The contribution of Johan Cruyff to success and stadium attendance at Feyenoord

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The contribution of Johan Cruyff to success and stadium attendance at Feyenoord

Jan C. van Ours

Erasmus School of Economics, Erasmus University Rotterdam, Erasmus Center of Applied Sports Economics (ECASE) and Tinbergen Institute, Rotterdam, The Netherlands; Department of Economics, University of Melbourne, Parkville, Australia; CEPR, London, UK

ABSTRACT
In his last season as professional football player, Johan Cruyff played at Feyenoord. This paper shows that Cruyff improved the performance of his team and attracted more attendants to the home stadium. From this it is concluded that Cruyff made a superstar contribution to his club Feyenoord.

KEYWORDS
Professional football; superstar; Johan Cruyff; Feyenoord

JEL CLASSIFICATION
Z21; D12; C23

I. Introduction

In his seminal paper on the economics of superstars Rosen (1981) mentions the world of sports as an example of very large rewards at the top. Sports superstars achieve extremely high earnings by servicing a large audience at low margins through for example televising of matches of sporting events. While in the theory of Rosen (1981) talent is the main driving force, Adler (1985) suggests that popularity is the source of the superstar effects. In empirical research it is difficult to distinguish between the two explanations. However, the current paper makes an attempt to do so.

According to Humphreys and Johnson (2020) sport superstars generate externalities in terms of attendance (and other revenues) beyond their individual contributions to the success of their team. The current paper is on the famous Dutch football player Johan Cruyff (1947–2016) who at the end of his career accepted a contract at Feyenoord. The paper aims to establish whether Cruyff made a contribution to the performance Feyenoord and stadium attendance during home matches. The paper is in line with other studies on football superstars such as David Beckman (Lawson, Sheehan, and Stephenson (2008), Shapiro, DeScher, and Rascher (2017), Jewell (2017)) and Freddy Adu (DeScheriver (2007)) in the US Major League Soccer.

The paper concludes that Cruyff was a superstar at Feyenoord. Because Cruyff came from arch rival Ajax he was not very popular among quite a few Feyenoord supporters. This suggests that Rosen’s talent-related explanation for the superstar effect is more likely than Adler’s popularity explanation.

II. Set-up of the analysis

Cruyff played for Feyenoord in the highest Dutch professional football league during season 1983/84. To establish his contribution to the performance of Feyenoord and stadium attendance this season is compared to the previous and the following season. A potential problem with this is that not only because of Cruyff the composition of the Feyenoord teams was different across the seasons. However, this does not seem to have been the case. In terms of playing time in 1983/84 Cruyff ranked fourth. Of the other 10 players in the top 11 in terms of playing time in 1983/84, 9 were also present in 1982/83 while all 10 were present in 1984/85. Cruyff scored 11 goals. Apart from Cruyff, of the six top scorers in 1983/84, five were present in 1982/83 and five were present in 1984/85. So, except for the presence of Cruyff, the Feyenoord teams were not so different in the three seasons.

Every season Feyenoord played 17 home and away games. To investigate the performance of Feyenoord over the 34 matches several dependent
variables are related to the presence of Cruyff, whether the match was played at home and to the strength of the opponent (measured in terms of ELO-rating). In 1983/84 Cruyff appeared in all 34 matches except for one away game. The identification of his contribution relies on a dummy variable that is defined to be equal to one in the 1983/84 season (except for the one away match) and is equal to zero in the seasons 1982/83 and 1984/85.

Stadium attendance in 16 home matches over three seasons is related to the presence of Cruyff and to a number of other potential determinants.\(^1\) Surprise points indicate how well a team does in the current season compared to the previous season in terms of cumulative number of points achieved. The expected number of points is an indicator of the strength of the opponent.\(^2\) The weaker the opponent the less exciting the match is expected to be. Championship significance is an indicator that increases over the course of the season to a maximum of 1 but turns zero as soon as it was impossible for Feyenoord to win the championship.\(^3\) Furthermore, two dummy variables for opponent clubs are included; one for Sparta Rotterdam to account for the effect of a derby and one for PSV Eindhoven, a club from the top three in the Netherlands. Finally, there is a dummy variable indicating whether or not a match took place during a weekday, i.e. was played in the evening and therefore less attractive to visit.

### III. Data

Table 1 shows descriptive statistics. Panel a provides information about all 102 matches used in the analysis of performance. Panel b gives information about the 48 home matches used in the analysis of stadium attendance.

### Table 1. Means of variables; home match averages by season.

<table>
<thead>
<tr>
<th></th>
<th>1982/83</th>
<th>1983/84</th>
<th>1984/85</th>
</tr>
</thead>
</table>
| a. Performance – all matches (102)  
Johan Cruyff dummy | 0.00    | 0.97    | 0.00    |
| Home match           | 0.50    | 0.50    | 0.50    |
| ELO-rating/100       | 17.19   | 17.00   | 17.20   |
| Points               | 1.59    | 1.68    | 1.41    |
| Goal difference      | 0.97    | 1.91    | 1.05    |
| Win probability      | 0.65    | 0.74    | 0.62    |
| Loss probability     | 0.06    | 0.06    | 0.21    |
| b. Stadium attendance – home matches (48)  
Johan Cruyff dummy | 0.00    | 1.00    | 0.00    |
| Attendance (1000)    | 20.97   | 23.63   | 14.72   |
| Expected points      | 1.46    | 1.62    | 1.61    |
| Surprise points      | 6.75    | 0.88    | –3.81   |
| Championship significance (%) | 5.55 | 8.11 | 4.83 |
| Sparta Rotterdam     | 0.06    | 0.06    | 0.06    |
| PSV Eindhoven         | 0.06    | 0.06    | 0.06    |
| Weekday              | 0.06    | 0.06    | 0.41    |

Note: For the match attendance analysis, the sold-out home matches against Ajax are excluded. Sources: Expected points: elofootball.com; match outcomes and stadium attendance: voetbal.com; championship significance: authors’ calculation.

From the table it is clear that in the season 1983/84 Feyenoord had the largest number of expected points, actual points, goal difference and the probability to win. In the season 1983/84 the loss probability was low especially compared to 1984/85. The surprise points in 1983/84 were on average still positive despite the very good season 1982/83. The championship significance in 1983/84 was highest which is no surprise as Feyenoord won the championship in that season.

### IV. Estimation results

Both performance and attendance are analysed using linear regressions.\(^4\) Panel a of Table 2 presents the parameter estimates for the performance measures. The first column shows that the number of points is 0.38 higher in home matches while in matches with Cruyff 0.18 additional points were obtained (with the parameter estimate at the borderline of significance).\(^5\) Columns (2) to (4) of

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\(^1\)The matches against Ajax were all sold-out and therefore not included in the analysis. Schreyer and Ansari (2021) provide a recent overview of studies on stadium attendance.

\(^2\)Expected points are calculated using ELO-ratings based probabilities to win (pw) and draw (pd). The expected points are equal to 2*pw+pd.

\(^3\)For championship significance the Jennett (1984) measure is used which is based on the (mathematical) probability to win the championship. The measure is defined at the seasonal level for match number n as 1/(35 – n). The assumption is that the final rank is known in advance. As soon as the championship is achieved – by the club itself or a competitor – or in case it is mathematically impossible to obtain the championship the measure is equal to zero. If the championship is decided in the last (34th) match the measure is equal to one in that match.

\(^4\)Some of the dependent variables have a discrete nature. However, estimating an ordered probit model for points or probit models for win and loss probabilities does not change the main findings.

\(^5\)If opponent fixed effects are included these absorb the ELO-rating of the opponent. Then the Cruyff effect becomes larger and statistically significant at a 10% level.
Table 2. Parameter estimates performance and stadium attendance.

<table>
<thead>
<tr>
<th></th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Performance</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cruyff</td>
<td>0.18 (1.6)</td>
<td>0.80 (2.0) **</td>
<td>0.09 (1.0)</td>
<td>−0.09 (1.9) *</td>
</tr>
<tr>
<td>Home match</td>
<td>0.38 (3.2) ***</td>
<td>0.95 (2.8) ***</td>
<td>0.20 (2.3) **</td>
<td>−0.18 (3.1) ***</td>
</tr>
<tr>
<td>ELO-rating opponent/100</td>
<td>−0.20 (4.1) ***</td>
<td>−0.67 (3.7) ***</td>
<td>−0.14 (4.1) ***</td>
<td>0.07 (2.3) ***</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.239</td>
<td>0.285</td>
<td>0.187</td>
<td>0.181</td>
</tr>
<tr>
<td>b. Stadium attendance</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cruyff</td>
<td>6.30 (3.3) ***</td>
<td>6.90 (4.4) ***</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Surprise points</td>
<td>0.37 (1.7) *</td>
<td>0.43 (2.1) **</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Expected points</td>
<td>−0.12 (2.5) **</td>
<td>−0.10 (2.2) **</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sparta Rotterdam</td>
<td>9.56 (6.6) ***</td>
<td>10.60 (5.7) ***</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PSV Eindhoven</td>
<td>12.43 (2.9) ***</td>
<td>13.08 (3.0) ***</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Championship significance</td>
<td>0.23 (1.6)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weekday</td>
<td>−0.19 (0.1)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>R-squared</td>
<td>0.644</td>
<td></td>
<td>0.620</td>
<td></td>
</tr>
</tbody>
</table>

Seasons 1982/83 – 1984/85; panel a (b) based on seasons 102 (48) observations; constants not reported
Absolute t statistics based on robust standard errors in parentheses; *** p < 0.01, ** p < 0.05, * p < 0.01

Table 2 show significant home match effect on goal difference, win probability and loss probability. The presence of Cruyff had no significant effects on probability to win but did have significant effects of the goal difference and the loss probability.

Panel b of Table 2 shows the parameter estimates for stadium attendance. From column (1) it appears that surprise points, expected points and the dummy variables for Sparta Rotterdam and PSV Eindhoven are all significantly different from zero. Championship significance and the dummy variable for weekday matches are not significantly different from zero. If the last two variables are removed the parameter estimates of the other variables do not change much (column (2)). The positive effect of surprise points shows that a better performance than in the previous year had a positive effect on stadium attendance. Expected points had a significant negative effect, i.e. weaker opponents attracted a smaller audience. The presence of Cruyff had significant positive effects on stadium attendance.

V. Conclusions

The main findings of the current paper are twofold. First, the presence of Cruyff improved performance of his team Feyenoord. Second, conditional on the improved performance the presence of Cruyff had a positive effect on stadium attendance at home matches. Before Feyenoord, Cruyff played at Ajax where he also started his career. Since Feyenoord (Rotterdam) and Ajax (Amsterdam) are arch-rivals increased stadium attendance is unlikely to be related to popularity (Adler (1985)) but rather to exhibition of talent (Rosen (1981)). In football the devil is in the details and it was Cruyff who provided those details. Because of this, Feyenoord won the league in 1984, 10 years after winning the previous title and 9 years before it would do so again. Clearly, Johan Cruyff made a superstar contribution to Feyenoord.

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Disclosure statement

No potential conflict of interest was reported by the author.

ORCID

Jan C. van Ours @ http://orcid.org/0000-0002-0144-9956

References


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