
# Soccer Clubs and Regional Image

**Rüdiger Hamm**

**NIERS – Niederrhein Institute for Regional and Structural Research**

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# Structur of Presentation

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2. Soccer Clubs and Regional Image – Empirical Analysis
    a. Aim and Methods
    b. Descriptive Analysis – Results
    c. Factor Analysis and Regression – Results
3. Summary



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# Introduction

- **Empirical Studies on regional effects of soccer clubs normally focus on demand-side effects, i.e. regional multiplier analysis.**
- **But there seems to be more beyond regional multipliers (CROMPTON)**
- **Paper deals with the following effect:**
  - **Firm surveys suggest regional image to be a separate “soft” factor of location (Hamm/Wenke).**
  - **Sports clubs might be able to transfer their (positive) image to their hometown and thus …**
  - **… might also be able to affect regional economic development of this city.**



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# Aims and Methods

**Research questions:**

- **Are there awareness increasing effects of a soccer club for its home town?**
- **Can a soccer club be an important image builder of its hometown?**
- **Is it possible to identify an image transfer from the club to the city?**



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# Aim and Methods

## Methods

- **Case study: Borussia Mönchengladbach**
- **Data for analysing image effects stem from three surveys all of them conducted in autumn 2013.**
  - **Audience of soccer matches (913).**
  - **Face-to-face passer-by-surveys in several North Rhine-Westphalian cities (579).**
  - **Family-and-friends online-surveys (265).**



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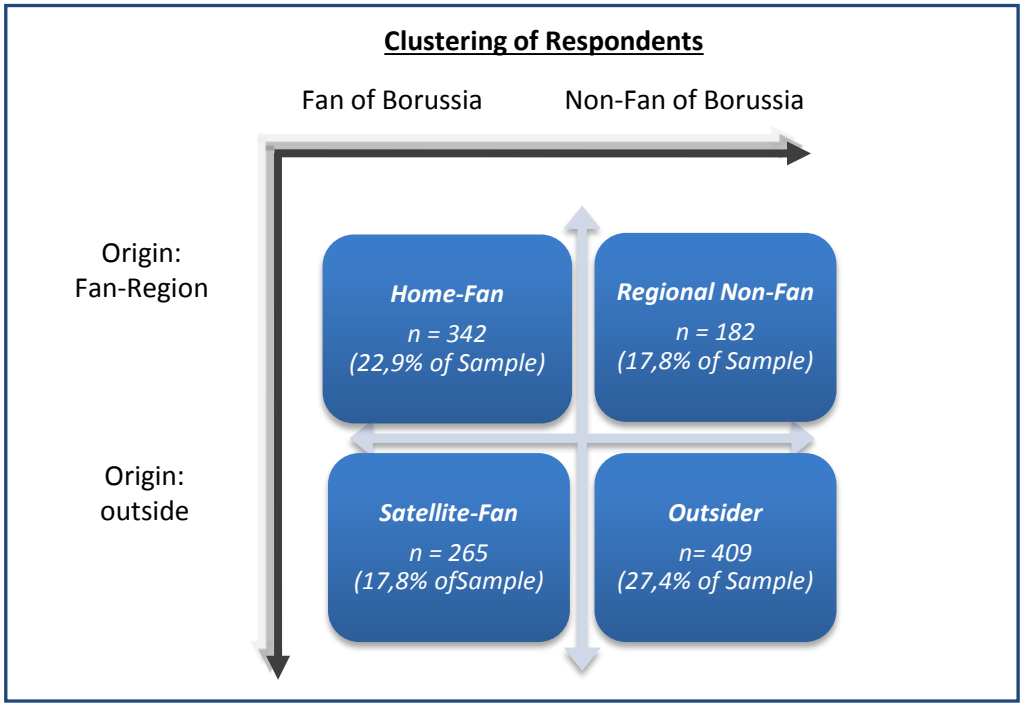
# Aim and Methods

- **Respondents have been clustered the following way**




- **Descriptive statistics**
- **Factor analysis combined with linear regression**



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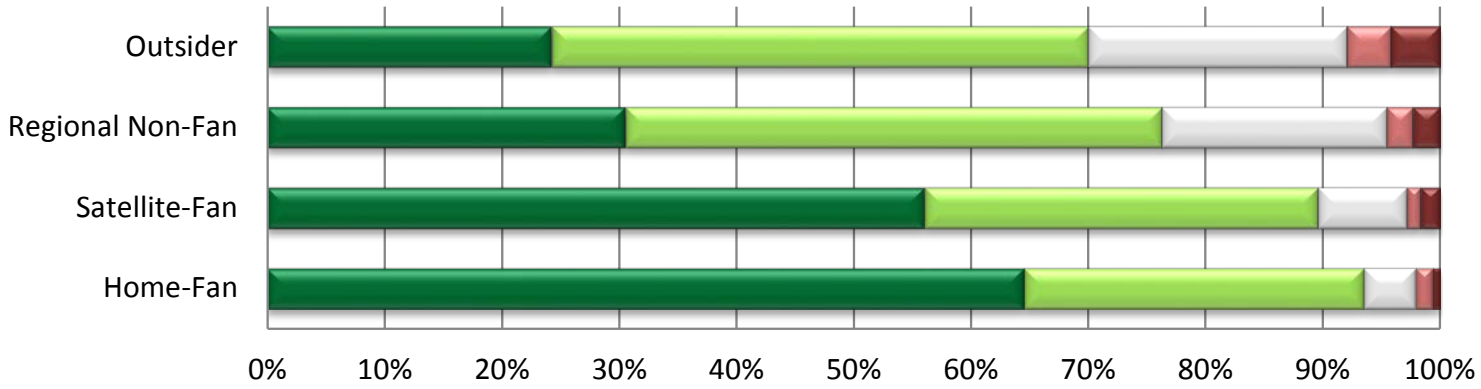
# Descriptive Analysis

## Increasing the city's national awareness?




| | Home-Fan | Satellite-Fan | Regional Non-Fan | Outsider |
|---|---|---|---|---|
| Very strong | 64,5% | 56,0% | 30,5% | 24,3% |
| Strong | 29,0% | 33,6% | 45,8% | 45,8% |
| Middle | 4,4% | 7,6% | 19,2% | 22,1% |
| low | 1,5% | 1,2% | 2,3% | 3,8% |
| not at all | ,6% | 1,6% | 2,3% | 4,1% |

- **93.5% of the home-fans think that the club increases the national awareness of the city.**
- **Even 70,1% of the outsiders believe so.**



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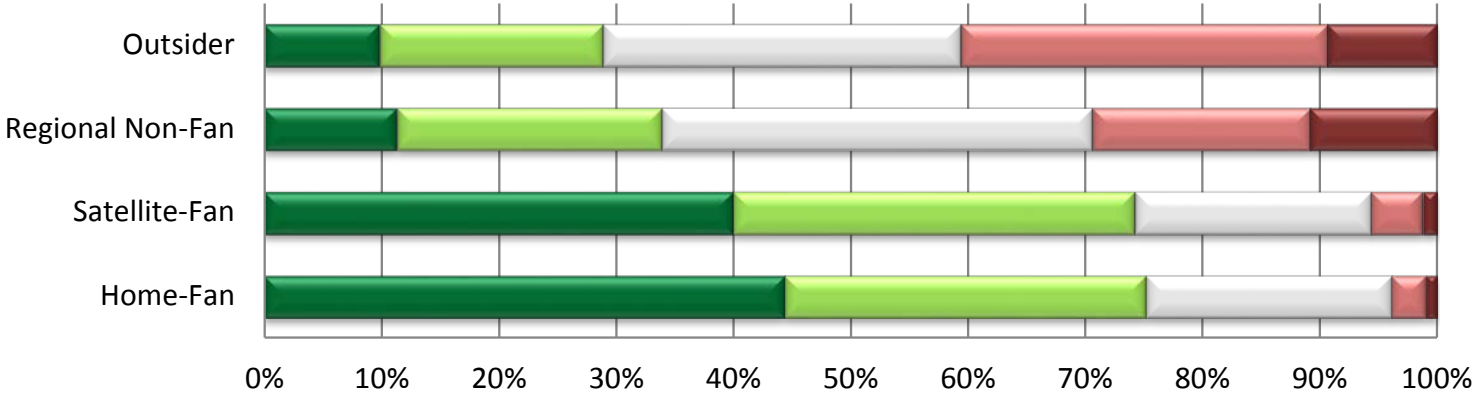
# Descriptive Analysis

## Increasing the city's international awareness?




| | Home-Fan | Satellite-Fan | Regional Non-Fan | Outsider |
|---|---|---|---|---|
| Very strong | 44,3% | 39,9% | 11,3% | 9,8% |
| Strong | 30,8% | 34,3% | 22,6% | 19,1% |
| Middle | 21,0% | 20,2% | 36,7% | 30,5% |
| low | 3,0% | 4,4% | 18,6% | 31,3% |
| not at all | ,9% | 1,2% | 10,7% | 9,3% |

- **About 75% of the two fan groups believe that Borussia increases the city's international awareness.**
- **Nearly 30% of the outsiders believe in these effects**



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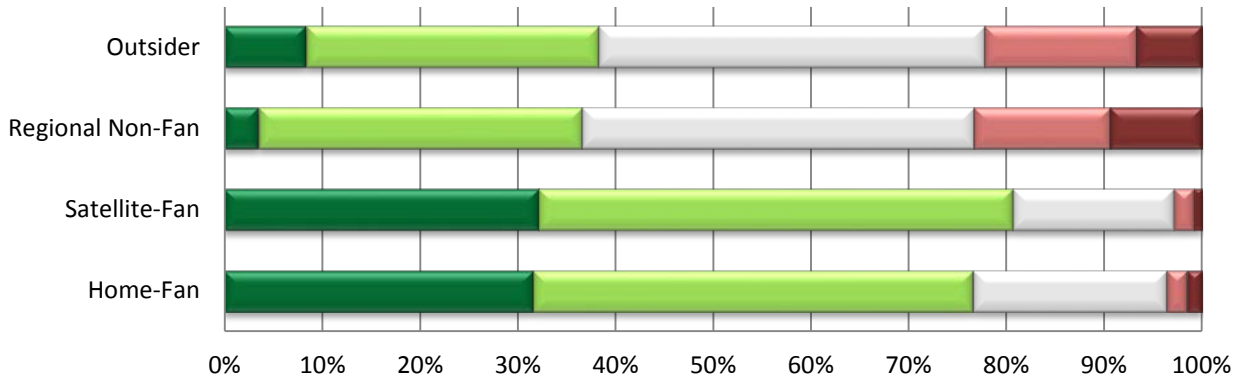
# Descriptive Analysis

**It can be stated that Borussia is an awareness increasing factor for the city of Mönchengladbach.**

**But, are there also image improving effects of Borussia for the city?**




| | Home-Fan | Satellite-Fan | Regional Non-Fan | Outsider |
|---|---|---|---|---|
| Very strong | 31,5% | 32,1% | 3,5% | 8,4% |
| Strong | 45,0% | 48,6% | 33,1% | 30,0% |
| Middle | 19,8% | 16,5% | 40,1% | 39,5% |
| low | 2,1% | 2,1% | 14,0% | 15,6% |
| not at all | 1,5% | ,8% | 9,3% | 6,6% |

- **76,5% of the home-fans and nearly 40% of the outsiders believe in these effects.**



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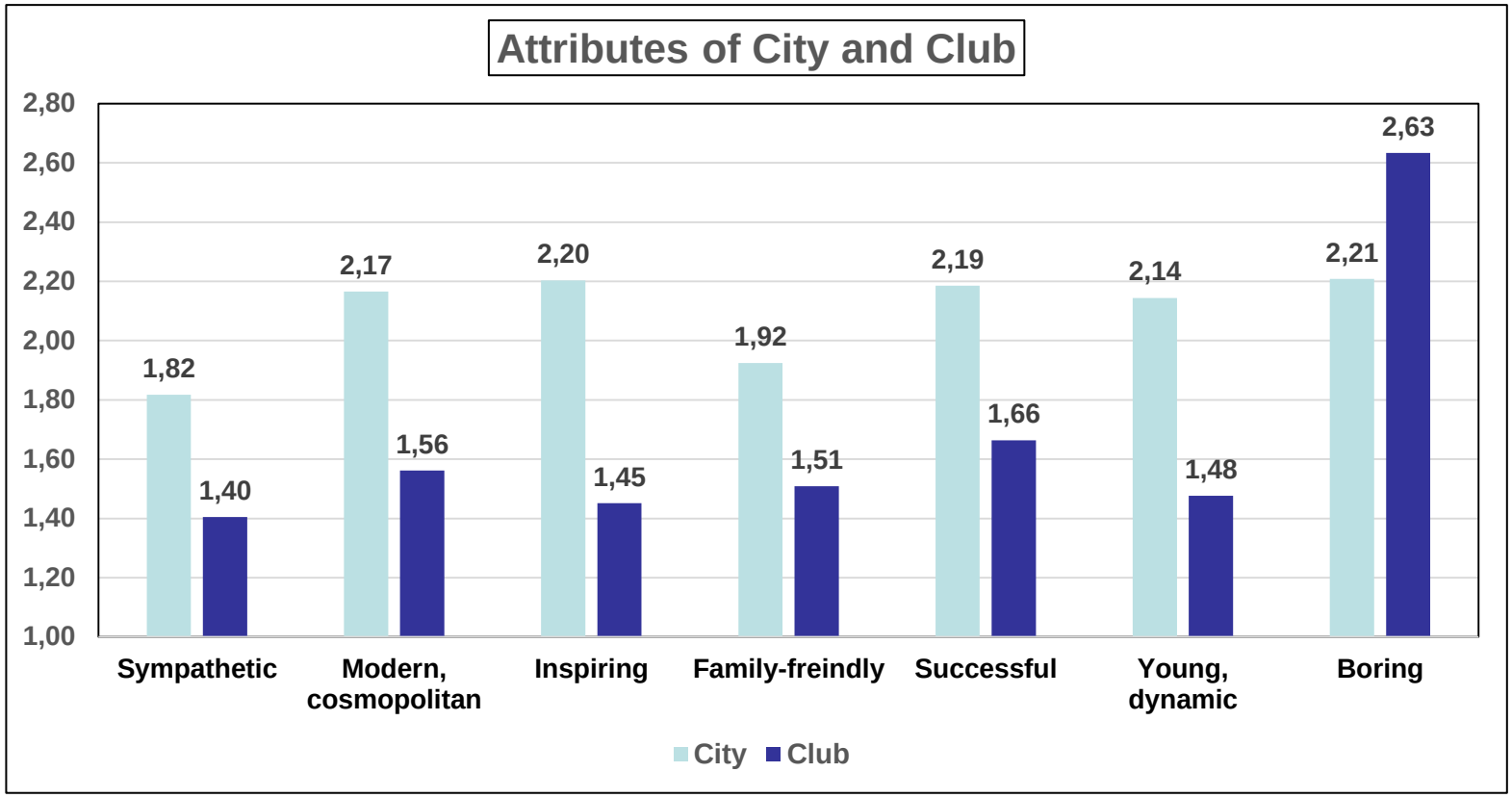
# Descriptive Analysis

## Respondents had to rate a number of attributes for the city and the club.




- **In all respects the club is noticeably rated more positive than the city.**



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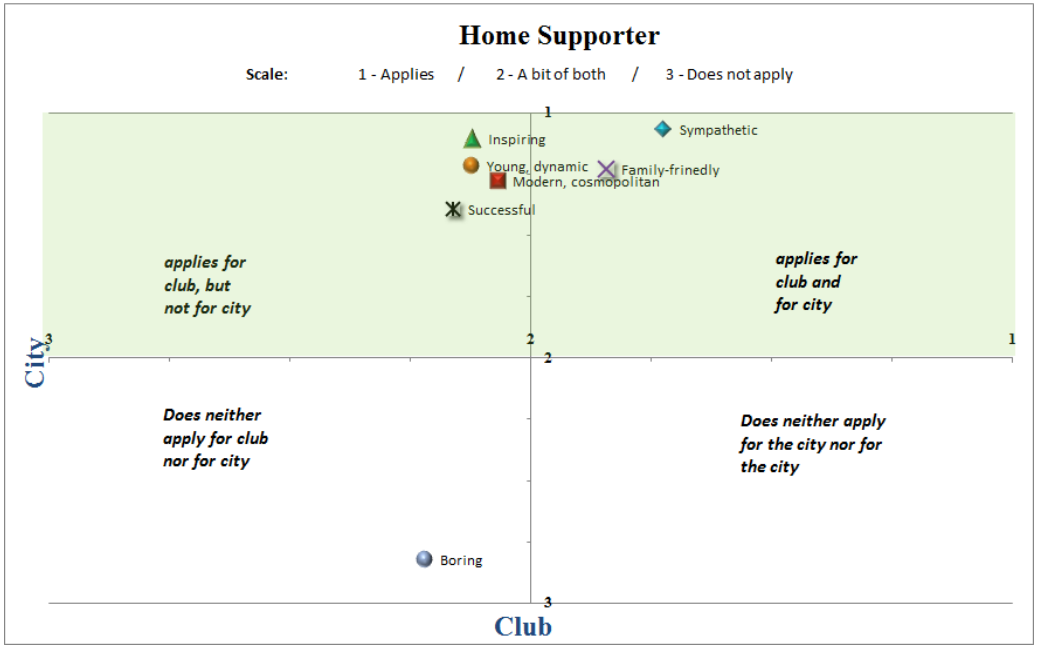
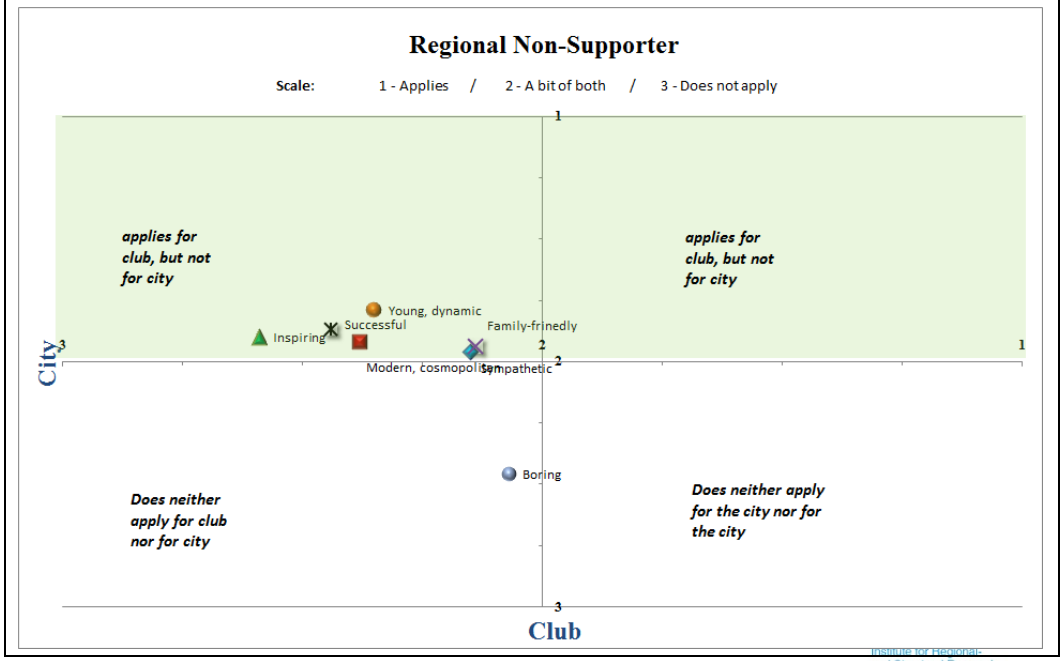
# Descriptive Analysis

**Ratings by fan groups – regional supporters compared to regional non-supporters**

- **Expectation in case of a transfer: fans do not only judge the club more positive than non-fans but also the city.**
- **Exactly this can be observed in the diagram.**
- **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.**

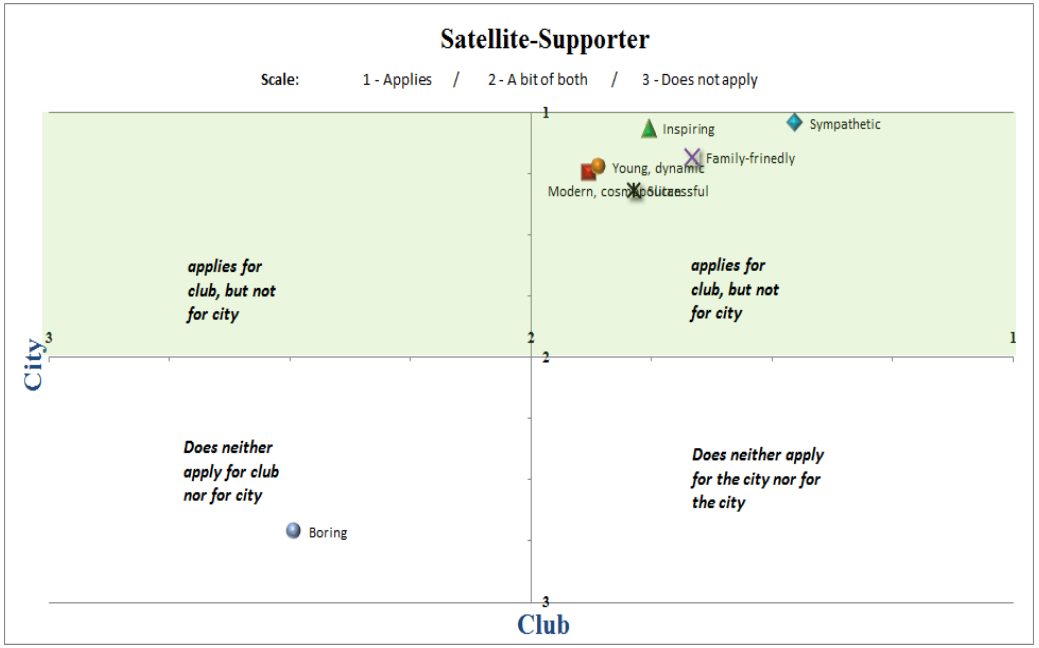


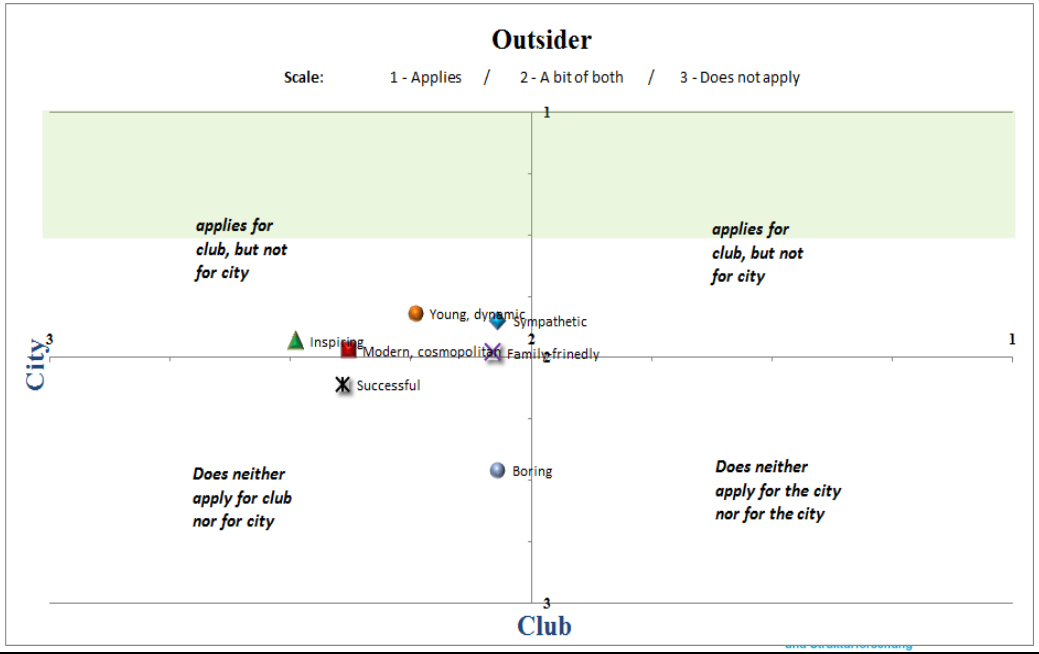



# Descriptive Analysis

## Ratings by fan groups – satellite-supporters compared to outsider

- The same can be observed by comparing satellite fans and outsiders.
- The points tend to move to the upper right part of the coordinate system meaning that satellite-fans give better ratings to both – club and city.



# Factor Analysis

- Results suggest that a transfer of (positive) image takes place.
- Combination of factor analysis and regression to check the results.
- In the surveys the respondents had to evaluate seven attributes for the city and the club. Factor analysis is used
  - to discover whether variables are overlapping,
  - to structure the relationships between these variables and
  - to identify groups of variables highly correlated to each other and to separate them from those with low correlation.
- Results of Factor analysis are used to calculate values for the structured factors.
- Finally new variables are used for analysing the relationship between the city's and the club's image by means of a regression.

- **Short (slide 14) or long (slide 15 – 20) version.**



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# Factor Analysis

1. **Testing appropriateness of data (city-image and club-image). Result: Data is appropriate!**
2. **Deciding how many factors should be extracted. Scree-test and Kaiser-Criterion suggest to extract one factor in both cases (city-image and club-image).**
3. **Principal component analysis for extraction of factors. Calculation of two new variables: “Image of the club” and “Image of the city”.**
4. **Last step: OLS.**

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

   **Expectations:**

   - **The better the club‘s image, the better the city‘s image,**
   - **i.e. first derivation is expected to be positive:**
     - $dI_{city}/dI_{club} > 0$



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# Regression Analysis

| Results of Regression Analysis - Dependent Variable: Image of the City | | | | |
|---|---|---|---|---|
| | Coefficient | T-Value | Significance | $R^2$ corr. |
| ***Regression 1*** | | | | |
| Const. | 0,024 | 0,75 | 0,452 | 0,185 |
| Image of the club | 0,417 | 13,45 | 0,000 | |
| Own calculations | | | | |

## Results of OLS:

- **„Image of the city“ is the better the better the „Image of the club“ - so there seems to be a transfer of image.**
- **The transfer-effect of the negative attribute “boring” (0,025) is less intensive than that of positive attributes (like e.g. „successful “: 0,079)**



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# Regression Analysis

## Extension

## Are there differences due to sex, age, origin or fan-status? Using dummies.

| Results of Regression Analysis - Dependent Variable: Image of the City | | | | |
|---|---|---|---|---|
| | Coefficient | T-Value | Significance | $R^2$ corr. |
| ***Regression 2*** | | | | |
| Const. | -0,093 | -1,48 | 0,141 | 0,207 |
| Image of the club | 0,393 | 10,11 | 0,000 | |
| Dummy 1: Fan of Borussia | -0,172 | -2,25 | 0,025 | |
| Dummy 2: Origin "Fan-Region" | 0,391 | 5,75 | 0,000 | |
| Own calculations | | | | |

## Results:

- **There are no significant effects of sex and age.**
- **Transfer effects are significantly higher for people living in and around Mönchengladbach.**
- **Surprisingly the effects are lower for fans of Borussia.**

| Differences by origin and fan-status | | |
|---|---|---|
| | Fan of Borussia | No fan of Borussia |
| From Mönchengladbach an around | + | ++ |
| From elsewhere | - | normal |
| | | |



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# Summary

**Main results:**

- **Borussia Mönchengladbach is increasing the city‘s national and international awareness.**
- **Descriptive analysis and the combination of factor analysis and regressions suggest 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.**
- **The transfer-effect seems to be highest for people stemming from Mönchengladbach and around without being fan of the club.**

**Conclusion: In the case of Borussia Mönchengladbach …**

- **… the soccer club influences regional image …**
- **... and as regional image is a relevant factor of location …**
- **… the soccer club also influences regional development behind regional multipliers.**



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# Thank You for Your Attention!



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# Factor Analysis

**First step: Testing appropriateness of data (city-image and club-image):**

- **Correlation: All variables used to describe the image are correlated to each other. Correlation is below I0,7I in all cases, i.e. no clear conclusion.**
- **Significance of correlation: All correlations are highly significant (1%-level).**
- **The Bartlett-Test tests whether a sample stems from a population of uncorrelated variables. Result: With a probability < 1% the variables are uncorrelated.**
- **The Kaiser-Meyer-Ohlkin-Criterion (“measure of sampling adequacy”=MSA) tests whether a factor analysis is meaningful or not. It allows an evaluation of the overall correlation matrix as well as of single variables. Literature suggests the MSA to be above 0,8; in our case the MSA-values for the correlation matrices are above 0,9, the MSA-values for the single variables lie between 0,779 (middling) and 0,940 (marvellous).**
- **Data is appropriate!**



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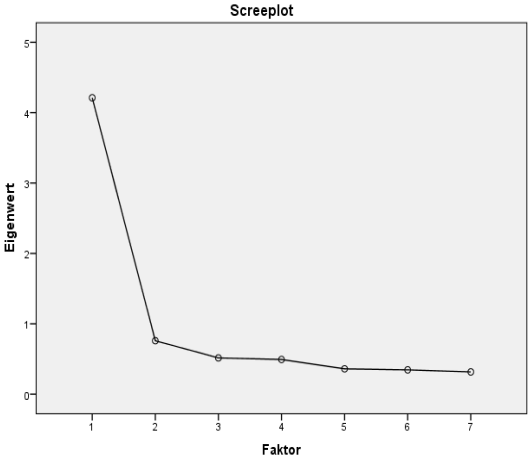
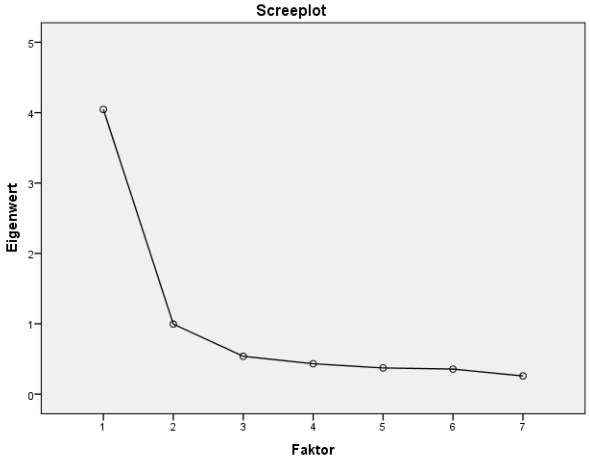
# Factor Analysis

**Second step: Deciding how many factors should be extracted**

**Literature suggests two different ways for solving this problem.**

1. **Scree-test, i.e.**
   - **Plotting the eigenvalues in diminishing order,**
   - **Look where the difference of the eigenvalues between two factors takes a maximum (the curve must have a sharp bend),**
   - **Choose the first point left to this sharp bend – it determines the number of factors to be extracted.**
   - **Method suggests to extract one factor in both cases (left hand – city; right hand – club!)**



# Factor Analysis

**Alternatively:**

2. **Kaiser-Criterion: Number of extracted factors should equal the number of factors with an eigenvalue above one.**
   - **The table shows that only the eigenvalue of the first factor is above one. So this method, too, would propose to extract one factor in both cases.**
   - **Decision: Extraction of one factor for the city and the club.**

**Table…: Explained Total Variance**

| Component | City | | | Club | | |
|---|---|---|---|---|---|---|
| | Original Eigenvalues | | | Original Eigenvalues | | |
| | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % |
| 1 | 4,212 | 60,16 | 60,16 | 4,046 | 57,80 | 57,80 |
| 2 | 0,759 | 10,85 | 71,01 | 0,995 | 14,22 | 72,02 |
| 3 | 0,515 | 7,36 | 78,37 | 0,538 | 7,69 | 79,70 |
| 4 | 0,493 | 7,04 | 85,41 | 0,433 | 6,18 | 85,88 |
| 5 | 0,360 | 5,15 | 90,55 | 0,373 | 5,32 | 91,21 |
| 6 | 0,345 | 4,93 | 95,48 | 0,357 | 5,10 | 96,30 |
| 7 | 0,316 | 4,52 | 100,00 | 0,259 | 3,70 | 100,00 |

Extraktionsmethode: Hauptkomponentenanalyse.

# Factor Analysis

| | City | | Club | |
|---|---|---|---|---|
| | First Component | Coefficient | First Component | Coefficient |
| Sympathetic | 0,793 | 0,188 | 0,847 | 0,209 |
| Modern, cosmopolitan | 0,821 | 0,195 | 0,826 | 0,204 |
| Inspiring | 0,840 | 0,199 | 0,862 | 0,213 |
| Family-frinedly | 0,749 | 0,178 | 0,786 | 0,194 |
| Successful | 0,818 | 0,194 | 0,764 | 0,189 |
| Young, dynamic | 0,805 | 0,191 | 0,803 | 0,198 |
| Boring | -0,571 | -0,136 | -0,240 | -0,059 |
| Own calculations by principal component method | | | | |

**Image of the city:**

- **All variables have high factor loadings.**
- **Coefficients of the components of factor 1 estimated by multiple regression.**
- **They are the weights for calculating the values of the new factor by multiplication with the original data for the seven attributes.**
- **Six positive attributes with similar positive weights.**
- **Negative attribute “boring” has a lower, but negative weight.**
- **New variable is defined as ”Image of the city”.**



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# Factor Analysis

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| Own calculations by principal component method | | | | |

**Image of the club:**

- **Similar results as in the case of the city.**
- **New variable is defined as ”Image of the club”.**



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# Regression Analysis

**Last step: OLS.**

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

**Expectations:**

- **The better the club‘s image, the better the city‘s image,**
- **i.e. first derivation is expected to be positive:**
  - **$dI_{city}/dI_{club} > 0$**



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