dimension and represents an area of particular interest to practitioners and theorists of the game. By conceptualising the pitch in a zonal configuration, the initiation zone of attack preceding the goal can be studied. In this sense, Mitrotasios and Armatas (2012) found that 90% of the goals in the Euro 2012 were scored inside the penalty area, with 42% of these originating in the area between the penalty spot and the goal zone. Mitrotasios and Armatas split the pitch lengthwise into two halves; attacking and defending, as well as width wise in three zones; left, central and right. They found that 56.6% of goals started from the attacking half, while the other 43.4% began in the defending half. The central zone contained the initiation of most attacks leading to goals (52.6%). No differences were found between the left and right zone, where each side served as the attacking origin of 23.7% of the tournament goals.

Domestic leagues revealed similar trends. Papadopoulos et al. (2021) reported that more than 80% of the goals scored in the Italian Serie A and Spanish La Liga originated inside the penalty area. To establish the initiating zone of attack, they split the pitch into three thirds: defending, central, and attacking zones. Spanish teams tended to start their scoring attacks from the defending and central zones more frequently than Italian teams, whose scoring attacks started mainly from the attacking zone. The Ethiopia National League also showed similar patterns, with 56.6% of goal-scoring actions starting from the attacking half,
and over 90% of the goals being scored inside the penalty area, specifically between the penalty spot and the goal zone (Chekol 2016; Mitrotasios and Armatas, 2012). Mitrotasios and Armatas (2012) also conceptualised goal post microspaces where shots ended for every goal scored. As expected, the least number of goals were scored in the top corners and the central middle space of the goal, while the biggest number were on the sides of the goal, mostly in the lower corners (figure 1).

![Figure 1: Microspaces where the shots ended](image)

**Questions and Hypotheses**

To date, published literature concerning Maltese Premier League football has been limited to a summary report from *InStat* (Malta Football Association 2019). Given known trends concerning rates, mechanisms, temporality, and locality of goal-scoring factors in foreign settings reported in the literature, therefore, the question naturally arose—from a Maltese football perspective—about how the local game compares at its highest competitive level. Over and above a commitment to academic scholarship on match analysis, however, the study was equally motivated by a desire to present actionable findings for practical application in the field by professionals and stakeholders in Maltese football. Local knowledge of the game, in this sense, led to the formulation of additional questions and hypotheses concerning goal-scoring factors. The analysis was therefore ultimately designed to address a range of questions about the Maltese Premier League 2018-19 season, first, with regard to goal-scoring rates and pitch/goal locality, as follows:

1. What was the average scoring rate per match?
2. What proportions of goals resulted from possession play, direct play, and set-plays?
3. From which pitch zone did goal-scoring actions predominantly originate?
4. In which goal zone did the goal-scoring actions predominantly terminate?

Given that Premier League matches in Malta are played in four main stadia, and the home-away system cited in the international literature simply does not apply in the study context, it was also posited:

5. What systematic differences exist, if any, between goal-scoring factors across the four main stadia?

In addressing the above questions, additional hypothesis tests were also carried out in post hoc fashion. Regarding the foregoing scholarship on goal-scoring temporality, however, it was hypothesised from the outset that:

1. $(H_1)$ A statistically significant majority of goals were scored in the second half of the match.
2. $(H_2)$ The first team to score generally tended to go on and win the match.
Below, the main questions and hypotheses are further elaborated, together with an explanation of how the data were operationalised to address them, as well as additional post hoc data-driven enquiries that duly emerged throughout the course of the analysis.

Methods

This case study was aimed at analysing a close to complete census of goals scored during the BOV Premier League 2018/19 season. This was the last full season in Maltese football to be played prior to the Covid-19 disruptions. A quantitative approach was used, incorporating a range of descriptive and inferential statistical techniques. A total of 182 matches were played between August 2018 and April 2019, among 14 teams, resulting in 495 goals. There were 11 matches yielding no goals, and therefore these did not feature in the dataset. All but four of the total goals scored were included in the final analysis, comprising a total sample size of 491. The missing goals were those scored in the 1-1 match between Ħamrun Spartans and Gżira United, played on the 18th of January 2019, and the 2-0 match between Ħamrun Spartans and Pietà Hotspurs, played on the 20th of April, 2019.

Post-game video analysis (Ballesta et al. 2015: 29) was used, given that video technology provided a “permanent record” of every goal, and enabled multiple viewings of each action for the sake of accurate data collection (Carling et al. 2007). As in Kerr Cumbo (2021) there are no studies that look at the relationship the end of offensive phase has with other components of the attacking phase. This diachronic, idiographic and multidimensional study moves away from analysis through the “naked eye” by applying lag-sequential analysis. All Manchester City matches from the group stage of the UEFA Champions League 2019-2020 were downloaded from InStat. SoccerEye observational instrument was used to record all attacking behaviours while Sequential Data Interchange Standard-Generalized Sequential Queirer (SDIS-GSEQ and Kubayi (2020), video recordings were downloaded from InStat (an online platform performing analysis for professional leagues, clubs, players and media in football and other sports), and the relevant data were operationalised according to preset criteria using notational analysis (Carling et al. 2007). Figures 2 and 3 show how the pitch zones and goal zones were defined.

![Pitch zones](image-url)
Figure 3: Goal zones (Mitrotasios and Armatas 2012)

Contextual variables (Table 1), partially informed by Rodenas et al. (2019) and performance indicators (Table 2), based on work by Mitrotasios and Armatas (2012) and Wang and Qin (2020), constituted the main variables of interest, and were thus recorded for every goal in the sample. Furthermore, the operational definitions for the styles of play are presented in Table 3.

### Contextual Variables

<table>
<thead>
<tr>
<th>Match Number</th>
<th>Stadium</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date and Time of Match</td>
<td>Temperature Range</td>
</tr>
<tr>
<td>Team Scoring</td>
<td>Result before goal noted</td>
</tr>
<tr>
<td>Team Suffering the Goal</td>
<td>Result obtained by that goal</td>
</tr>
</tbody>
</table>

Table 1: Contextual variables collected

<table>
<thead>
<tr>
<th>Performance Indicators</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time</td>
</tr>
<tr>
<td>Half Time</td>
</tr>
<tr>
<td>Type of goal</td>
</tr>
<tr>
<td>Style of Play</td>
</tr>
<tr>
<td>Body Part Scored with</td>
</tr>
<tr>
<td>Initiation Zone of the Attack</td>
</tr>
<tr>
<td>Scoring Area</td>
</tr>
<tr>
<td>Goal Zone</td>
</tr>
</tbody>
</table>

Table 2: Performance indicators
Table 3: Style of play - operational definitions

<table>
<thead>
<tr>
<th>Style of Play</th>
<th>Operational Definitions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Possession</td>
<td>“The use of short passes and a high number of passes in an attacking sequence” (Navarro Fernández 2015: 16). For the purpose of this study, an action was considered as possession when it had 5 consecutive passes or more, as suggested by Tenga and Larsen (2003)</td>
</tr>
<tr>
<td>Counter Attack</td>
<td>“The regain of the ball by a defending player close to their goal, followed immediately by a rapid attacking transition towards the opposition's goal” (Navarro Fernández 2015:16). For the purpose of this study, an attack was considered by the authors as a counter attack when the team went to goal in less than 3 passes</td>
</tr>
<tr>
<td>Direct Play</td>
<td>“A low number of passes in the attacking sequence and direct forward passes were the variables most commonly employed to describe the direct style of play” (Navarro Fernández 2015:16)</td>
</tr>
</tbody>
</table>

The data were measured at the nominal level to denote goal counts, dummy coded, and manually collated in LibreOffice Calc (v.6.1.6.3) open-source spreadsheet software. They were finally imported to GNU PSPP (v.1.0.1) open-source statistical software for analysis. Among the statistical methods and procedures used to describe and test the data were frequency distributions, contingency tables, binary logistic regression, Chi square tests of independence, and Spearman rank correlation. Binary logistic regression was used for testing both $H_1$ and $H_2$. For the additional post hoc testing, the relevant test statistic is indicated in parentheses along with the findings in the following section, namely the Chi square test statistic ($\chi^2$) and Spearman's correlation coefficient ($r_s$), together with their associated $p$ values for denoting statistical significance. In the case of interacting variables the Chi square test statistic reported infers independence, while in the case of single variables it infers goodness of fit. For goodness of fit, $p$ values are presented with respect to the null hypothesis of equally distributed probability values. A confidence level of 95% was used for inferring statistical significance in this study ($\chi=.05$).

Results and Discussion

Goal Rates

Excluding goalless draws, the mean number of goals scored per match in our dataset, which included only matches wherein goals were actually scored, was 2.89 ($Median=3$, $Mode=2$). Including the goalless draws, however, the mean across the entire season was 2.72. These results are comparable to the average goals cited in studies of foreign leagues and international tournaments like the World Cup and European Championships (Anderson & Sally, 2013; Njororai, 2014). Figure 4 shows that the most frequent final match result was 2-0 ($n=33$) followed jointly by 1-0 and 2-1 ($n=29$). We hypothesised that the number of goals scored per match might vary according to the level of the teams playing (as defined by their end-of-season league table rank). There was, however, no correlation between the number of goals and the average rank of the teams playing ($r_s=.7$, $p=.28$).
Figure 4: Final match results

Goal Mechanisms: Types of Play

As Figure 5 and Table 4 indicate, the majority of goals (n=149) were scored from possession play, closely followed by direct play (n=133). There were a total of 179 (36%) goals scored from set-plays; these comprised 58, 49, 49, 23, and 19 goals scored from corners, free kicks, penalties, throw-ins, and counter attacks, respectively. The proportion of set-plays in the local league was relatively high when compared with findings presented elsewhere in the literature. These generally tended towards less than a third of total goals resulting from set-plays, with the sole exception of the 2018 World Cup, where 39% of goals scored from set-plays was considered particularly high (Cerrah et al. 2016; Leite 2016; Mitrotasios and Armatas 2012; Papadopoulos et al. 2021). Analyses of other leagues revealed a predominance of direct play in the English Premier League, and counter-attacks in the German Bundesliga, with crossing also constituting a significant goal-producing action there (Mitrotasios et al. 2019). The Italian Serie A was characterised by pre-eminent counter-attacks and direct attacks. Perhaps highly influenced by the possession style of play in this sense, the only league to match our finding of predominant possession play was the Spanish La Liga (Mitrotasios et al. 2019; Sarmento et al. 2013). Contrary to what one might assume, as indeed we duly hypothesised post hoc, top-tier teams were no more or less likely to score from possession play ($\chi^2=1.17, p=.28$).

Figure 5: Action leading to goal
### Table 4: Action leading to goal per team

**Goal Localities: Pitch Zones**

Figures 6 through 9 clearly illustrate the frequency of goals resulting from actions initiated and concluded in specific pitch zones. Zone 1M was the most common location for initiating successful goal-producing actions \((n=124)\), with the goal action finishing mostly in Zone 2M \((n=220)\). The latter finding supports that of Papadopoulos et al. (2021), who showed that over 80% of the goals scored in the Italian Serie A and Spanish La Liga came from within the penalty area. Furthermore, this compares well to other findings indicating that the majority of goals are scored specifically between the penalty spot and the goal zone (Chekol 2016; Mitrotasios and Armatas 2012). The fact that most goals are initiated in Zone 1M, typically referred to as Zone 14 in contemporary literature (Rees et al. 2011) could be because teams are now playing more on the positive transition, by a better predisposition in preventing marking when the team is attacking. It is important to note that actions ending Zone 0 in Figure 8 are shown in orange in Figure 9. These are direct goals, namely penalties (49) and freekicks (12).
An Analysis of Goals Scored in the Maltese Football Premier League 2018-2019

**Figure 6:** Action starting zone

**Figure 7:** Action starting zone
Figure 8: Action ending zone

Figure 9: Action ending zone
Goal Localities: Goal Zones

Figure 10 shows that the majority of goals \((n=282)\) were scored in the lower part of the net in terms of height, and on the left of the net (right of the goalkeeper) in terms of side \((n=197)\). Goals scored on the right \((n=176)\) and in the middle \((n=118)\) are also shown.

When organised according to height, there was a trend towards goals scored in the lowest level of the goal \((\chi^2=131.81, p<.001)\). When considering how types of play related to the height of the net where the ball was scored, it became evident through additional post hoc testing, that penalties did not differ significantly from this trend of low placement \((\chi^2=0.36, p=.84)\), nor did direct play \((\chi^2=3.71, p=.16)\), or counterattack \((\chi^2=0.29, p=.87)\). Possession play, however, did differ significantly from the trend \((\chi^2=6.73, p=.04)\), in that fewer goals were scored through possession play at the middle level of the net (i.e. possession play is likely to result in either a high or a low level shot). Although not statistically significant, there appeared to be somewhat of an effect on the height for goals scored from corners \((\chi^2=5.49, p=.06)\). As logically expected for the nature of these set pieces, according to the additional logistic regression modelling we found that corners were 16% less likely to result in a low goal \((\text{beta}=-0.65, \chi^2=5.46, p<.02)\), and free kicks were 20% less likely to result in a low goal \((\text{beta}=-0.84, \chi^2=10.86, p<.01)\).

Given that we recorded which foot was used to make each scoring shot, we were also able to further hypothesise about trends that would enable one to predict where goals were scored in the net, depending on where the shot originated from and which foot was used. We therefore ran a logistic regression on goal zones, with pitch zones and foot used as the explanatory variables. These, however, did not explain a significant amount of the variation in the logged odds of the dependent variable \((\text{Nagelkerke } R^2=0.04)\). Side of pitch, foot used, and the interaction between both these two terms were not significant. Similarly, shots from the middle did not reveal significant trends either with regard to the side of the goal in which goals were scored \((\text{Nagelkerke } R^2=0.01)\). In other words, whether the shot is coming from the left (3L), middle (3M, 2M), or right (3R) of the goal, and is executed with the left or the right foot, does not make any difference on the side of the net were the ball is ultimately placed in a successful goal-scoring action. With regard to use of the right or left foot, or the head, in general, Figure 11 shows the precise breakdown by body part. In general, regardless of pitch zones, there was no trend according to which foot was used to score goals in the right of left sides of the net \((\chi^2=1.22, p=.27)\). In other words, it cannot be predicted which side of the goal will be targeted according to which foot was used to make the shot.
Effects of Stadia

In Question 5, given that the Maltese Premier League is not organised according to home and away fixtures as it is in foreign leagues, and given that all games are played in just four stadia, we wanted to see if these venues resulted in any systematic differences in goal-scoring characteristics. Given the number of matches played in each stadium, and the distribution of goals scored (see Figure 12; Table 5), there was no significant difference in the number of goals scored in each venue ($\chi^2=4.90$, $p=.18$). More specifically, we tested to see if the types of play leading to goals varied across the four venues. There was no statistically significant difference whatsoever in the number of goals scored from possession play across the stadia ($\chi^2=0.73$, $p=.87$). The effect neared significance for free kicks ($\chi^2=7.69$, $p=.05$), with apparently less free kicks scored at Victor Tedesco Stadium (Hamrun) (Victor Tedesco Stadium (Ħamrun); $\chi^2=6.39$, $p=.01$). Furthermore, there was a significant effect of the stadium in relation to goals scored from counter-attacks ($\chi^2=8.58$, $p=.04$). This effect was most notable at the Victor Tedesco Stadium (Victor Tedesco Stadium (Ħamrun); $\chi^2=6.61$, $p=.01$), where no goals whatsoever were scored by counters, as opposed to the normal rate of 3.8% across stadia.
Figure 12: Results by the end of the match

Table 5: Goals: Matches played in every stadium

<table>
<thead>
<tr>
<th>Stadium</th>
<th>Matches Played</th>
<th>Goals Scored</th>
<th>Goals:Matches</th>
</tr>
</thead>
<tbody>
<tr>
<td>National Stadium (Ta’ Qali)</td>
<td>74</td>
<td>188</td>
<td>188:74 (2.54 goals per game)</td>
</tr>
<tr>
<td>Victor Tedesco Stadium (Hamrun)</td>
<td>40</td>
<td>123</td>
<td>123:40 (3.075 goals per game)</td>
</tr>
<tr>
<td>Centenary Stadium (Ta’ Qali)</td>
<td>36</td>
<td>90</td>
<td>90:36 (2.50 goals per game)</td>
</tr>
<tr>
<td>Hibernians Stadium (Corradino)</td>
<td>32</td>
<td>94</td>
<td>94:32 (2.93 goals per game)</td>
</tr>
<tr>
<td></td>
<td>182</td>
<td>495</td>
<td>2.71 goals per game</td>
</tr>
</tbody>
</table>

**Goal Temporality**

We hypothesised ($H_1$) that, as reported elsewhere in the literature, the majority of goals would be scored in the second half of the match. In this regard, a statistically significant ($\chi^2=16.87, p<.001$) majority of 291 goals were scored during the second half, as opposed to 200 in the first. Similarly to other literature (Alberti et al. 2013; Armatas et al. 2009; Firdaus et al. 2015; Leite 2017), more specifically, the highest proportion (26%) of goals ($n=125$) were scored in the last 15 minutes of the match ($\chi^2=32.88, p<.001$). The period that
produced the next highest frequency of goals was the first 15 minutes of the second half (18%, \( n = 86 \)). A visual representation of the temporal distributions are shown in Figure 13.

![Figure 13: Goals per Period of the Game](image)

This trend held, regardless of the stage of the season (\( \chi^2 = 1.07, p = .96 \)) or the standard of the teams playing (\( \chi^2 = 2.35, p = .80 \)). We further hypothesised, post hoc, that the period might also influence the type of play goals resulted from. We found no significant influence, however, of period on the likelihood of goals being scored from possession play (\( \chi^2 = 5.92, p = .31 \)), direct play (\( \chi^2 = 8.38, p = .14 \)), counter-attack (\( \chi^2 = 5.47, p = .36 \)), corners (\( \chi^2 = 9.63, p = 0.9 \)), free kicks (\( \chi^2 = 0.88, p = .97 \)), throw-ins (\( \chi^2 = 1.58, p = .90 \)), or penalties (\( \chi^2 = 5.43, p = .37 \)).

With regard to \( H_2 \), where we hypothesise that the first team to score generally tended to go on and win the match, and further to the findings of Mitrotasios and Armatas (2012) and Armatas et al. (2009), we also found that for approximately 74% of the time, the team who scored first, did indeed go on to win the match (\( \chi^2 = 38.37, p < .001 \)). This coincides almost precisely with the probabilities reported elsewhere, namely, between 74% and 76%. It was interesting to note, however, that according to further post hoc analysis, this trend no longer held for games played in January or later (\( \chi^2 = 7.03, p = .006 \)). According to binary logistic modelling, the probability that the first to score would win the match dropped by 18%, from approximately 82% pre-January, to 65% post-January (beta=-0.95, p<.01). Furthermore, it became even less likely that the first team to score would win the game, when both teams occupied the top four positions of the league table (\( \chi^2 = 4.51, p = .03 \)).

**Conclusion**

**Limitations and Future Research**

This was the first local study, to our knowledge, to provide a detailed overview of goals scored in the Maltese Premier League. More research is needed to gain a more in-depth understand of the nuances of Maltese football and goal-scoring patterns and trends. The 2018/19 season was the latest season available for study, given the ensuing Covid-19 disruptions. In this sense, inclusion of additional seasons in the analysis would help further to investigate significant trends. Longer studies might address this by taking multiple
seasons into account. The same methodology we used can also be applied in different local leagues, including the women’s league, to identify deeper and more systemic trends. Finally, the study assumed a somewhat superficial perspective of systems of play and other more complex tactical considerations. Combining the technical, tactical, and physical data together with other contextual factors might be considered for future studies.

**Conclusions and Practical Recommendations**

According to the main findings of this study, the rate of goals scored per match does not differ in the Maltese Premier League to those reported in the literature elsewhere. This may be an important indicator that the Premier League in Malta is in actual fact influenced by the main leagues in mainland Europe. The standard of teams playing, in our study, did not have any influence on the number of goals scored. As a unique distinguishing feature of local play, we report that most goals \((n=149)\) in the Maltese Premier League resulted from possession play (unless all set pieces are added together; 179), as opposed to other types of play (such as direct play or counter attacks), as has been reported in other leagues. Still, there were 144 goals coming from direct play, which is an equally important number of goals.

These goal-producing types of play reported in our findings could have valuable applications in the tactical approach for match and training preparation among local coaches. Considering the style of play leading to goals, one would clearly understand the importance for training to focus on individual technical and tactical work, both in possession and non-possession phases. It equally highlights the importance to work on preventive marking, that prepares the team to win the ball immediately as soon as the ball is lost. Given that these are fundamentals for such a level of football, we suggest that this work starts in earnest with players at a younger age.

When technically and tactically prepared, players will be equipped to play possession, but equally opt for direct play when the game demands so. Physical attributes, specifically speed and reaction, are critical.

As already discussed, when counted together, goals from set-plays (179) were relatively frequent when compared to those reported in other leagues. That also highlights the importance for coaches in Malta to put an important focus on defending and attacking set pieces. In practical terms, one would critically question the reason behind having the majority of the training sessions focusing on in-play attacking and defending, and much less on set pieces. This reality can also inform both coaching education and coaching employment, as the need for specialised coaches, as we can see in international football, can become a necessity.

In terms of pitch zones where goal-scoring actions were initiated and concluded, there were no notable differences in the local game to those reported elsewhere, suggesting no drastic alterations in strategy from the norm at least in this respect, or perhaps underlining the influence of the nature of the game on the same findings. More detailed appraisal of the findings we present serve as a reminder for coaches to emphasise key tactical cues, for instance, avoiding leaving excessive space in Zone 1M, typically referred to as Zone 14 in contemporary literature (Rees et al. 2011) where goal-producing actions are typically initiated. While this informs coaching to focus further on how to defend this zone, this also highlights how important it is to be able to attack with a good balance, and with good preventive marking to be able to win the ball immediately and high up the pitch (in Zone 1M). That would put the opponents in a vulnerable position when being attacked centrally from a second transition. If opponents are found to be strong centrally, coaches can look to exploit alternative areas.
When considering the lack of goals from zone 1M one would need to question whether this is a lack of shot accuracy from outside the box, or whether it is a question of players not feeling confident in taking shots from outside the box perhaps due to lack of the necessary psychological and physiological capabilities, as well as—and equally so—technical abilities. Furthermore one would also need to reflect on whether this is an expected outcome due to the fact that the majority of teams do not train in full pitches, hence they have limited space for shooting during practice. These questions may pose opportunities for further research.

In line with past literature, Zone 3M was found to be the zone where the ball is most often last touched before entering goal. That makes it very clear that while Zone 1M is very important to be defended well, teams need to focus thoroughly on how to apply principles of zone and/or man marking in the closest zone to goal. On the contrary, in attack, it could be fruitful to find ways how to penetrate this zone and get strikers in a favourable position to score.

An important finding for goalkeepers’ coaches is the fact that in this study we found that most goals were scored in the lower part of the net, with the only exceptions being corners and free-kicks. Possession play was characterised instead by a lower propensity for goals scored in the middle level, tending instead towards the extremes of either high or low placement. Our findings indicate that use of either the left or right foot cannot be used to predict which side of the net the ball will be placed. Goalkeeping strategies based on foot use, therefore, appear to be ineffective. With the knowledge that 57% of the goals scored were scored in the bottom lower part of the goal, one can practically apply these findings to goalkeepers’ training to be more game specific. This understanding is also very relevant for players when working on shooting and finishing.

As shown in other studies, the first team to score generally tended to go on to win the match, however, this trend diminished as the season progressed, resulting in more open-ended and uncertain match outcomes in January and beyond. Furthermore, as found elsewhere, most goals were scored in the second half, more specifically in the final 15 minutes of the match. This indicates the important decisions coaches need to take in the last parts of the game, including but not limited to substitutions and game strategy. From a physical and a psychological point of view, players and coaches alike need to be mentally prepared for games that at the end of the day are decided in their last 15 minutes, hence pressure is higher on all those involved. Finally, it is important for training sessions to maintain intensity and mental concentration, even in the last parts of the session.

These clearer demands of the game will also assist in the recruitment process of foreign players during the scouting process. From an infrastructural point of view, these findings also have an impetus on club administrators’ decisions for providing their teams with full-size pitches to train on.
References


