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# Is There a Euro Effect in European Football?

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# Is There a Euro Effect in European Football?

***Alexander Dilger/Michael Hickfang***

**Abstract**

We analyse whether the creation of the eurozone and the euro crisis had an effect on the sportive performance of professional football teams in European nations. We find a significantly positive sign of membership in the eurozone on UEFA points. However, this positive finding is not robust over time and disappears in models with more covariates. It is probably a size effect but at least the adoption of the euro brought no disadvantages in football.

JEL Codes: E42, F02, G01, Z20

# Gibt es einen Euro-Effekt im europäischen Fußball?

**Zusammenfassung**

Wir analysieren, ob die Gründung der Eurozone und die Eurokrise einen Einfluss auf die sportliche Leistung professioneller Fußballvereine in europäischen Nationen hatten. Wir finden ein signifikant positives Vorzeichen für die Mitgliedschaft in der Eurozone auf Punkte der UEFA. Allerdings ist dieses positive Ergebnis nicht robust über die Zeit und verschwindet in Modelle mit mehr Kovariaten. Wahrscheinlich handelt es sich um einen Größeneffekt, doch zumindest brachte die Euroeinführung keine Nachteile im Fußball.

Im Internet unter:

http://www.wiwi.uni-muenster.de/io/forschen/downloads/DP-IO_02_2022

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# Is There a Euro Effect in European Football?*

## 1. Introduction

There was and is an intense debate about the creation of the eurozone in general, about its advantages and disadvantages for different countries.[1] We look here at its consequences to professional football in Europe. Did football clubs and leagues in countries that joined the eurozone profit from the common currency or did they lose compared to those in other countries? The same can be asked about the euro crisis, under which several countries suffered. Did their football clubs suffer as well?[2] Is there a currency effect on economic performance and by this way[3] on sportive performance, too?

To answer these questions we measure football success in different countries inside and outside the eurozone over time. To compare the sportive success we use UEFA points for club competitions.[4] This allows a comparison between national leagues because they collect points in each season. In Section 2 we present our data and show first descriptive results. In Section 3 we present result of regression models. Section 4 concludes.

## 2. Data

We use data of 48 European countries and have 1,035 observations between 1994/95 and 2016/17. 11 countries (Austria, Belgium, Finland, France, Germany, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain) introduced the euro in 1999 (they as well as Greece use euro coins and notes since 2002), 8 countries (Cyprus, Estonia, Greece, Latvia, Lithuania, Malta, Slovakia, Slovenia) introduced it later and 4 more countries (Andorra, Monaco, San Marino and Vatican City) outside of the European Union also use the Euro officially and issue their own coins (Kosovo and Montenegro adopted the Euro unilaterally). We use different sources for football data, namely transfermarkt.de, UEFA.com and worldfootball.com.

* A previous version of this paper was presented on the 5th Annual Conference on Football and Finance in Seekirchen on 8 May 2018. We thank the participants for valuable suggestions. All expressed views and remaining errors are our own.

[1] See for example Authers (2012), De Grauwe (2020), Dilger (2017) and Fernández/Garcia-Perea (2015).

[2] In the USA, the attendance and franchise values of professional sports teams decreased with the financial crisis according to Humphreys (2010).

[3] There is a strong correlation between financial and sportive success, cf. Barajas/Fernández-Jardón/Crolley (2005), Frick (2005) and Szymanski/Kuypers (1999).

[4] See UEFA (2022).

Our economic data we have drawn from the World Bank. Table 1 shows the summary statistics of our variables and Table 2 their correlation matrix.

| Variable | N | Mean | Median | SD | Min | Max |
|---|---|---|---|---|---|---|
| UEFA points[1] | 1014 | 4.19 | 2.82 | 4.12 | 0 | 23.93 |
| GDP growth | 1032 | 3.03 | 3.05 | 4.38 | -19.65 | 34.47 |
| Population (in m) | 1035 | 17.5 | 7.28 | 2.81 | 0.03 | 148.02 |
| Tax burden | 907 | 65.50 | 65.40 | 16.00 | 29.80 | 94.10 |
| Number of teams | 1033 | 14.13 | 14 | 3.5 | 6 | 24 |
| UEFA members | 1035 | 51.61 | 52 | 1.99 | 47 | 54 |

Notes: Summary statistics reported for seasons 1994 to 2016. [1] UEFA points reached in season $t$.

**Table 1: Summary Statistics**

| | UEFA points | GDP growth | Popula-tion | Tax burden | Number of teams | UEFA members |
|---|---|---|---|---|---|---|
| UEFA points | 1.00 | | | | | |
| GDP growth | -0.15 | 1.00 | | | | |
| Population (in m) | 0.45 | 0.11 | 1.00 | | | |
| Tax burden | 0.22 | 0.03 | 0.47 | 1.00 | | |
| Number of teams | 0.65 | -0.04 | 0.36 | 0.18 | 1.00 | |
| UEFA members | 0.20 | -0.25 | 0.03 | 0.30 | -0.07 | 1.00 |

**Table 2: Correlation Matrix**

Figure 1 shows the development of GDP growth. As can be seen, the growth was higher for countries outside of the eurozone, at least after the introduction of the euro (see Figure 2).

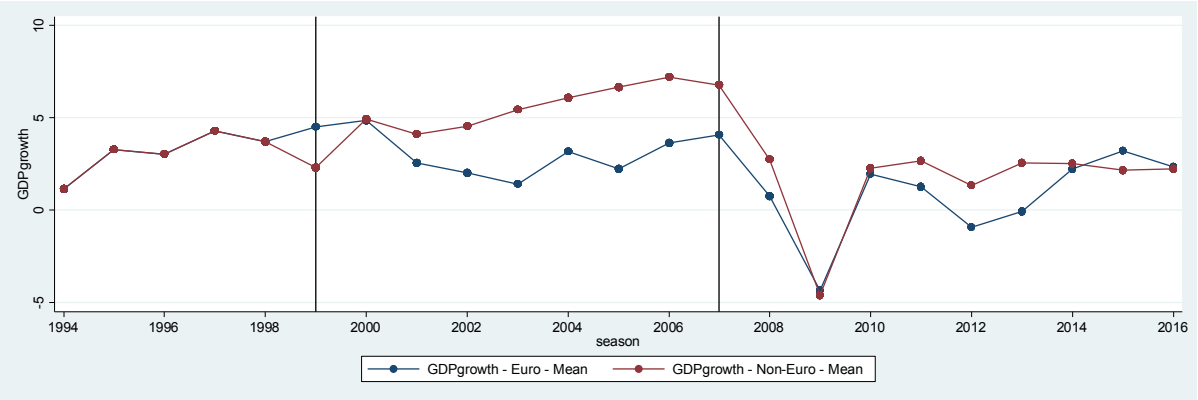


**Figure 1: GDP Growth (Eurozone Membership in the Season)**

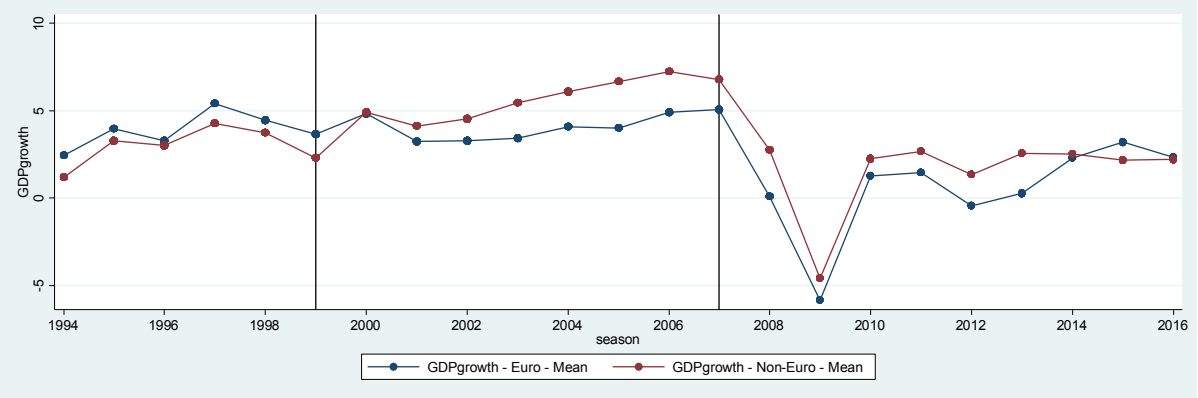


**Figure 2: GDP Growth (Eurozone Membership in Any Season)**

Figures 3 and 4 show the development of the UEFA ranking points. The eurozone members perform better here, not least because they are much larger on average, and they do not perform worse over time.

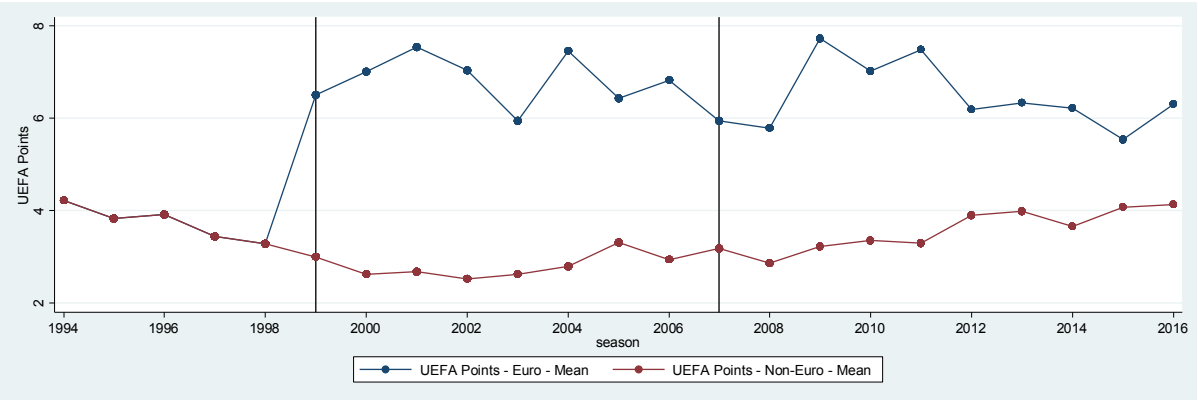


**Figure 3: UEFA Points (Eurozone Membership in the Season)**

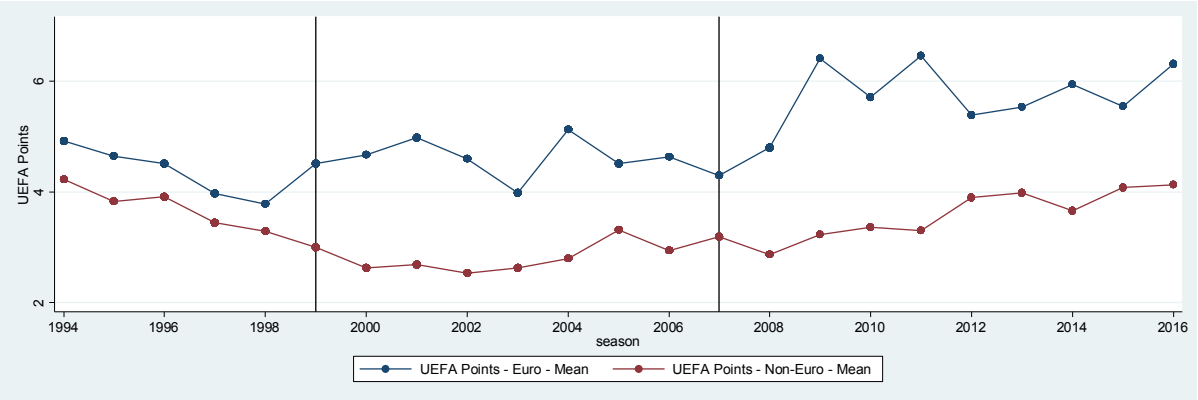


**Figure 4: UEFA Points (Eurozone Membership in Any Season)**

## 3. Regression Results

We use the following equation for our estimations:

$$UEFA\ points_{it} = \alpha + \beta \cdot GDPgrowth_{it-1} + \gamma \cdot Euro_{it} + \delta \cdot X_{it-1} + \vartheta_t + \mu_{it} + \epsilon_{it}.$$

$X_{it\text{-}1}$ denotes a set of covariates which differs across specifications including a $Balance\ factor = UEFA\ qualificants_{it-1}/UEFA\ qualificants_{it}$. $\vartheta_t$ denotes season dummies, $\mu_{it}$ denotes country fixed effects (in specifications (d), (e), (f)) and $\epsilon_{it}$ is the error term.

Table 3 shows the estimation results for the seasons 1994/95 to 1999/2000, that is before the creation of the eurozone.

**Period 1: Seasons 1994 - 1999**

**Dependent variable: UEFA points**

| | a | b | c | d | e | f |
|---|---|---|---|---|---|---|
| Lag GDP growth | 0.229*** | 0.195*** | 0.133* | 0.264*** | 0.265*** | 0.261** |
| | (0.072) | (0.065) | (0.079) | (0.081) | (0.081) | (0.096) |
| Lag log Population | 1.539*** | 1.048** | 1.178** | -56.838 | -57.019 | -34.774 |
| | (0.426) | (0.509) | (0.503) | (57.110) | (57.950) | (55.668) |
| UEFA members | | -0.696 | -0.629 | | -0.413 | -0.536 |
| | | (0.516) | (0.556) | | (0.734) | (0.848) |
| Number of teams | | 0.275* | 0.427*** | | -0.092 | -0.166 |
| | | (0.161) | (0.162) | | (0.287) | (0.394) |
| Balance | | | -0.724 | | | -0.788 |
| | | | (2.164) | | | (2.082) |
| Tax burden | | | -0.056** | | | -0.014 |
| | | | (0.027) | | | (0.059) |
| N | 167 | 167 | 131 | 167 | 167 | 131 |
| $R^2$ | 0.388 | 0.452 | 0.584 | 0.349 | 0.350 | 0.364 |
| Season FE | Y | Y | Y | Y | Y | Y |
| Country FE | N | N | N | Y | Y | Y |

Notes: Heteroskedastic-robust standard errors are reported in parentheses. Balance covariate cannot be calculated for Switzerland. GDP growth and population are lagged by one period. Further, we use the natural logarithm of population. Significance levels: *** 0.01, ** 0.05, * 0.1.

**Table 3: Estimations Before Eurozone**

Table 4 shows the regression results from 2000/01 to 2007/08, after the creation of the eurozone but before the euro crisis. In the simplest model (a) the adoption of the euro has a significantly positive sign. However, just with controlling for the number of teams the statistical significance is lost. With country fixed effects there is not enough variance left for the euro variable.

**Period 2: Seasons 2000 – 2007**

**Dependent variable: UEFA points**

| | a | b | c | d | e | F |
|---|---|---|---|---|---|---|
| Lag GDP growth | 0.131 | 0.124 | 0.176** | 0.164* | 0.170* | 0.234** |
| | (0.088) | (0.080) | (0.087) | (0.091) | (0.094) | (0.103) |
| Euro | 3.332** | 1.36 | 1.287 | 0 | 0 | 0 |
| | (1.466) | (1.501) | (1.639) | (.) | (.) | (.) |
| Lag log Population | 1.693** | 0.618 | 0.418 | 10.609 | 11.162 | 19.8 |
| | (0.701) | (0.610) | (0.746) | (45.177) | (45.692) | (37.895) |
| UEFA members | | 0.062 | 0.162 | | -0.119 | -0.581 |
| | | (0.902) | (0.897) | | (1.721) | (1.316) |
| Number of teams | | 0.700** | 1.041*** | | 0.629*** | 0.444* |
| | | (0.323) | (0.368) | | (0.104) | (0.244) |
| Balance | | | -1.933 | | | -3.019* |
| | | | (1.448) | | | (1.486) |
| Tax burden | | | 0.006 | | | 0.085 |
| | | | (0.056) | | | (0.177) |
| N | 269 | 269 | 231 | 269 | 269 | 231 |
| $R^2$ | 0.500 | 0.612 | 0.659 | 0.313 | 0.377 | 0.294 |
| Season FE | Y | Y | Y | Y | Y | Y |
| Country FE | N | N | N | Y | Y | Y |

Notes: Heteroskedastic-robust standard errors are reported in parentheses. Balance covariate cannot be calculated for Switzerland. GDP growth and population are lagged by one period. Further, we use the natural logarithm of population. Significance levels: *** 0.01, ** 0.05, * 0.1.

**Table 4: Estimations Before Euro Crisis**

Interestingly, even after (the outbreak of) the euro crisis the central results are unchanged as reported in Table 5. In the simplest model (a) for the seasons 2008/09 to 2016/17 the euro is still significantly positive. The significance is lost again with more covariates.

**Period 3: Seasons 2008 – 2016**

**Dependent variable: UEFA points**

| | a | b | C | d | e | f |
|---|---|---|---|---|---|---|
| Lag GDP growth | -0.034 | -0.033 | -0.042 | -0.032 | -0.03 | -0.041 |
| | (0.096) | (0.096) | (0.103) | (0.091) | (0.093) | (0.100) |
| Euro | 3.769** | 2.123 | 1.560 | 0.249 | 0.247 | 0.111 |
| | (1.800) | (2.119) | (1.876) | (0.316) | (0.317) | (0.300) |
| Lag log Population | 2.807*** | 1.717** | 1.719** | 18.673 | 17.735 | 27.425 |
| | (0.763) | (0.851) | (0.696) | (17.955) | (17.799) | (19.520) |
| UEFA members | | 0.090 | 0.245 | | -0.556 | -0.452 |
| | | (0.667) | (0.735) | | (0.837) | (0.841) |
| Number of teams | | 0.668 | 1.146*** | | 2.019*** | 1.865*** |
| | | (0.475) | (0.345) | | (0.309) | (0.295) |
| Balance | | | -0.232 | | | -0.227 |
| | | | (1.769) | | | (1.789) |
| Tax burden | | | -0.045 | | | -0.07 |
| | | | (0.069) | | | (0.138) |
| N | 360 | 360 | 336 | 360 | 360 | 336 |
| $R^2$ | 0.581 | 0.598 | 0.659 | 0.415 | 0.492 | 0.455 |
| Season FE | Y | Y | Y | Y | Y | Y |
| Country FE | N | N | N | Y | Y | Y |

Notes: Heteroskedastic-robust standard errors are reported in parentheses. Balance covariate cannot be calculated for Switzerland. GDP growth and population are lagged by one period. Further, we use the natural logarithm of population. Significance levels: *** 0.01, ** 0.05, * 0.1.

**Table 5: Estimations After Euro Crisis**

Finally, Table 6 shows a positive but insignificant sign for the euro variable over all seasons from 1994/95 to 2016/17. This means the euro brought no advantages in professional football but also did not harm the clubs.

**Period 1 - 3: Seasons 1994 - 2016**

**Dependent variable: UEFA points**

| | a | b | c | d | e | f |
|---|---|---|---|---|---|---|
| Lag GDP growth | 0.024 | 0.023 | 0.029* | 0.034** | 0.035** | 0.037** |
| | (0.015) | (0.016) | (0.017) | (0.016) | (0.016) | (0.017) |
| Euro | 0.666 | 0.648 | 0.657 | 0.358 | 0.398 | 0.369 |
| | (0.471) | (0.483) | (0.529) | (0.416) | (0.430) | (0.478) |
| Lag log population | 1.613*** | 1.538*** | 1.930*** | 3.562** | 3.793** | 4.438** |
| | (0.311) | (0.293) | (0.311) | (1.530) | (1.520) | (2.076) |
| UEFA members | | 0.207** | 0.337** | | 0.186* | 0.294* |
| | | (0.101) | (0.157) | | (0.098) | (0.158) |
| Number of teams | | 0.055 | 0.047 | | -0.052 | -0.06 |
| | | (0.051) | (0.046) | | (0.044) | (0.048) |
| Balance | | | 0.678* | | | 0.358 |
| | | | (0.362) | | | (0.329) |
| Tax burden | | | -0.025* | | | -0.011 |
| | | | (0.014) | | | (0.017) |
| N | 973 | 973 | 852 | 973 | 973 | 852 |
| $R^2$ | 0.532 | 0.598 | 0.566 | 0.435 | 0.229 | 0.37 |
| Season FE | Y | Y | Y | Y | Y | Y |
| Country FE | N | N | N | Y | Y | Y |

Notes: Heteroskedastic-robust standard errors are reported in parentheses. Balance covariate cannot be calculated for Switzerland. GDP growth and population are lagged by one period. Further, we use the natural logarithm of population. Significance levels: *** 0.01, ** 0.05, * 0.1.

**Table 6: Estimations for All Seasons**

## 4. Conclusion

Short models indicate a positive association between the euro and success in football (measured by UEFA points). Does this mean that the euro introduction was positive for sportive performance? The euro variable loses its significance in longer models with more covariates or more seasons. Possibly it is only a size effect because many members of the eurozone are larger than most other members of UEFA. At least, there are no negative implications of the euro introduction in European football.

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