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## Soccer Clubs and Regional Image

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# Soccer Clubs and Regional Image

Rüdiger Hamm

## 1 Introduction

A number of studies have been conducted trying to describe and estimate the regional economic effects of sports clubs, especially of soccer clubs (e.g. HAMM, 1998; HAMM/JANSSEN-TIMMEM/MOOS, 2006; VÖPEL/STEINHARDT, 2008). Most of these studies focus on demand-side effects because regional multiplier analysis seems to offer a powerful tool for this kind of estimations. In most cases these analyses come to the conclusion that there are significant demand-side effects. But firstly the results of calculating the demand side effects of soccer clubs by regional multiplier analyses should be handled with care because – for a lack of correct data – many assumptions are necessary offering analysts a wide range of possibilities to influence the results. And secondly the demand side effects of sports clubs do not exceed the demand side effects of a “normal” medium-sized enterprise to a considerable extend; only the fans’ expenditures might explain a positive difference. Nevertheless it seems that there is something more beyond regional multiplier analysis (CROMPTON), some additional regional effects of soccer clubs that bring benefit to the location of such a club. These effects stem from the supply side, they are especially connected with regional awareness and image and they are usually omitted from the analysis because quantification is nearly impossible.

It is hardly possible, too, to quantify the effects of regional awareness and image for regional economic development. But analyses based on firm surveys suggest that regional image can be seen as an important location condition (HAMM/WENKE/NÖVER/WERKLE, 2013). That is why location theory often regards regional image as a separate „soft factor of location“, that codetermines entrepreneurial decisions (GRABOW, 1994). Sports clubs and sports events are part of numerous factors that, in turn, influence regional image. This would mean that a soccer club that is able to transfer its (positive) image to its hometown might finally be able to affect regional economic development of this city positively.

Aim of the following paper is to thoroughly analyse these relationships. Using VfL 1900 Borussia Mönchengladbach – a well-known member of the German premier soccer league – as an example the paper deals with the following questions: (a) Is it possible to identify awareness increasing effects of the soccer club for the city of Mönchengladbach, (b) which role can Borussia play as an important icon of the city of Mönchengladbach and (c) are there any hints that the club’s image can be transferred to the city? Part 1 of the paper systemizes and describes regional economic effects of a premier league soccer club. Using survey data the subsequent empirical considerations (part 2) try to qualify and (to a certain extend) quantify the mentioned effects by means of descriptive statistics as well

as factor and regression analysis. The paper ends with some final remarks on the major findings (part 3).

## 2. Regional effects of a premier league soccer club – a classification

Professional soccer clubs can be seen as service producing enterprises which offer their services in the field of “recreational activities” on a regional and to a certain degree on a national level. In many cases these clubs can be compared to a medium-sized enterprise with double-digit million sales and a corresponding number of employees. The regional effects of these clubs can be divided into demand-side and supply-side effects.

Starting with the demand side effects four lines of arguments seem to be important:

- The clubs need a staff for producing their services – professional players on the one hand and people responsible for coaching the teams, managing the club and organising the matches on the other hand. These employees earn their income and they partly spend it in the region. Via the intraregional spending of income regional economic cycle processes are initiated that lead to further income and employment effects on the regional level.
- The clubs invest in real capital (i.e. the building of a new stadium or the enlargement of an existing one). As far as regional firms are engaged in these orders this investment leads to regional income and employment effects.
- The clubs need intermediate goods for producing their services. As far as the clubs buy these intermediate goods in the region this causes regional income and employment effects, too.
- The clubs attracts visitors. These visitors partially come from the region (city) where the club is located. In this case regional income gets stuck to the regional income cycle. But normally the attractiveness of a premier league soccer club goes beyond its location and the matches succeed in attracting visitors and their expenses from far away regions.

The described demand side impulses provoke regional economic cycle processes via the demand for intermediate goods and the payment of wages and salaries which lead to further indirect and induced income and employment effects.

Beside the outlined demand side effects there are other aspects that play an important role for a complete judgement of regional economic effects of a premier league soccer club; these effects are running via the supply side. The chains of effects related to these aspects have in common that they are connected with “external effects”: The service provided by the premier league soccer club causes different types of “external effects”, i.e. the sum of the individual benefits resulting from the use of the service activity “soccer” remains behind the total social benefits of this service – external benefits are produced. Five types of these effects are discussed in literature:

1. Soccer clubs might increase their municipality’s awareness level. Media coverage of football matches regularly mentions not only the name of the club but also that of its location city. As a consequence of this the city becomes better known on a national and international level. While the relationship between awareness of the club and awareness of the club’s home city is hardly debated in literature some further reaching effects can be doubted:
  - An increasing level of awareness could raise the interest of non-residential visitors in the city. So people from other regions finally might decide to visit this city. This again could

result in an increasing level of tourism connected with rising sales in retail services, hotels and restaurants.

- An increased level of awareness might also have the consequence to arouse public interest in the city as a location for other economic activities and finally might lead to additional settlements of new enterprises.
2. Soccer clubs might improve their municipality's regional image. Image means the inner picture people have from an object. In the present case this object is a region respectively a city. So the term "image" means more than awareness. "Awareness" has a neutral characteristic while "image" implicates a – good or bad – evaluation. As in regional economic theory "regional image" is viewed as a relevant "soft location factor" for regional economic development city planners became more and more engaged in the field of regional and city marketing in order to make their location more attractive and to improve its image. For several reasons sports clubs and sports facilities might play a remarkable role In this context:
- While factories and their chimneys have formed the image of the industrial age skyscrapers have become the landmark and "image builders" of the service society. With the continuing change to leisure oriented services sports clubs and their stadiums could become one of the future "image builders".
  - Beyond this the relevance of a sports club for the image of the city depends on the size, the importance and other "awareness factors" of a municipality. „Sport means more to Oakland ...it makes less of a difference to New York, San Francisco, or Chicago". Transformed to Germany this means: For Hamburg, Munich, Berlin or Cologne sports facilities and sports clubs are part of a broad offer of nationwide known cultural facilities and sights, while for Mönchengladbach or Kaiserslautern sports club may be the central aspect of this offer.
  - In many cases the positioning of the sports club is somehow seen as a mirror of the city's positioning: If a German soccer club is playing in the Premier League the city as well is playing in the upper league of German cities. If the club has to leave the Premier League to play Second League the city could feel as „looser" and inferior, too, and so possibly do many of its inhabitants.
3. Soccer clubs might be a relevant location factor. Two effects can be distinguished:
- Direct pull effects occur if the soccer club succeeds in directly attracting other enterprises. As premier league soccer clubs attract great numbers of visitors one can imagine that other sports and leisure facilities, special retail for sportswear, sports equipment or fan articles and catering firms or hotels are looking for the nearness to the stadium. In this case the stadium could be seen as the impulse giving nucleus the pull effects of which attract other enterprises and facilities („proximate development"). The mentioned examples in most cases deal with services, which are complementary to the soccer club's services („complementary development").
  - Indirect, supply-side impulses ("general development") can appear because the municipal supply of sports and leisure facilities are part of the "soft" location factors which increase the attractiveness of a region and by this regional economic development. But as the number of factors influencing entrepreneurial location decisions is high and as among a wide range of sports and leisure facilities, a soccer club only presents one aspect, significant effects can be supposed to be unlikely.
4. Soccer clubs might cause a "psychic income". Soccer clubs can be regarded as an investment in the emotional infrastructure of a city. The inhabitants of the city identify themselves with the

team, they personalize the success of the club, they feel better and perhaps even their motivation in their jobs is higher – they receive a “psychic income”.

5. Soccer clubs might be the nucleus of a regional network for communication and cooperation.

## 2 Awareness and Image Effects

The preceding chapter has shown that there might be manifold possibilities for soccer clubs to positively influence the economic development of their home town cities. The following considerations concentrate on only one of the described effects, namely the awareness and image effects. A case study is used to answer the questions whether it is possible to identify awareness increasing effects of a soccer club for its home town, whether the soccer club can be an important image builder of the city and whether an image transfer from the club to the city can be identified.

The example used for this case study is the city of Mönchengladbach. Mönchengladbach is a German city with about 260 000 inhabitants located 30 km in the west of Düsseldorf between the river Rhine and the Dutch German border. In the past Mönchengladbach has been a well-known location of German textile and clothing industry (“Rheinisches Manchester”). Since the beginning decline of this branch of industry the city had to suffer from structural adjustment problems. During the last 40 years the question again and again arose, which new branches could become the motor of Mönchengladbach’s future regional economic development. Mönchengladbach is the home town of a well-known German soccer club – VfL 1900 Borussia Mönchengladbach. In the past Borussia VfL 1900 Mönchengladbach has been for several times winner of the German Championship and the German cup final. Today the club plays in the upper part of the German Premier League, it has more than 60.000 members, there are about 900 fan-clubs with more than 23.000 members, and the club is owner of a stadium (“Borussia-Park”) where nearly 50.000 spectators have seen each game of the club during the season 2012/2013.

### 2.1 Data and Methods

Data for analysing the awareness and image effects Borussia might have for its home town stems from three surveys that all have been conducted in autumn 2013<sup>1</sup>.

- **Audience of soccer matches:** During three matches of Borussia Mönchengladbach the audience<sup>2</sup> (fans of the home and the guest team) have been surveyed by face-to-face interviews (913 persons).
- **People living in the club’s „catchment area“:** Face-to-face passer-by-surveys have been conducted in the cities of Krefeld and Mönchengladbach as well as in the counties of Heinsberg and Viersen (579 persons).
- **Family and friends:** A family-and-friends survey has been conducted by use of an online tool (265 persons).

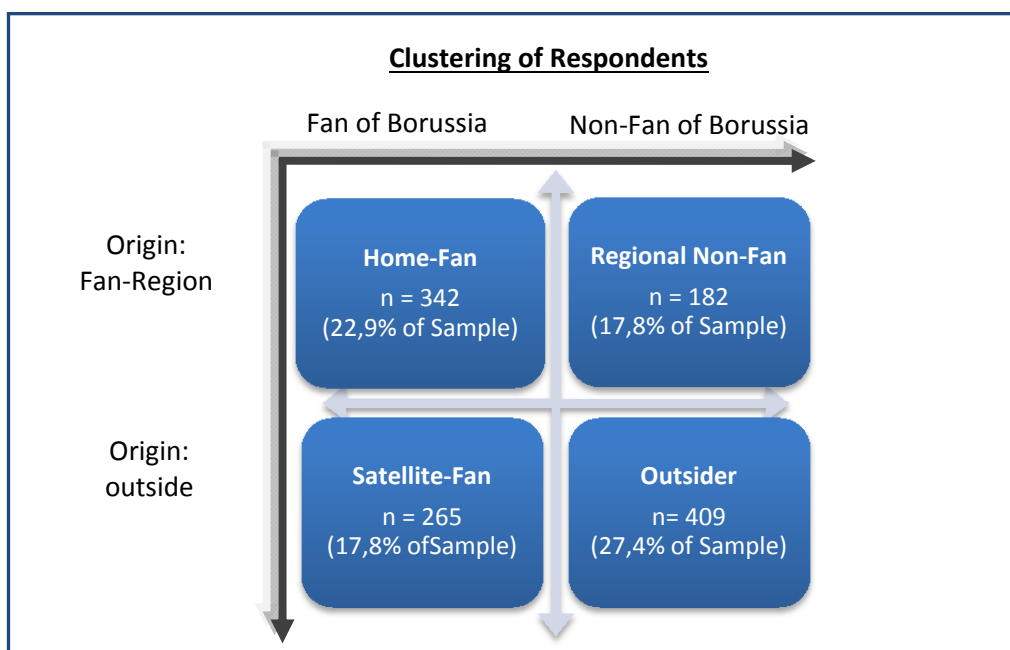
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<sup>1</sup> These surveys have been conducted by students of the „Master in Business Management“-Program at Niederrhein University of Applied Sciences. The questionnaire with the audience was slightly different to the others because visitors have been also asked about their expenses.

<sup>2</sup> Questionnaires conducted during the matches against Borussia Dortmund, Eintracht Frankfurt and 1 FC Nürnberg.

In total 1.757 persons have been surveyed. The structure of this sample shows some noticeable characteristics: First, the number of male respondents (1131) is remarkably higher than the number of the female ones (568); but it can be argued that soccer is more a masculine domain. Second, the distribution by age probably is more similar to the age structure of football fans than of total population<sup>3</sup>.

The following analysis partly makes use of the **whole sample** (n = 1757). Besides, especially parts of the descriptive analyses distinguish between different groups of fans using a **clustered sample**. Based on the supposition, that respondents who are fan of Borussia have a more positive and intensive perception of the club, and that the evaluation of image differs between people living in Mönchengladbach (Eigenimage) and people living elsewhere (outside image), the respondents were clustered into four groups (Diagram ):<sup>4</sup>



**Diagram 1: Clustering of Respondents**

Source: Based on own surveys.

- „**Home-fans**“ are explicit fans of Borussia Mönchengladbach and have their place of living in the fan-region<sup>5</sup>. Home-fans are supposed to have a wide range of information about the city of Mönchengladbach and the football club.
- **Regional non-fans** have their place of living in the fan region but do not emotionally relate with Borussia. It can be expected that this group has good information about the city, but not about the club.

<sup>3</sup> People aged 18-24 years: 29%; 25-39 years: 32% and 40-59 years: 25%, while the share of elder people (more than 60 years) and adolescents (less than 18 years) are relatively low (5% respectively 9%).

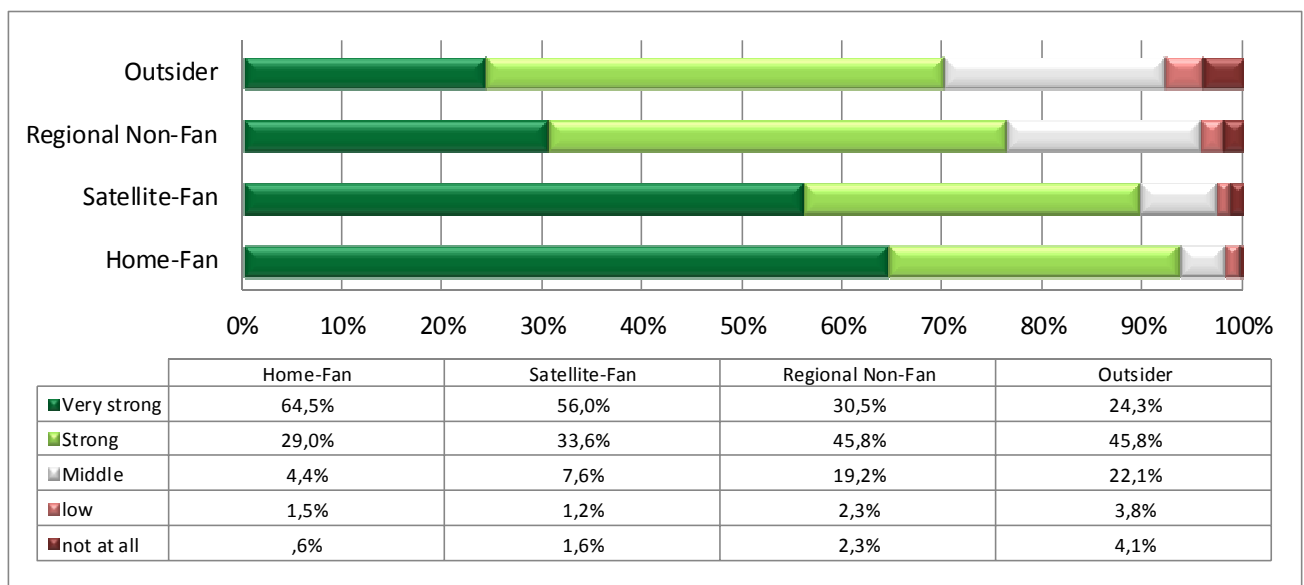
<sup>4</sup> This clustering was made only for respondents, who gave information about their place of living as well as about their fan relationship to Borussia. Furthermore the clustered sample only includes people who judged themselves as explicitly being fan or non-fan, i.e. „supporters or sympathizers“ were left out. The clustered sample includes 1198 respondents.

<sup>5</sup> The fan-region is defined by the city of Mönchengladbach and the counties of Heinsberg, Viersen and Neuss.

- **Satellite-fans** are fans of Borussia; they do not live in the fan-region but elsewhere in Germany. People in this group are supposed to have a broad knowledge about the club but normally are not so well informed about the city.
- **Outsiders** are neither fans of Borussia nor do they live in the fan-region. So it can be estimated that they do not have any emotional relation to Borussia and have a lack of true knowledge about the city of Mönchengladbach.

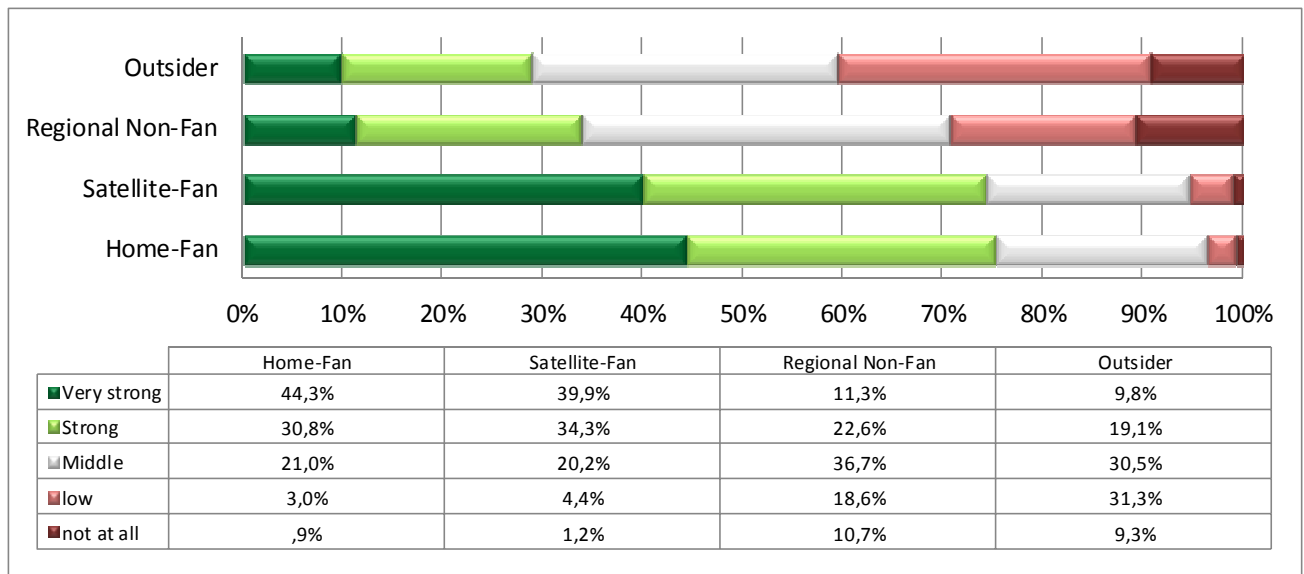
## 2.2 Results – Descriptive Statistics

### 2.2.1 Awareness



**Diagram 2: Awareness Increasing Effects of Borussia Mönchengladbach for the City - inland**

Source: Calculations based on own surveys.



**Diagram 3: Awareness Increasing Effects of Borussia Mönchengladbach for the City - abroad**

Source: Calculations based on own surveys.

Starting with possible awareness increasing effects the respondents have been asked whether the existence of Borussia improves Mönchengladbach's national and international awareness (diagram 2 and 3). The two diagrams show that fans and non-fans judge these awareness increasing effects in a different way. While 93.5% of the home-fans and 89.6% of the satellite-fans think that Borussia improves the national awareness the comparable shares for regional non-fans (76.3%) and outsiders (70.1%) are noticeably lower. As to international awareness these differences have the same direction but are higher: About 75% of the two fan groups believe that Borussia leads to an increase of Mönchengladbach's international awareness, but only about 34% respectively 29% of the regional non-fans and outsiders believe in these effects.

### 2.2.2 Image

It can be stated that Borussia is an awareness increasing factor for the city of Mönchengladbach. These awareness effects are neutral effects; but a soccer club might also influence the image of its home location in a positive or negative way by transferring the club's image to the city. The following considerations deal with the questions ...

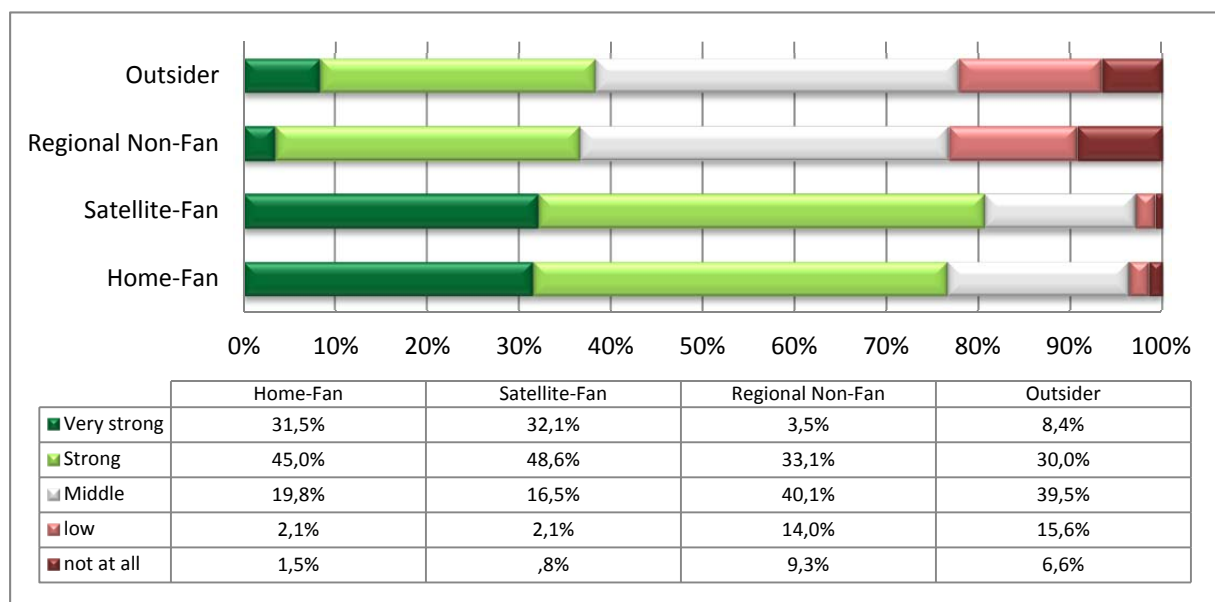
- ... whether VfL Borussia Mönchengladbach is realized as an important landmark of the city of Mönchengladbach,
- ... whether VfL Borussia Mönchengladbach causes an improvement of the city's image,
- ... and whether characteristics that might form the club's image are transferred from VfL Borussia Mönchengladbach to the city of Mönchengladbach.

An urban landmark (Notre Dame for Paris) or an important regional institution (Guggenheim Museum for Bilbao) can play a central role in giving an image to a city if many people at once associate this characteristic with the name of the city. This characteristic acts as supraregional, nationwide or international landmark or imagery for the city. The respondents of the surveys were asked to name buildings or institution which can play this role for the city of Mönchengladbach. The evaluations of the respondents make clear that Borussia can be seen as the most important image-holder in Mönchengladbach – for all groups of respondents the club achieves the highest degree of agreement and



of course this especially holds true for the fans of Borussia. The lowest consent is for the „Münster“ (an old abbey in the city center) and the „Museum Abteiberg“ (a well-known museum of modern arts) – these institutions are less likely in giving an image to the city. But the question as to the city's landmarks reveals noticeable differences: As expected the knowledge about the city's landmarks is more pronounced for people having their place of living in Mönchengladbach and the surrounding region – home-fans and regional non-fans estimate all institutions more important for giving an image to the city than satellite-fans and outsiders do. Nevertheless it is striking that satellite-fans know all other institutions better than the outsiders. Apparently the fan relationship has the remarkable effect that people living outside the fan-region are better informed about the city's possible landmarks.

Until now Borussia Mönchengladbach could be identified as playing the most important role among all the city's landmarks in giving an image to the city of Mönchengladbach. The next step shall work out whether Borussia's image effect for the city could be a positive or a negative one. In this context image means the picture or impression a person has about an object (in our case: city); and image is a qualitative evaluative factor.<sup>6</sup> So the surveyed persons were asked whether the existence of Borussia is able to improve the outside image of the city of Mönchengladbach. Diagram 4 shows the results. Though the non-fans reacted with some reservation, 37% of the regional non-fans respectively 38% of the outsiders think that Borussia has a very strong or strong image improving impact for its hometown. Fans of Borussia have a much more positive attitude towards these possible effects: 76,5% of the home-fans and 80,7% of the satellite-fans believe that they are very strong or strong.



**Diagram 4: Image Improving Effects of Borussia Mönchengladbach for the City**

Source: Calculations based on own surveys.

<sup>6</sup> Vgl. RUNIA ET AL. 2007, S. 26.

### 2.2.3 Image-forming attributes of city and club

Like any other enterprise soccer clubs can have a branding and an image of their own. Some examples demonstrate that especially in soccer this image often has developed since years in the club's history: Relationships to well-known enterprises (Bayer Leverkusen), success in presence (Bayern Munich) or past (Borussia Mönchengladbach) or traditional roots to special groups of society (Schalke 04 as the club of blue-collar workers and miners) are catchy attributes determining image on a sustained basis (SCHILHANECK 2008, S. 125). This image is not necessarily a positive one: Following a study conducted by UFA-Sports some years ago Bayern Munich e.g. is judged as being "arrogant", while "FC St. Pauli" – a traditional club from the Hamburg docklands – is seen as "rooted to the soil" (UFA SPORTS GMBH 1998).

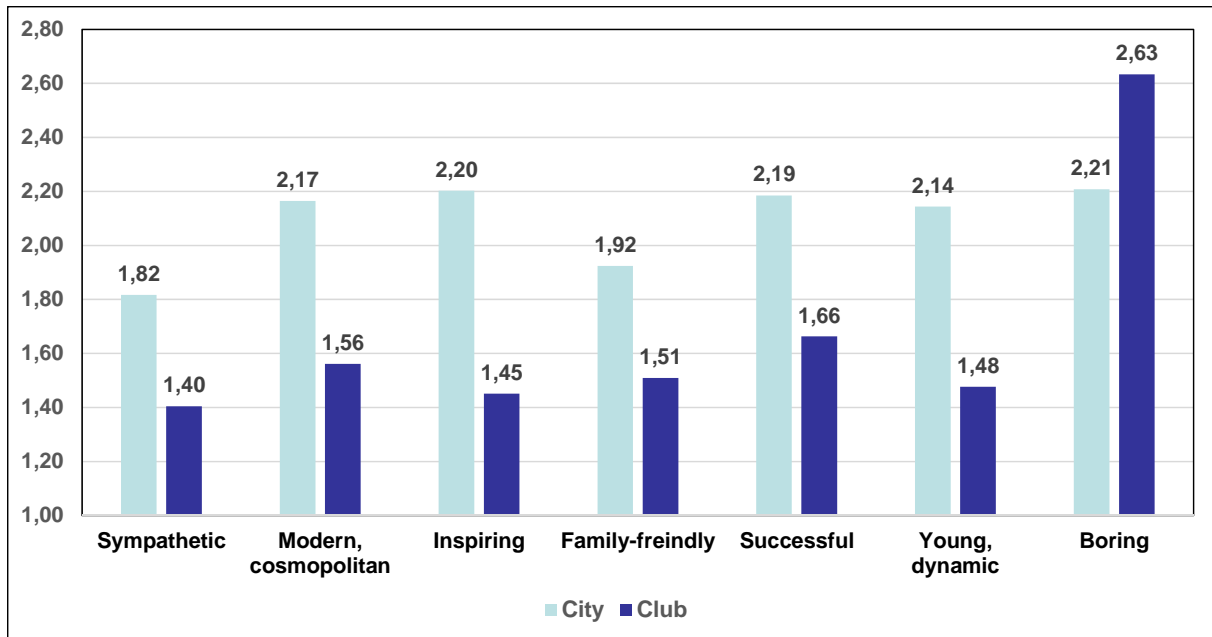
Based on these considerations one can expect that the image of Borussia Mönchengladbach is dominated by the success of the past. At this time Borussia had the image „Fohlenelf vom Niederrhein“ (team of foals from Lower Rhine Region) – which compared the team to young horses – inspiring, wild, young, dynamic. Other attributes like "sympathetic", "family friendly" or "close to people" might also apply to the club. A study of "Welt am Sonntag" (a well-known German newspaper) in cooperation with the Goethe-University Frankfurt decorated the club being the most family friendly German soccer club (SERVICEVALUE GMBH 2013). Attributes like this are normally used in doing image and market research on soccer clubs and they explain the list of attributes used in the own analysis.<sup>7</sup>

Diagram 5 compares the average ratings of the used attributes for the city of Mönchengladbach and the club.<sup>8</sup> It is obvious at first glance that in all respects the club is noticeably rated more positive than the city. The only exception: "Boring" is attributed rather to the city than to the club. These results give a first hint that an image transfer takes place and that it more probably runs the club to the city than vice versa from the city to the club.

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<sup>7</sup> Additionally the attribute "boring" has been used – partly the check behavior and attention of the surveyed persons.

<sup>8</sup> Results are based on a „reduced sample“ using only passer-by- and online-surveys to prevent possible distortions by using the surveys with the spectators in the stadium.



**Diagram 5: Attributes of City and Club**

Source: Calculations based on own surveys (only passer-by- and online-surveys).

The city of Mönchengladbach as well as Borussia are most positively evaluated as to “sympathetic”. The club’s second best attribute is „young, dynamic“ what might stem from the “foals-era” or might result from the fact that Borussia is strongly engaged in youth development work. As to family friendliness the respondents judged Borussia with 1,73 on average – somehow disappointing against the background of the already mentioned decoration as Germany’s most family-friendly soccer club. Following “symathetic” the city of Mönchengladbach on the other hand is most likely rated „boring“, „family-friendly“ and „young, dynamic“ by the respondents.

#### 2.2.4 Transfer of Image

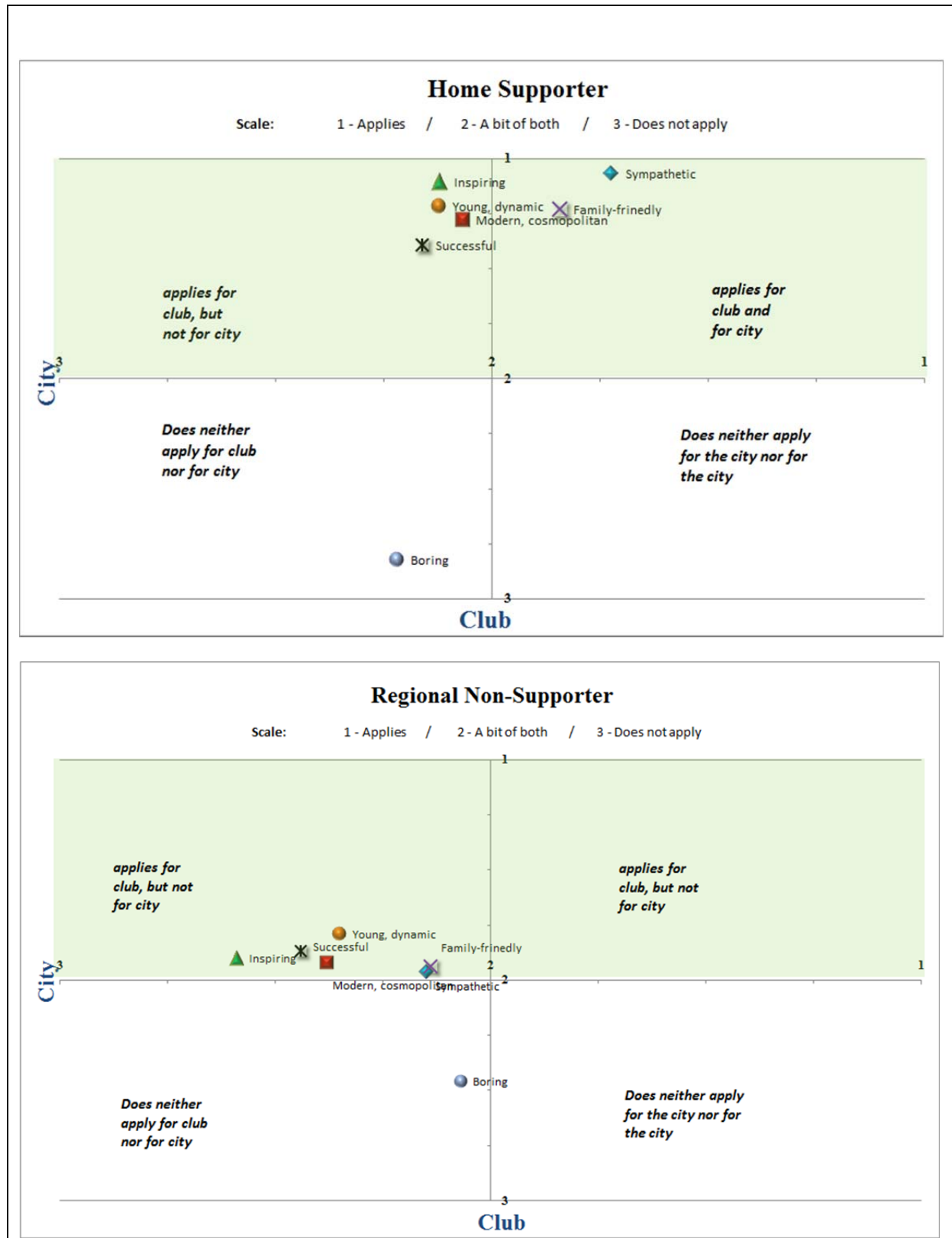
After the short look at the evaluations for the city and the club the question to be analysed is whether the data reveal an image transfer from the club to the city. For this the city’s and the club’s attributes are analysed by the use of the defined fan clusters. Diagram 6 and 7 are kind of a portfolio-diagram where the average ratings of club and city are depicted in drawing the evaluations of the club on the x-axes and those of the city on the y-axes. While a mean value in the upper right quadrant of a coordinate system means that the attributes applies to the club as well as to the city, a mean value in the upper left part of a diagram indicates that the attribute holds for the club but not for the city.

The diagrams again clearly show, that the club is – by all groups of fans – better evaluated than the city – in the coordinate systems nearly all points are located above the x-axes, but some lie left to the y-axes: The club’s image is more positive than that of the city.

If a transfer of the positive club’s image to the city takes place one should expect, that fans of Borussia not only judge the club more positive than non-fans do but also the city of Mönchengladbach. Exactly this can be observed in diagram 6. Comparing the two fan clusters living in the region, i.e. home fans and regional non-fans, the home fans rate the city better than the regional non-fans; the points tend to move to the upper right part of the coordinate system meaning that home-fans give

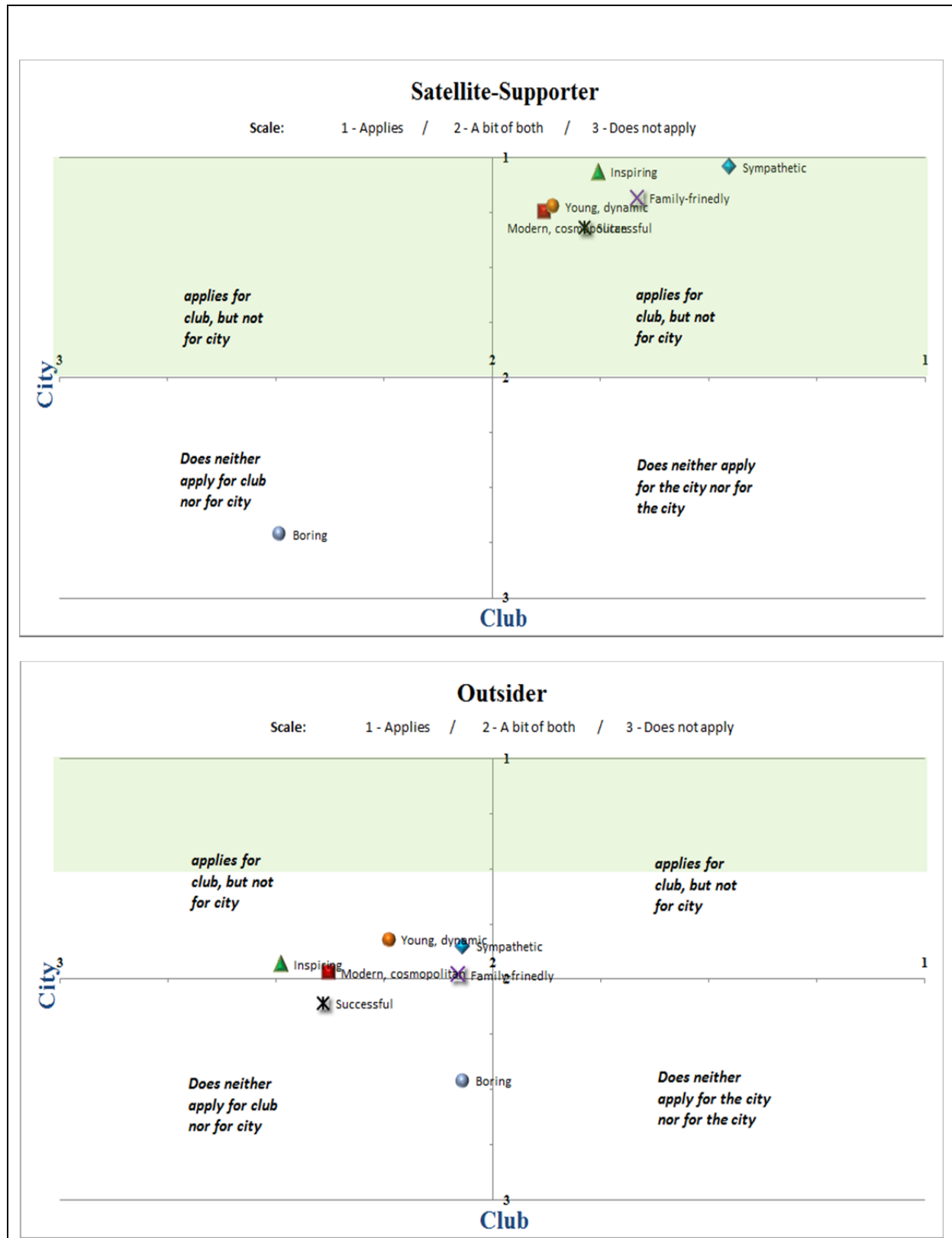
better ratings to both – club and city. But one must confess here that causality remains inconclusive: It might be possible that people being very content with the city of Mönchengladbach more often are fans of Borussia and therefore like the club as well as it is possible that the fans of the club transfer their positive image of Borussia to the city of Mönchengladbach.

A closer look at those fans stemming from elsewhere can help to shed some more light on this causality topic – without finally solving it. Respondents from elsewhere are not expected to have a deeper knowledge about the city of Mönchengladbach; indeed it was shown before that Borussia is the best known landmark of the city for all the fan clusters. If therefore satellite fans evaluate the city noticeably more positive than outsiders do, then it can be supposed that the rating of the club influences the rating of the city and not vice versa. Comparing the coordinate systems of satellite fans and outsiders (diagram 7) one can again realize a clear movement of the points to the upper right for the satellite fans – except for “boring”. It means that for the satellite fans all positive attributes apply better to the city than for the outsiders. Without any further information about the city the fan relationship to the club leads to a noticeably more positive rating of the city. So the results are evidence to suggest that a transfer of positive image attributes from Borussia to the city takes place.



**Diagram 6: Comparing Attribute-Evaluations by Fan-Cluster – Home-Fans and Regional Non-Fans**

Source: Calculations based on own surveys.



**Diagram 7: Comparing Attribute-Evaluations by Fan-Cluster – Satellite-Fans and Outsiders**

Source: Calculations based on own surveys.

## 2.3 Results – Factor Analysis and Regressions

In addition to the descriptive analysis the survey data have been used to answer the question whether the image of Borussia is transferred to the city of Mönchengladbach by a combination of factor analysis<sup>9</sup> and linear regression. Factor analysis can be used to identify structures within a set of variables. In the surveys the respondents had to evaluate on a three-step “Lippert-scale” whether seven different attributes that can be used to describe an image hold for the city of Mönchengladbach and the soccer club Borussia Mönchengladbach, too. As these attributes are – to a certain extent – similar factor analysis is used to discover whether some of these variables are overlapping, to structure the relationships between these variables and to identify groups of variables highly correlated to each other on the one side and to separate them from those with low correlation on the other side. After that factor analysis was used for a data reduction, i.e. the results of the factor analysis have been used to calculate the values for the structured factors. As these new variables are no longer ordinal but cardinal scaled variables they afterwards were used for analysing the relationship between the city’s and the club’s image by means of a “normal linear regression model” (OLS).

### 2.3.1 Appropriateness of Data

In a first step several tests have been made to check whether the survey-based data on the evaluation of the seven image-forming attributes for the club Borussia Mönchengladbach are appropriate for conducting a factor analysis<sup>10</sup>:

- Correlation: The correlation matrix showed that all the variables used to describe the image are correlated to each other. While six attributes (“sympathetic”, “modern and cosmopolitan”, “young and dynamic”, “successful”, “family-friendly” and “inspiring”) are positively correlated to each other a negative correlation exists between the seventh variable (“boring”) and the others. Nevertheless, as correlation was below 10,71 in all cases the results did not allow a clear conclusion as to appropriateness of data.
- Significance of correlation: Tests of significance showed that all the mentioned correlations are highly significant (on a 1% level).
- The Bartlett-Test of sphericity tests whether a sample stems from a population in which the variables are uncorrelated. In our case this test shows that – with a probability of more than 99% - the hypothesis of uncorrelated variables does not hold.
- The Kaiser-Meyer-Olkin-Criterion (“measure of sampling adequacy”=MSA) is a test statistic that can be used as an indicator for the question whether a factor analysis is meaningful or not. It allows an evaluation of the overall correlation matrix as well of single variables. Literature suggests the MSA to be above 0,8; in our case the MSA-value for the correlation matrix is 0,901, the MSA-values for the single variables lie between 0,779 (middling) and 0,932 (marvellous<sup>11</sup>).

The same tests have been applied to test the data on the evaluation of the image-forming attributes for the city of Mönchengladbach – with quite similar results:

<sup>9</sup> The procedure used here follows the description in BACKHAUS ET AL. 2011, S. 330ff.

<sup>10</sup> All tests proposed in BACKHAUS ET AL. 2011, S. 339ff.

<sup>11</sup> Evaluations as proposed in BACKHAUS ET AL. 2011, S. 343.

- Correlation: All the variables are correlated to each other. Again the same six variables as in the case of Borussia are positively correlated to each other while the attribute “boring” again shows a negative correlation with all others.
- Significance of correlation: As all correlation coefficients lie below 10,71 the results for the city allow no conclusion as to appropriateness of data; but all correlations are significant on a 1% level.
- The Bartlett-Test of sphericity indicates that the variables are not uncorrelated.
- The Kaiser-Meyer-Olkin-Criterion (MSA) for the correlation matrix is 0,913, the MSA-values for the single variables lie between 0,900 and 0,941 (marvellous in all cases).

All in all it can be stated that the collected data on the image of Borussia as well as those on the image of the city of Mönchengladbach are appropriate for conducting a factor analysis.

### 2.3.2 Extraction of Factors

Second step of the factor analysis is to extract the factors lying behind the two sets of variables, namely the evaluations of Borussia Mönchengladbach and of the city. As the aim of conducting a factor analysis in our case is to reduce the number of variables principal component analysis can be seen as the suitable procedure to extract the relevant factors<sup>12</sup>.

Literature suggests especially two different solutions for solving the problem of how many factors should be extracted (BACKHAUS ET AL. 2011, S. 375). These two criteria have been used to identify the number of factors in the case of the city:

- According to the Kaiser-Criterion (BACKHAUS ET AL. 2011, S. 359) the number of extracted factors should equal the number of factors with an eigenvalue<sup>13</sup> above one. Table 1 shows the explained parts of total variance. Only the eigenvalue of the first factor is above one, so the Kaiser-Criterion would propose to extract only one factor.
- The same result holds when a Scree-test is used.<sup>14</sup>

Component	City			Club		
	Original Eigenvalues			Original Eigenvalues		
	Total	% of Variance	Cumulated	Total	% of Variance	Cumulated
1	4,212	60,16	60,16	4,046	57,80	57,80
2	,759	10,85	71,01	,995	14,22	72,02
3	,515	7,36	78,37	,538	7,69	79,70
4	,493	7,04	85,41	,433	6,18	85,88
5	,360	5,15	90,55	,373	5,32	91,21
6	,345	4,93	95,48	,357	5,10	96,30
7	,316	4,52	100,00	,259	3,70	100,00

Extraction by Principal Components Method

**Table 1: Explained Total Variance**

Source: Own calculations.

<sup>12</sup> The question behind the principal component analysis is: How can variables be combined to an umbrella term? (BACKHAUS ET AL. 2011, S. 357).

<sup>13</sup> The eigenvalue describes the explanatory contribution of one factor with regard to the variance of all variables (BACKHAUS ET AL., S. 359).

<sup>14</sup> The eigenvalues plotted into a coordinate system in diminishing order show where the difference of the eigenvalues between two factors takes a maximum value. The first point left to this sharp bend of the plot determines the number of factors that should be extracted. The screeplot suggests to extract one factor.



An analogous procedure was used for the respondents' evaluations of Borussia Mönchengladbach.

- Table 1 shows the explained parts of total variance. As only the eigenvalue of the first factor is above one, the Kaiser-Criterion would propose to extract only one factor in the case of the club's attributes, too.
- The same result holds using a Scree-test.

But as the eigenvalue of the second factor is 0.995 and that means hardly below one (table 1) a possible alternative could be to extract two factors. That was the reason why two solutions were chosen: In the first variant one factor for the city and one for the club were extracted. Besides the alternative variant using two factors for the club was calculated.

Then principal component analysis was used for extraction. Table 2 documents that in the case of the city's image all components show high factor loadings. The only negative attribute considered in the analysis ("boring") has the lowest – and also negative – factor loading among the attributes. The coefficients of the components of factor 1 were then estimated by multiple regression. These coefficients are the weights for calculating the values of the new factor by multiplication with the original data for the seven attributes. While the six positive attributes have similar positive weights for the estimation of the new compacted variable the negative attribute "boring" has a lower, but negative weight. The new variable can be defined "image of the city".

	City		Club					
	First	Coefficient	First	Coefficient	First	Coefficient	Second	Coefficient
	Component		Component		Component		Component	
Sympathetic	0,793	0,188	0,847	0,209	0,814	0,186	-0,262	-0,153
Modern, cosmopolitan	0,821	0,195	0,826	0,204	0,825	0,212	-0,077	0,030
Inspiring	0,840	0,199	0,862	0,213	0,840	0,200	-0,204	-0,093
Family-friendly	0,749	0,178	0,786	0,194	0,789	0,222	0,074	0,174
Successful	0,818	0,194	0,764	0,189	0,806	0,211	-0,050	0,054
Young, dynamic	0,805	0,191	0,803	0,198	0,794	0,212	-0,019	0,083
Boring	-0,571	-0,136	-0,240	-0,059	-0,072	0,106	0,980	0,953

**Table 2: Components and their Coefficients**

Source: Own calculations.

Table 2 also contains the solutions of principal component analyses for Borussia's image for both cases – the extraction of one and two factors, respectively:

- In the case one factor was extracted all variables but one show high factor loadings. The negative attribute ("boring") has a relatively low and negative factor loading. Six of seven estimated coefficients of the components of factor 1 have similar positive weights; the seventh negative attribute "boring" has very low and negative weight. The new variable calculated with the help of these weights can be defined "image of the club".
- The extraction of two factors yields the following results:
  - As to the first factor all variables but one show high factor loadings. Again the negative attribute "boring" has a low and negative factor loading. The estimated coefficients of the six positive attributes again have similar positive weights, while the weight of the seventh (negative) attribute is noticeably smaller but positive, too.
  - As to the second factor only one variable has a very high factor loading while the others provide a diffuse picture: All of them have only low factor loadings, some of which are negative. The estimation of the coefficients reveal that there is one variable with an overwhelming positive influence (boring). The weights of the other six again convey a dif-

fuse picture because they differ in sign and their influence considerably varies but is in all cases much lower than that of first mentioned variable. Now two new variable can be calculated that were defined “positive image factor of the club” and “negative image factor of the club”.

### 2.3.3 Regressions and Results

In the last step the new calculated image variables were used to test the hypothesis that the better image of the city of Mönchengladbach is the better, the better is the image of Borussia Mönchengladbach, which might be a clear hint for a transfer of image from club to city. Therefore the following equations have been estimated by “ordinary least square” (OLS):

$$(1) I_{city} = f(I_{club})$$

$$(2) I_{city} = f(I_{club,p}, I_{club,neg})$$

with:  $I_{city}$  := image of the city  
 $I_{club}$  := image of the club  
 $I_{club,n}$  := positive image factor of the club  
 $I_{club,p}$  := negative image factor of the club

Following the hypothesis the expectation was that to find positive relationships, i.e.

$$dI_{city}/dI_{club} > 0 \text{ for (1) and}$$

$$dI_{city}/dI_{club,p} > 0 \text{ and } dI_{city}/dI_{club,n} > 0 \text{ for (2)}$$

	Coefficient	T-Value	Significance	R <sup>2</sup> corr.
<b>Regression 1</b>				
Const.	0,024	0,75	0,452	0,185
Image of the club	0,417	13,45	0,000	
<b>Regression 2</b>				
Const.	0,026	0,83	0,407	0,198
Positive Image of the club	0,436	14,03	0,000	
Negative Image of the club	0,043	1,35	0,177	

**Table 3: Results of Regression Analysis - Dependent Variable: Image of the City**

Source: Own calculations.

Table 3 shows the results of the OLS-estimations the results of which can be summarized in the following way:

- Indeed, the “image of the city” is the better, the better the “image of the club” – based on equation (1), where the estimated coefficient is positive and highly significant.
- Similar to that the “image of the city” is the better, the better the “positive image factor of the club” – based on equation (2) the coefficient of that variable is positive and highly significant.
- But while the influence of the “negative image factor of the club” has the expected sign it is not significant. This could mean that positive attributes are transferred rather than negative ones.

### 3 Summary

Theoretical literature suggests that premier league soccer clubs not only have considerable demand side effect resulting in additional production of goods and services, value added and employment for their hometown. There are additional effects stemming from the supply side which are especially connected with regional awareness and image. The paper at hand tried to analyse these effects using VfL 1900 Borussia Mönchengladbach – a well-known German soccer club – as an example.

The results of the paper can be summarized as follows:

- Borussia Mönchengladbach is increasing the city's national and international awareness. Though the results of surveys show that fans and non-fans judge the awareness increasing effects of Borussia in a different way it clearly can be stated that Borussia Mönchengladbach is increasing the city's national and international awareness.
- The evaluations of all groups of the survey's respondents make also clear that Borussia can be seen as the most important image-holder in Mönchengladbach. Furthermore, the fan relationship has the effect that people living outside Mönchengladbach are better informed about the city's other landmarks.
- All groups of respondents think that Borussia has a noticeable image improving impact for its hometown – of course fans of Borussia have a much more positive attitude towards these possible effects than non-fans have.
- Descriptive statistics as well as the combination of factor analysis and regression analysis suggest that there is a transfer of image from the club to the city.
- Furthermore, regression analysis gives a hint that positive image attributes are transferred more probably than negative ones.

Therefore, for the case of Mönchengladbach it can be stated that the soccer club (Borussia) influences the regional image. As regional image is a relevant factor of firm (and household) location the soccer club also influences regional development – behind regional multipliers.

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