GCSE MATHS STATISTICS COURSEWORK

'Is a Premiership team's performance affected by the number of foreigners in the team'?

By Jack Mariner

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Introduction-

I am going to carry out an investigation into the amount of foreign players in the F.A Barclaycard Premiership.

I shall look at the 20 Premiership clubs and research about their players and performances in the last two seasons (including this season 01/02). So I will be looking at seasons 2000 to 2001 and 2001 to 2002.

After collecting and plotting the data on graphs and in tables, I will then analyse it to establish the bearing that foreigners do actually have on the teams' performances.

The second part of the investigation is to establish the trend of the amount of foreign players in Premiership teams. To do this I will compare the amounts of foreigners in season01/01 and season 01/02 and then analyse the data via Spearman's Rank Correlation.

I have chosen to investigate this topic because of my interest in football. I wanted to investigate something that I would enjoy doing and this appeared to be most appropriate. Another reason for choosing a football related piece was because the data could be easily attained from various sources.

I will refer to the seasons as 2000/2001 and 2001/2002 because these are the years that the seasons start and end in. This season, for example, started in august 2001 and finishes in May 2002. thus it is referred to as season 2001/2002.

Aim -

The aim of this investigation is to establish the relationship between the amount of foreign players in a team and the position that the team occupies in the league.

My criterion for a 'foreign' player is one with origins outside the United Kingdom (UK) and Republic Of Ireland (Rep.Ire). I have named the players with these origins as 'FRGN'. Players with UK or Rep.Ire origins have been named UK/Rep.ire.

Hypotheses -

Here are my hypotheses for the investigation:

1. I am expecting that the higher ranked clubs will have the most amounts of foreign players (foreigners) in the whole league.
2. The teams in the middle of the table, positioned between 7th and 13th place, to generally have a low number of foreigners in their starting line-up.
3. Towards the bottom half of the table, clubs will have an increased number of foreigners in their side.
4. The amount of foreign players in a team will be more this season then it was in the last season.

1. I am anticipating that the bigger and higher ranked teams will generally have the highest amounts of 'foreigners' in their team because they have the most money and fame and are more likely to attract players from other parts of the world. I would expect half of these teams to be foreign players.

2. The teams positioned in the middle of the Premier league will generally have low amounts of foreign players. This is because they do not have as much money to buy good foreign players and are not as well known. Thus, they probably wouldn't be as attractive an option as the bigger clubs to the foreign players. Also these teams wouldn't really opt for not so good foreign players as they are trying to gain places buy playing better football, which can't be done with worse players. I think that they are more likely to make their own players by bringing youngsters into the team. These youngsters would've been with the team for a while and are probably from that place. Therefore these teams are likely to have fewer amounts of foreign players.

3. I predict that the lower ranked teams (in the bottom 5), will generally have an increased number of foreign players because they will 'panic buy'. By this I mean that in effort to stay in the premiership, they will buy players, sometimes-foreign players. This will mean that the amount of foreign players in their team will increase.

4. I expect that the amount of foreigners in a team will be higher this season for the majority of the teams. This is because players are getting better around the world; therefore teams are more likely to buy players from abroad.

Attaining the data -

To attain the data needed, research will have to be obtained. For doing research I will use books, the Internet and my own knowledge. Here is the list of information needed and the sources that I shall obtain them from:

- Names of all the teams that were present in the last two seasons (including this season (2001/2002)).
- League positions for all Premiership teams that were present in the 2000/2001 and 2001/2002 seasons.
- Starting line-ups for all of the teams, so as to establish the amount of foreigners present.
- Nationality of every player so as to establish whether or not the player is foreign or not.

To attain this data the following sources will be used:

- The 'News of the World Football Annual 2002' edited by Stuart Barnes. This contains information about players and teams. This is an accurate source of information and data can be easily extracted from and so finding the relevant information will be made easy.
- Newspapers. Past and present newspapers will be used to establish league positions. To ensure that these are accurate, separate newspapers will be compared. This way incorrect data will be spotted and will therefore not be included.

All the data attained immediately from the above sources will be secondary data. I will then produce my own data from this, which will be primary data. The primary data will be produced by interpreting the secondary data into primary data.

All of the data attained will be relevant because it will all be used in this investigation to find out various things.

Advantage of collecting **secondary** data

- The data is extremely easy to find
- There is a large quantity of data

Disadvantage of collecting **secondary** data

- The accuracy of the data is not known. This could lead not unfair and biased results.
- The data may not always be what I require

Advantage of collecting **primary** data

- I can collect that data that I want
- I know the accuracy of the results
- I know have I have collected the data

Disadvantage of collecting **primary** data

- It may take me a long time

Strategies

Starting line-ups- I have chosen to do this investigation using the teams starting eleven players because I think this is the most appropriate method. I think this because each team has a different amount of players in their squad, but every team has eleven players in their starting line-up. This way is easiest and most of all it is the fairest method.
The eleven players that I have chosen to be in my starting line-ups are players that played the most games for the team. This is the fairest way because the players represent the teams. If I were to do the teams best eleven, regardless of the amount of matches a player has played, it would give a fair representation of the club when I come to analyse the data.

Positions-the positions of the teams that have chosen to take are the positions at the end of season 00/01 and the position of the team on the 18th of March 2002. I have chosen these dates because I feel they will give me very conclusive results. The amount of foreign players in a team is certainly increasing so to attain data with high amounts of foreigners would mean to choose dates that are as present as possible.

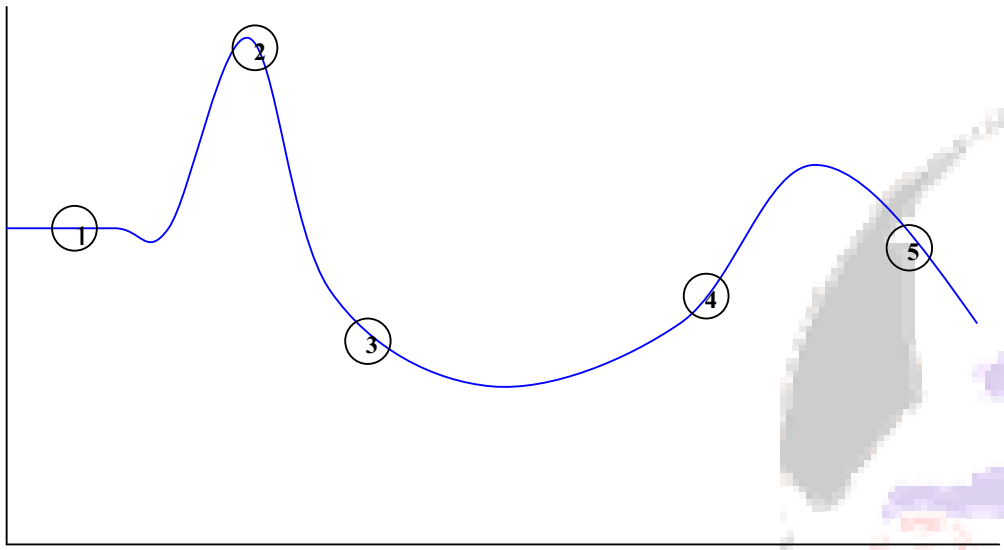
Analysing the data-

Analysing Graphs A and B

These graphs compare the amount of foreigners per team and the position that the team occupied in the form of scatter graphs.

From these graphs I have established I certain trend in the tendency that I team imports foreign players into their team. Both graphs start off to be fairly high at a mean average value of about 5 or 6 foreign players per team. These clubs are in the top 5 in the premiership. After this, in both cases, the result rises immensely. This is due to Chelsea football club. This particular team has an amazing 9/11 foreign players in its starting line-up (of 11 players). Because of this the graphs look totally different to what I would've expected them to be like. After this 'freak' result, the other results decrease gradually, before rising towards the end, finishing with another drop.

Here is my interpretation of the graphs.



The graph above just summarises the line graph comparing the amount of foreigners in each team. I have done this so that I can explain the graph with more ease.

Explanation of these results

Well the reasons for the results are as follows:

1. Firstly, the big clubs, like Manchester United and Arsenal, have more money to buy foreign stars, and tend to do so. This is why the graphs start off fairly high.
2. The sudden change in results, at Chelsea, is because they have so many foreign players in their team. This matter can't really be explained, they've just got more foreign players than the other teams.
3. After the sudden rise at Chelsea, there is a sudden drop at spurs ('what goes up, must come down'). Hereafter the teams tend to have less foreign players. This is because they are usually happy at the stage that they are at already in the league, thus they don't feel the need for more foreigners. They will rely more on their
4. younger players that they have trained themselves.
   Towards the bottom end of the table, the amount of foreign players starts to increase. A reason for this is because, in effort to avoid relegation the next season, clubs will 'panic buy', as a last resort. This will usually bring in quite a few unheard of foreigners.
5. In both occasions, for season's 00/01 and 01/02, the number of foreigners drops right at the end. I think that this is just coincidence personally. These two clubs probably don't have much money to import new players, and so bring in their own young players to try and give more energy to their side. The in-experience though of these players proves fatal and the club still get relegated.

Analysing Graph C

This graph compares the trend lines, which were attained from Graphs A and B.

I have included this graph because it shows how the amount of foreigners in a team for season 00/01 compares with the amount of foreigners in a team for season 01/02. The black line represents season 01/02 and the red line represents season 00/01. Clearly the black line is higher then the red line. This shows that this season, more foreign players have been present than they were last season.

Analysing Graph D

This is a line graph, which compares the amount of foreigners in each team, against the position of the team in the league.

All of the data from both seasons has been put onto the graph. The red line representing season 00/01 and the black line representing this season 01/02. From this graph you can establish how similar the sets of data are. The shapes of the lines appear as though they are following each ot her. This immediately suggests that there is a relationship between 'foreigners' and 'position' for this to happen. Again this supports my theory of how the foreigners are attracted to the teams, etc. Look at the Explanation of the results', to find out mo re on this theory.

Analysing Graphs E and F

These graphs show the results in a different way. Only 17 teams have been included in the graph. This is due to the relegation and promotion system.

I think that the chosen graphs are very effective in the way that the display the data. The two graphs were chosen to show the data in different ways but with the same effectiveness. I think this has been achieved.

The radar graph chooses to display the data by comparing the areas of the shapes. The two shapes represent the two seasons. This is very effective as it clearly shows that the blue shape, which represents Season 2001/2002, is bigger (has a larger area) then the green shape, which represents Season 2000/2001. This means that the amount of foreigners has increased from last season to this season.

The hand-drawn graph was drawn because it shows the data in a different way. Firstly, it is immediately clear that the red line, in this case representing this season (2001/2002), is generally higher then the bla ck line, representing last season (2000/2001). This shows that in this season, teams have more foreigners than they did last season. Secondly the graph was added because it displays the data in a way so it is easy to compare the two sets of data. By this I mean that it is easy to compare a teams data for one season with the other season. From this we can acknowledge that not only does the average teams amount of foreigners increase but also we can establish how many teams had an increase in foreigners this season. As you can see out of 17 teams; 13 teams had an

increase in the amount of foreign players in their starting line-ups, 1 team had the same amount, and 3 teams had less foreigners then they had in the previous season.

Analysing the results obtained by using Spearman's rank Correlation

From the results of this, it is clear that there isn't a strong correlation between the amount of foreign players in a team and their position in the league. For Season 2000/2001, the results show that the correlation is 0.3 (to 1 decimal place). This means that it has a weak positive correlation, so there isn't much of a bond between foreigner and position. For Season 2001/2002, the results also showed that the correlation was 0.3 (to 1 decimal place). Again, just like the previous season, this means that it has a weak positive correlation. Therefore, in both cases, a can safely say that the amount of foreigners that is a teams starting line-up, has no bearing on the position that the team occupies. Or can I? I beg to differ.

Evaluation-

I think that on the whole this investigation was carried out and achieved successfully. The plan was clear and was easy to carry out, which in turn helped to provide high quality and conclusive results.

I think that the investigation could've been fair though because of the fact that the results that I included were from the current season (01/02). This season hasn't finished yet and so the results are not very fair. If I had compared results from seasons that had finished I think that slightly different results may have been attained.

If I were to do this piece of coursework again, I would compare teams from around the world or include lower division teams as well. This would give more data to analyse and the results would be interesting. In this case my hypotheses were all correct, thus the results were not that interesting.

Another thing that I would do to improve this piece of coursework is to compare data from more then two seasons. This would produce fairer results and perhaps a totally different conclusion. I might compare 5 continuous seasons. Although time consuming it is the best way of investigating this matter, fairly

Using Spearman's rank correlation seemed to be very effective initially, but really it showed very little. It basically showed that the relationship between the position in the league and the amount of foreigners in a team was very weak. In both cases the data has a weak positive correlation. This means that there wasn't really a relationship between the amount of foreigners in a team and the position that it occupied in the league. This however is not the case. There was infact a strong relationship between these two things, as shown in my 'Explanation of the results'.

Conclusion

I conclude this investigation by stating that the amount of foreigners in a team's starting line up does have a bearing on the team's position in the league.

I also conclude that the amount of foreign player, playing in the Premiership is increasing.

This relationship between 'foreigners' and 'position' although present is not very strong. This is because of the fact that teams at the bottom of the league tend to buy foreign players that are not very good. This creates a whole different picture, giving very different results to what they might have been.

I have only included 17 out of 20 teams because three of the teams were only included in one of the two seasons. Each year three teams are relegated (moved down) into Division 1 and three teams are promoted into the Premiership from Division 1. So this is why I deemed it fair to include only 17 out of a possible 20 teams.

This radar graph shows the amount of foreigners per team. I have included this particular graph as I felt it was the most appropriate type for what I wanted to achieve. The graph shows how the amount of foreign players has generally increased between last season and this season. The area shows this. Straight away from looking at the graph you can establish that the area of the blue shape (season 2001/2002) is bigger then that of the green shape (season 2000/2001).

The line graph on the previous page also shows the amount of foreigners per team in season 2001/2002 and 2000/2001. This hand-drawn graph has been included because it clearly shows that the amount of foreign players per team in season 2001/2002 is greater than that in season 2000/2001. This is clearly established because the red line, representing season 2001/2002, is generally higher than the black line, representing season 2000/2001.