cepStudy

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Who is Gonna Win the European Championship?

Why Economics Can (not) Explain Football

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The European Football Championship in Germany is cause for fans all over Europe to cheer on their national team. There is also a long tradition of linking the economic performance of a country to its odds of winning the championship, even though this forecasting method is obviously unreliable. Nevertheless, what makes it appealing is the fact that the outcome of economic competition, like that of a football tournament, is mysterious and depends to a considerable extent on unknown factors. This cepStudy takes the European Championship as an opportunity for a closer look at the current status and trends in the performance of European countries on and off the football pitch.

Key results:

► In European football, the market value of national teams has shown a strong upward trend, while teams from smaller or poorer countries show no sign of catching up. The distribution of market values closely correlates to the current betting odds for the EURO 2024, indicating the importance of certain fundamental factors. England exhibits the highest market value followed by France, Portugal, Spain, Italy, and Germany. Yet, according to the betting odds, certain teams have a good chance of doing better than their economic value suggests, including Germany. Italy meanwhile has a higher market value than Germany but lower odds of winning the championship. Given the French squad's fundamental strength, France is significantly ahead of Germany and Italy.

► In the EU economy, the larger countries have all displayed a lack of momentum in recent years and are now clearly outperformed by smaller, more dynamic economies like Ireland and Denmark. This hints at the serious structural weaknesses of countries like Germany, as well as France and Italy, the three largest European economies. The economic outlook as well as the economic mood are both, at best, subdued.

► European integration has increased both in the football world and in economic terms. Overall, the large economies are, in relative terms, markedly less interconnected with the internal market. This reflects a home bias that is typically more marked in larger economies and better sports leagues.

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1 Background

In the midst of geopolitical turmoil and just before potential watershed elections, the 2024 European Football Championship in Germany offers Europeans a welcome distraction from current worries. People all across Europe will once again be coming together for the four-week football celebration and cheering on their national teams. In the midst of this surge in well-meaning patriotism, however, the parallels between football and real life, especially economic events, cannot be overlooked. As in football, crises such as the CoViD-19 pandemic and fundamental long-term trends such as decarbonization and digitalization continue to create economic winners and losers, both between and within EU Member States. And, like the economy, European football is far from being a zero-sum game, despite all its rivalry. The mutual benefits of open European markets are just as evident in football as they are in the economy. National teams profit substantially from the experience that players gain in competitive international leagues. Conversely, no major European club can do without top foreign players.

This cepStudy takes these parallels as an opportunity for a closer look at the current status and trends in the performance of European countries, on and off the football pitch. Firstly, it analyses the playing strength of the European Championship participants based on publicly available data on market values and betting odds, distinguishing between fundamental strength and current form. Secondly, it does the same for the economic strength of the EU members, using measures of productivity and output gaps. Thirdly, we examine the current status and trends regarding the degree of European integration in both football and the wider economy, and finally, we compare the key findings of each section by identifying groups of countries with similar performance.

2 On the football pitch

2.1 European football through the lens of an economist

Sports Economics in general, and Football Economics in particular, seek to explain the sporting and economic success of a team or player. They also examine the specific functioning as well as the regulation of sports-related markets and league competitions .[1]

One central feature of football league or tournament competitions is a kind of rat-race incentive due to the winner-takes-all market design. Only the winner can be called champion, second place means first loser. Typically, the champion gets the highest revenues (prize money, sponsoring contracts) which can be used to further improve the team's quality ("success breeds success"). The resulting overconfidence often leads to an overinvestment on an individual level resulting in a collective debt problem for the football club as a whole.

In football there are no general patterns and mechanisms for success. They cannot exist because a match constitutes in the language of economics "a sequential game of mutually best responses", which means that there is no unique "recipe" that guarantees success. Because football is a low-scoring game, results are considerably affected by random factors. In the long run, and over the course of a competition, quality nevertheless matters. In general, better players improve the performance of a team, and the more good players there are the better the team is likely to be. A good forward player

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[1] For an overview see Andreff, W., and Szymanski, S., eds. (2006), Handbook on the Economics of Sport, London.

benefits more from a good midfielder than a bad one, and vice versa. This principle is called the "Zidane Clustering Theorem" referring to the fact that the result is a jointly produced outcome, or even a common good.[2]

European football as a market has, for many years, grown much faster than the general economy, benefiting from the internationalization of European football and new media technologies. Apart from a temporary decrease during the pandemic, total revenue has steadily increased over time. From 2016 to 2023, the total revenues of the Top 20 Clubs in European football rose from € 9.2 bn to € 10.5 bn, which corresponds to a 14% increase.[3]

Figure 1: Average revenue generated by the Top 20 clubs in European football (in million EUR)
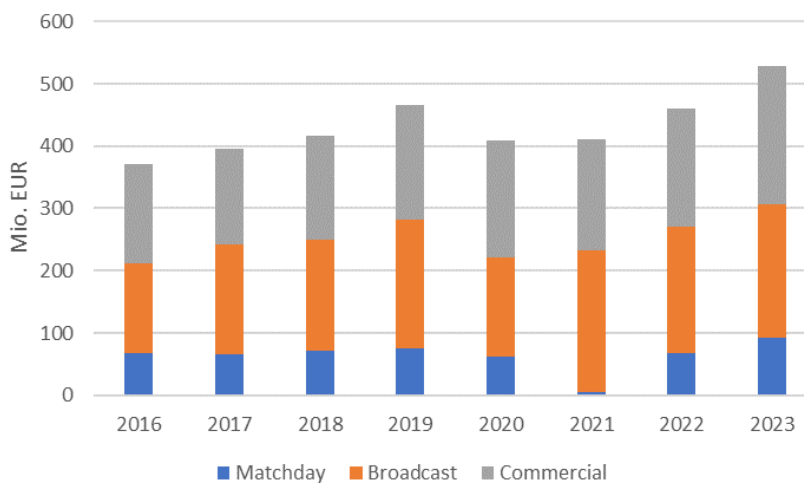
Source: Deloitte (2024).

The Top 20 clubs are all from the so-called "Big Five" leagues, i.e. the Premier League, La Liga, Ligue 1, Serie A, and the Bundesliga. Real Madrid leads with a yearly revenue of € 831m followed by Manchester City with € 826m, Paris Saint-German with € 802m, and FC Barcelona with € 800m. Bayern Munich is 6th with € 744m, Juventus is 11th with € 432m.

2.2   Strength of national teams

The strength of European national teams is more difficult to assess. We use current information on the market value of the squads as an indicator. Unlike performance data based purely on current sporting results, it is not distorted by differences in the playing strength of opponents or short-term fluctuations in form. At the same time - assuming a reasonably functioning football market - it is an objective indicator not only of past success, but also of the general expectation of future (discounted) revenues from the activity of individual players. In this respect, it goes beyond purely physical performance data.

Specifically, we use the latest data available on the transfermarkt.de website.[4] It includes data on all the players in the national team squads, broken down by season, including current market value and club affiliation. As the data for several seasons is not available in large quantities, we limit our analysis

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2   Vöpel, H. (2013). A Zidane clustering theorem: Why top players tend to play in one team and how the competitive balance can be restored (No. 141). HWWI Research Paper.

3   Deloitte (2024). Deloitte Football Money League 2024.

4   www.transfermarkt.de

to a comparison of two seasons: the 2023/24 season just ended and the 2013/14 season. Using this ten-year comparison, we want to raise the visibility of medium-term changes. We consider all national teams participating in the European Championship 2024 (EURO 2024). Figure 2 depicts the estimated market value of the national teams for the current season and the absolute change compared to the situation ten years ago (country codes are listed in Table A 1 in the Appendix). England's national team has the highest current market value, followed by France and Portugal. These three teams have also experienced by far the largest increases in their market values in a ten-year comparison. Spain, which was still the clear leader in 2013/14, now ranks in only fourth place. At the lower end of the scale, the relative gains in market value in Hungary, Georgia and Albania appear quite remarkable.

Figure 2: Comparison of market values of EURO 2024 participants
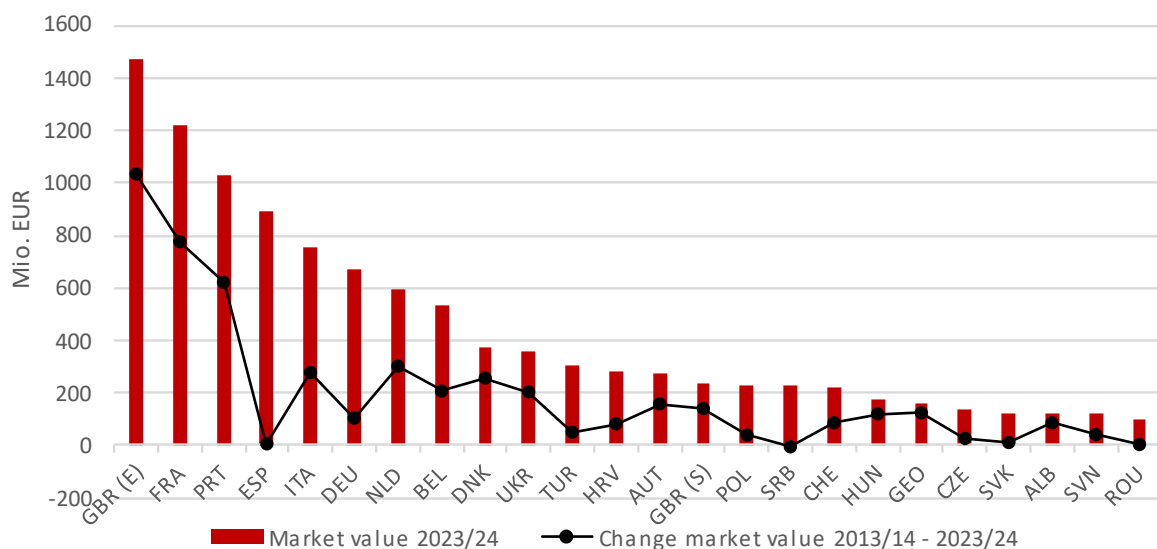
Source: Transfermarkt.de (2024); own calculations.

However, a fair performance comparison should also account for national differences in the pool of available footballers, related to factors like the general size and footballing tradition of the countries. Although there is no central database on the number of footballers in a country, an approximate figure can be derived from existing sources. We use the figures contained in the annual FIFA Football Report 2023 on the total number of footballers playing in a country and the proportion of players in this number with domestic nationality.[5] To this we add the number of expatriates, i.e. a country's professional players who are playing abroad, as monitored by the Football Observatory.[6] This gives a proxy for the total number of professional footballers by nationality for each country. If the market values of the national teams are set in relation to this figure, the result is a form of basic productivity measure. A higher level of this measure indicates the ability to generate a higher market value out of a given pool of footballers.

Figure 3 shows the results of this measure for the current season 2023/24. This indicator also shows major differences between countries. Portugal currently has the team with by far the highest level of "football productivity". It is followed by Denmark and the Netherlands. At the bottom of the ranking are Turkey, Scotland and the Czech Republic. In this graph, the traditionally large footballing nations

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5   FIFA (2023). Professional Football Report 2023 – Men's Football. Fédération Internationale de Football Association.
6   Football observatory (2023). Atlas of migration – Association of origin of expatriate players.

are only ranked mid-table. The best performing among them is Germany. England, whose team has the highest market value, ranks lower, due to the large number of domestic professional football players.

Figure 3: Comparison of market values and productivity indicator
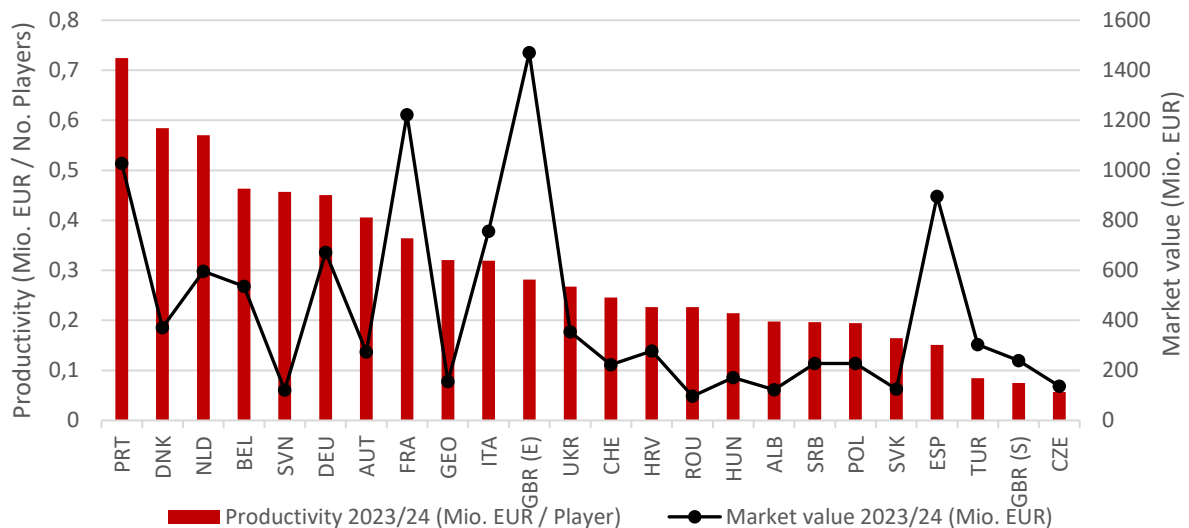
Sources: Transfermarkt.de (2024); FIFA (2023); Football observatory (2023); own calculations.

However, the fundamental strength of a national team is not the only factor that determines its performance in a major tournament such as the European Championship. The current form at the start of the tournament is important as well. To reflect this fact, we also look at the current betting odds published by major betting providers on who is likely to win the Euro 2024 tournament. We calculated the average odds of the following providers as of 25 April 2024: bet365, interwetten, bet-at-home and bwin. The data was retrieved from the wettbasis.com website.[7] Assuming a competitive betting market and well-informed participants, the odds should provide a good assessment of how the fundamental strength and short-term form of the individual teams currently match up. These average odds are shown in Table 1. England, as the team with the highest market value, is currently also top favourite with the bookmakers. Basically, a look at the ranked values shows an exponential trend similar to that of market values which suggests a close correlation between the logarithmic values of the two indicators.

Figure 4 illustrates this fact by comparing the results of both indicators in logarithmic form. The linear trend line depicted is relatively close to the real values for the teams shown. An anecdotal linear OLS regression produces a correspondingly high R^2. If, as before, we understand the market values as a reflection of the fundamental strength of the teams and the betting odds as a culmination of strength and form, the residuals of such a regression can be rationalized as a (negative) indicator of form.[8] If a country is located below (above) the trend line, the betting odds expected purely on the basis of

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7   [Wettbasis.com](#) (2024)

8   In general, besides fundamental strength and form, the chances of winning the tournament can be expected to be driven by further factors. One such factor could be the (general or tournament-related) experience of the players. Introducing the average number of international matches as an experience indicator in the regression did not bring about significant effects in our regression. Moreover, in the case of the EURO 2024 host Germany, the residual could to some extent reflect the expectation of a home advantage. However, any deeper analysis of the determinants of betting odds would have to rest on a much bigger sample.

market values are higher (lower) than the actual odds. The current form is therefore assessed as positive (negative). We will return to this simple concept in the comparative analysis in Section 4.

Table 1: Average betting odds on winning the EURO 2024 by team

Team	Average odds	Team	Average odds
GBR (E)	4.25	CHE	64.75
FRA	4.50	AUT	72.00
DEU	6.63	HUN	83.25
ESP	8.88	GBR (S)	88.25
PRT	8.88	UKR	101.00
BEL	15.75	CZE	132.00
ITA	15.75	POL	132.00
NLD	17.25	ROU	175.75
DNK	37.75	SVN	238.50
HRV	37.75	SVK	400.75
TUR	50.75	ALB	450.75
SRB	62.25	GEO	500.75

Source: Wettbasis (2024), Accessed on 25th April, 2024.

Figure 4: The relationship between average betting odds and market values
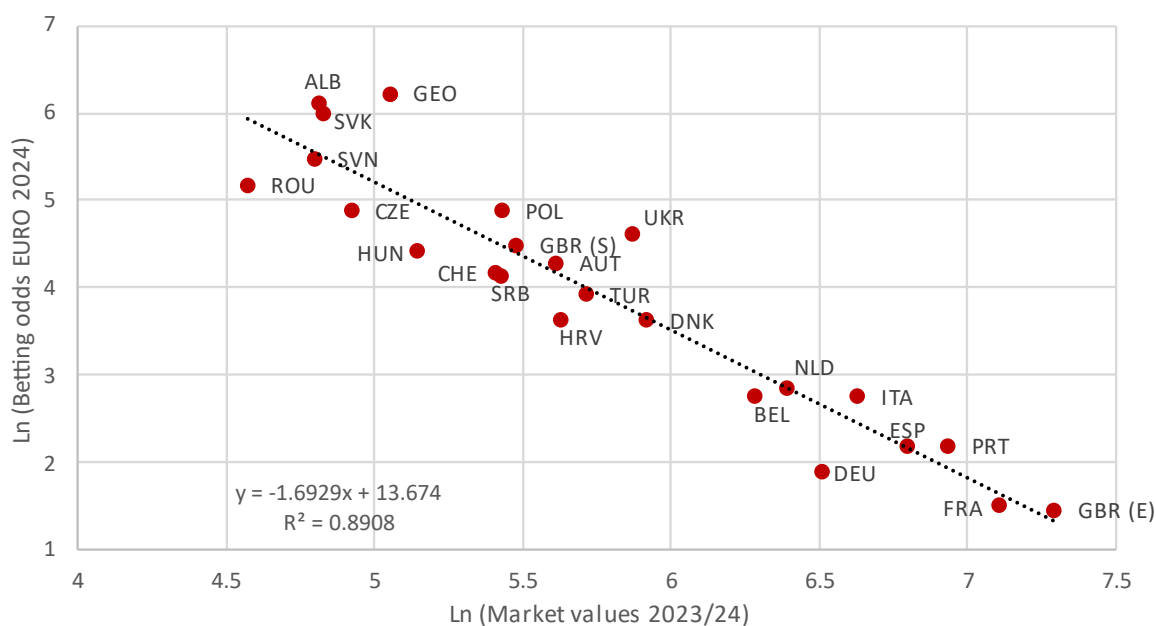

Sources: Transfermarkt.de (2024); Wettbasis.com (2024); own illustration.

2.3 European integration in football

Based on the information on club affiliations, we can use the national team squads to measure the degree of integration in European football. For this purpose and for consistency with the subsequent analysis of economic integration, we adjust our sample to include only the national teams of the 27 currEnt EU Members. We divide the national players into three categories according to their current activity either at clubs in their home countries, at clubs in other EU countries or at clubs in third countries. The indicator considered is again the market value of the players. Figure 5 shows the distribution of market values for all 27 EU national teams according to these three categories in a

comparison of the two seasons. Currently, around a third of the national teams' market value is concentrated on players playing in domestic clubs.[9] This proportion has fallen significantly compared to the 2013/14 season (49%). The degree of internationality in European football has therefore increased overall. The main reason for this is the increased proportion of players playing in other EU Member States. In contrast, the value share of third countries has remained virtually unchanged in a ten-year comparison. In both absolute and relative terms, we can therefore diagnose an overall increase in the degree of European integration in football.

**Figure 5: Distribution of EU27 market values by international presence**
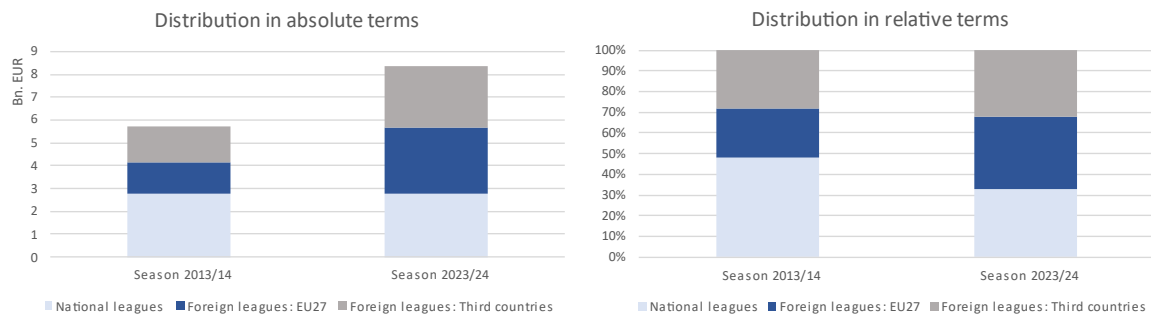
Source: Transfermarkt.de (2024); own calculations

As to be expected, a comparison at country level gives a much more diverse picture. Figure 6 compares the total market share of internationally active players (other EU countries + third countries: "Global presence") with the market share of players in other EU countries for the individual Member States. The national teams of Italy and Germany currently exhibit the lowest degree of internationality. The values for Spain are in the same order of magnitude. Malta is also showing similar results, which indicates that a low degree of internationalization is not limited to countries with strong domestic leagues. At the other end of the scale, there is a wide range of Member States where the proportion of international players working abroad is almost 100%. This group of countries was significantly smaller 10 years ago. At the same time, countries within this group differ greatly regarding the relevance of the EU area. In the case of Austria all of the reported national players active abroad are playing within the EU. In Slovakia and Slovenia, this holds for almost all players. In contrast, the EU share makes up less than 10% in Ireland (due to the dominance of the English leagues).

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9   In a comparison based purely on the number of players, the domestic share turns out to be significantly higher. This reflects the higher average value of players signed by foreign clubs.

Figure 6: Global and EU presence of players by Member State
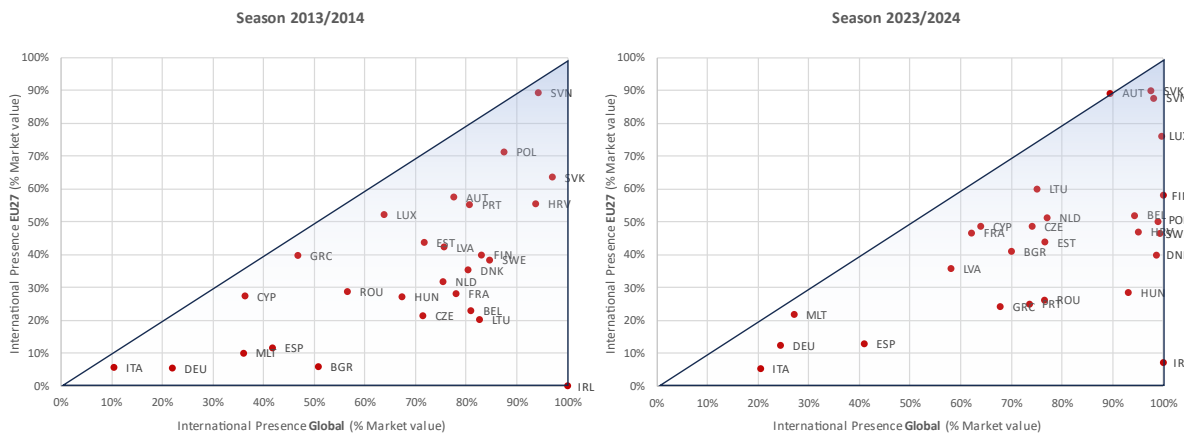
Source: Transfermarkt.de (2024); own calculations.

Intuitively, these differences are likely to be related to two factors. The first is the quality of the national teams. A higher quality should have a positive effect on internationality, as it makes the national players more attractive to top foreign clubs. The second factor is the strength of domestic clubs which should have a negative effect on internationality, as it increases the motivation of national players to remain in the domestic league. At the same time, the two factors are highly unlikely to be independent of one another. For example, a strong domestic league can also benefit the development of home-grown talent and thereby the quality of the national team. Conversely, a successful national team can have positive repercussions for the attractiveness of the domestic league, and thus its appeal to top domestic and foreign players. Figure 7 suggests that the resulting relationship between the market value and internationality of national teams is non-linear, and possibly even non-monotonic. For example, the market value share of players working abroad is comparatively low for the top teams Spain, Italy and Germany. The strength of their national leagues undoubtedly plays an important role in this. By contrast, the value share of players playing abroad is extremely high for many national teams in the lower midfield of the market value ranking. For the particularly weak teams such as Malta and the Baltic states, however, it is somewhat lower again. Here, the players' low attractiveness to foreign clubs seems to dominate the league effect.

Figure 7: Market values of national teams and global presence of players
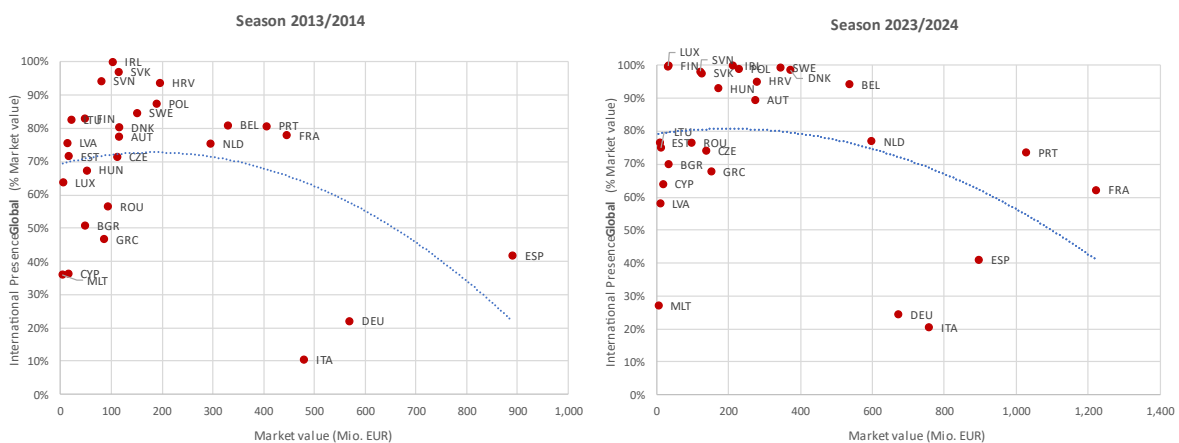
Source: Transfermarkt.de (2024); own calculations.

3   Off the football pitch

3.1   Strength of national economies

In principle, many indicators can be considered as benchmarks for the economic performance of the Member States. Popular figures such as current GDP growth or investment volume are strongly influenced by short-term factors and economic cycles. First, we look at economic strength from a structural perspective using productivity indicators. To this end, we use Total Factor Productivity (TFP) as the central economic productivity indicator. This is based on a macroeconomic production function approach, with Gross Domestic Product (GDP) as the output variable and a range of measurable production factors as inputs. In the context of traditional neoclassical growth theory, TFP growth can be interpreted as the part of GDP growth that is not attributable to the growth of inputs, but to general technological progress.[10] For optimal measurability across Member States, we have chosen the traditional approach of two production factors: physical capital (machinery, equipment, buildings, etc.) and labour. We measured physical capital using the Eurostat indicator of net fixed assets.[11] We measured labour according to the annual working hours of employees and the self-employed in the respective Member State.[12] Unlike some other approaches, we did not correct for differences in quality (level of education, level of qualification).[13] The results therefore also reflect skill-related differences in labour productivity.

We have chosen the Cobb-Douglas production function as the functional form. In this specification, labour and capital are characterized by fixed output elasticities that correspond to the respective shares of national income. In line with the European Commission's approach, we have used the empirical values 0.65 for labour and 0.35 for capital.[14] Following Weyerstrass (2018), we considered the manufacturing and market services sectors.[15] This means that the primary sectors, construction, energy and public administration were excluded. Data on gross value added by sector is likewise taken from Eurostat.[16]

Figure 8 shows the results at the latest available point in time of 2021 as standardized levels (best performing country: 100). Of the countries under consideration, Ireland and Luxembourg stand out as having particularly high productivity values. They are followed by the Scandinavian economies of Denmark and Sweden. The large EU economies only rank in the middle of the field. The productivity values of the eastern Member States are still below average. Among them, Slovenia performs best. Ireland is also the country with the strongest productivity growth in a ten-year comparison (see Figure 9). Some eastern Member States such as Latvia and Romania also exhibit significant growth. Against this backdrop, Figure 9 shows clear indications of a convergence process in the area of TFP productivity in Europe, apart from individual outliers such as Ireland.

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[10] Solow, R. M. (1957). Technical change and the aggregate production function. The review of Economics and Statistics, 39(3), 312-320.

[11] Eurostat (2024a). Cross-classification of fixed assets by industry and by asset (stocks). Eurostat Database.

[12] Eurostat (2024b). Employment by A*10 industry breakdowns. Eurostat Database.

[13] See for instance: Kurmann, A., & Sims, E. (2021). Revisions in utilization-adjusted TFP and robust identification of news shocks. Review of Economics and Statistics, 103(2), 216-235.

[14] Havik, K., Mc Morrow, K., Orlandi, F., Planas, C., Raciborski, R., Röger, W., Rossi, A., Thum-Thysen, A. & Vandermeulen, V. (2014). The production function methodology for calculating potential growth rates & output gaps (No. 535). Directorate General Economic and Financial Affairs (DG ECFIN), European Commission.

[15] Weyerstrass, K. (2018). How to Boost Productivity in the EU (No. 08). EconPol Policy Brief.

[16] Eurostat (2024c). Gross value added and income by A*10 industry breakdowns. Eurostat Database.

Figure 8: Comparison of TFP across Member States
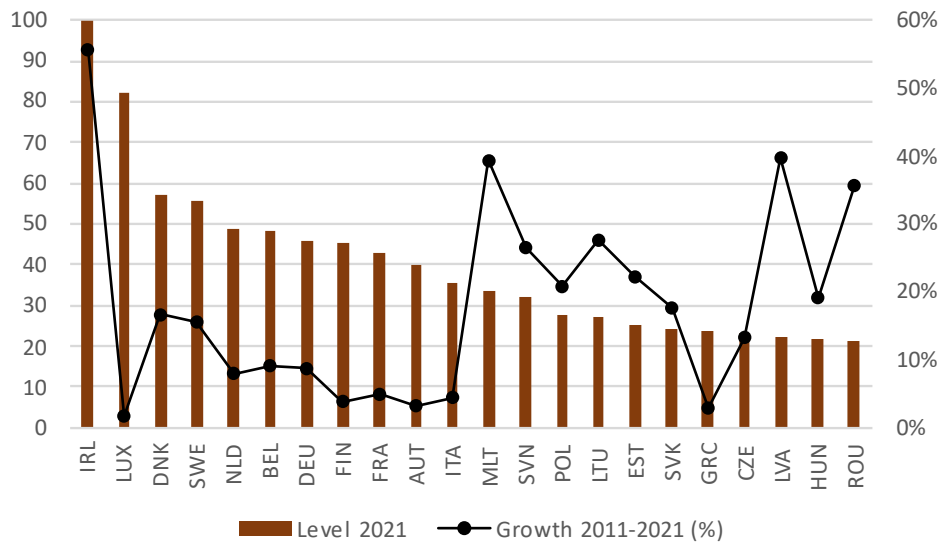
Sources: Eurostat (2024a;b;c); own calculations. No capital stock data for Bulgaria, Croatia, Cyprus, Portugal and Spain.

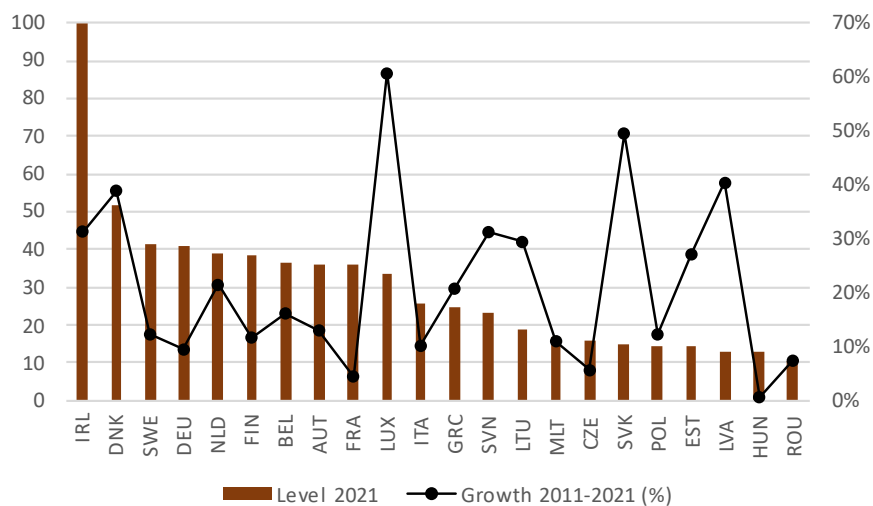**Figure 9: Convergence trends in TFP among Member States**
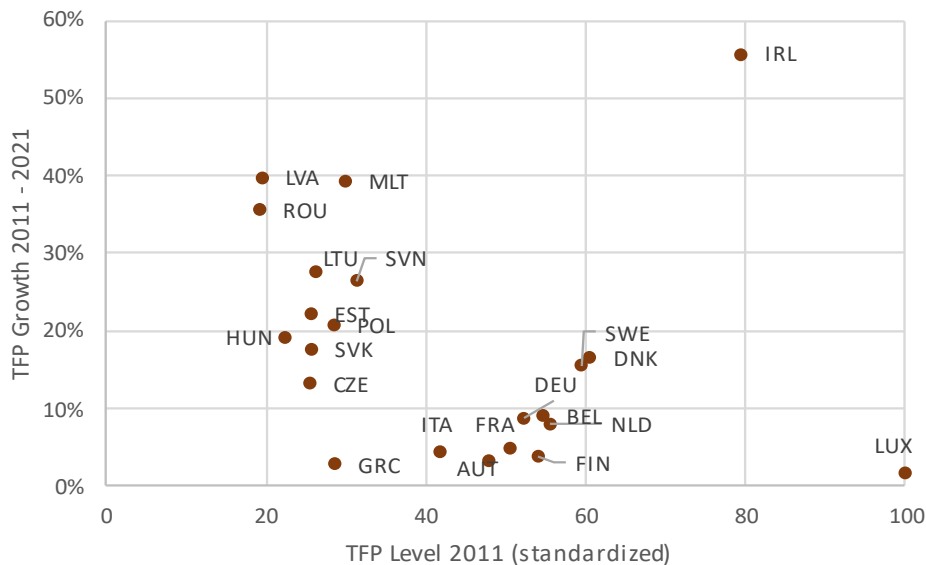
Sources: Eurostat (2024a;b;c); own calculations. No capital stock data for Bulgaria, Croatia, Cyprus, Portugal and Spain.

Some of the diversity observed could be due to structural differences, particularly with regard to the role of sectors such as Financial Services with low physical capital needs and high multiplier potential for value added. We therefore additionally estimate TFP for the Manufacturing sector only. As expected, this produces a slightly different pattern (see Figure 10). Ireland still performs best, but here its lead over the other Member States is even more impressive. Denmark's performance in manufacturing TFP is well above average, clearly outperforming the big industry nations, France, Germany and Italy. A look at the 10-year-comparison indicates that this is primarily due to a discrepancy in recent TFP growth. Overall TFP growth in Danish manufacturing was more than three times higher than in German, French and Italian industry during this period. Luxembourg ranks only in

mid-field in this respect, illustrating the fact that its high overall TFP is primarily rooted in its dominant financial sector.

Figure 10: TFP In manufacturing

Sources: Eurostat (2024a;b;c); own calculations. No capital stock data for Bulgaria, Croatia, Cyprus, Portugal and Spain.

For the economic perspective, as in the football analysis, we also tried to identify a candidate to use as an alternative short-term "form" indicator to complement the fundamental developments reflected by the TFP. In business cycle analysis, the output gap is one figure that is often applied. It is defined as the percentage deviation of actual from potential GDP in a given year. Similar to TFP, potential GDP is estimated based on a production function approach. The only difference is that actual labour volumes are replaced by potential labour volumes as input factor. These, in turn, are estimated as time trends based on time series econometrics, distinguishing trends in labour market participation, employment and hours of work per person.[17] The output gap is thus a measure of trend deviation, indicating in what direction and how far the economic short-term performance of a country deviates from its long-term growth path. Figure 11 shows 2023 values and 2024 forecasts for output gaps estimated by the OECD.[18] Thus, in 2023 Croatia shows the most positive deviation from its long-term production potential, followed by Ireland and Italy. In 20 of the 25 Member States reported, including in Germany and France, the output gap in 2023 was negative. This reflects the overall sluggish recovery from the polycrisis. Output gap predictions for 2024 are even worse for the majority of Member States. According to an assessment by the European Commission, the reasons for this are mostly related to the poor shape of the global economy, the wars in Ukraine and Gaza and the risk of further escalations of geopolitical tensions.[19]

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[17] Blondeau, F., Planas, C. and A. Rossi (2021). Output Gap Estimation using the European Union's Commonly Agreed Methodology, ECFIN Discussion Paper 148.

[18] OECD (2024a). Output gap as a percentage of potential GDP. OECD Economic Outlook. Organisation for Economic Co-operation and Development, Paris.

[19] European Commission (2024). European Economic Forecast – Winter 2024. Institutional Paper 268, February 2024.

Figure 11: Comparison of output gap across Member States
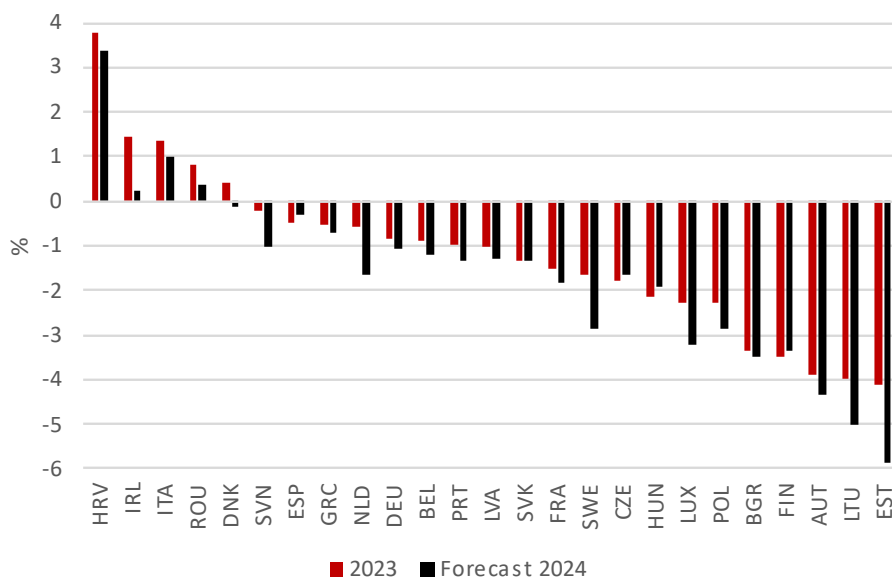
Source: OECD (2024a); own illustration.

3.2 European economic integration

The economic integration of EU Member States has several dimensions. The starting point for our analysis is the concept of the internal market characterized by the four freedoms guaranteeing the free movement of goods, services, people and capital. Below we construct an intuitive indicator for each of the four freedoms that measures the extent of exchange between one EU Member State and the other EU Member States. In order to ensure that Member States of different sizes are comparable, we have set the absolute volume in relation to an overall measure of economic activity of the individual countries. We draw on various sources for this purpose.

We measured the intensity of the intra-EU trade in goods and services of a Member State as the ratio between the value of intra-EU exports and imports and the sectoral GDP of the respective country. We obtained the data on trade in goods from the UN's Comtrade Database[20] and the data on trade in services from the OECD Balanced Trade in Services Database[21]. To measure the intensity of intra-EU capital flows, we drew on data on foreign direct investment (FDI) stocks from the IMF's Coordinated Direct Investment Survey.[22] Unlike portfolio investments, the capital flows measured are investments that are intended to have strategic influence on enterprises and therefore reflect genuine economic activity in the receiving country. We set the value of intra-EU FDI stocks as a size correction in relation to the value of the domestic net fixed assets of the respective country (see previous subsection). Finally, we looked at the economically relevant movement of people in the form of work migration.[23] To this end, we drew on Eurostat data on the number of employees by citizenship.[24] We compare the

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[20] UN Comtrade (2024). Comtrade Database.
[21] OECD (2024b). Balanced trade in services (BaTIS). Organisation for Economic Co-operation and Development, Paris.
[22] IMF (2024). Coordinated Direct Investment Survey. International Monetary Foundation, Washington.
[23] Here, only inflows are considered, as the Eurostat dataset does not allow for disaggregation by specific nationality.
[24] Eurostat (2024d). Employment by sex, age and citizenship. Eurostat Database.

number of domestic employees who are citizens of foreign EU-countries with the total number of domestic employees. Table 2 summarizes the indicators and data sources.

Table 2: Composition of integration indices

Dimension	Indicator	Data sources
Trade in goods	(Goods exports_EU partners + Goods imports_EU partners) / GVA (excl. Services)	UN Comtrade (2024); Eurostat (2024c)
Trade in services	(Services exports_EU partners + Services imports_EU partners) / GVA Services	OECD (2024b); Eurostat (2024c)
FDI	(Inward Stock_EU partners + Outward Stock_EU partners) / Domestic net fixed assets	IMF (2024); Eurostat (2024a)
Work migration	Employment_EU-Foreigners / Domestic Employment total	Eurostat (2024d)

Source: own illustration

First, Figure 12 depicts the development of the four integration indicators in total across all Member States. The picture shows a general increase in economic integration over the last ten years. All sub-indices have risen significantly compared to the situation in 2013. The degree of integration in work migration has increased the most. However, the increases have not been continuous. The pandemic year 2020 was therefore not only associated with a general decline in economic activity, but also with a decline in the importance of intra-European exchange. The slump was most pronounced in trade in services. However, a general recovery in the integration indicators is already visible for the following year. The CoViD-19 pandemic thus does not appear to have had a lasting impact on the economic integration process.

Figure 12: Evolution of integration measures at EU level
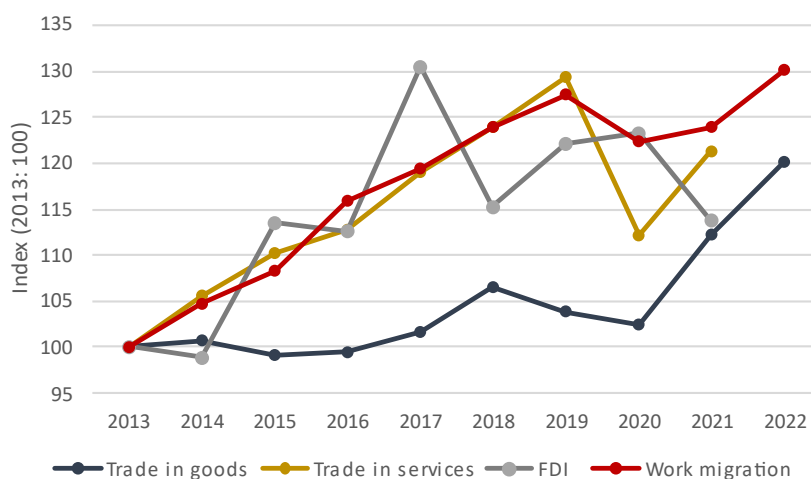
Sources: Eurostat (2014a;b;c;d); UN Comtrade (2024); OECD (2024a); IMF (2024); own calculations.

This general picture hides serious geographical shifts in intra-EU economic relations. Figure 13 depicts the level and development of the four integration indicators for the individual Member States in the most recent available year for the respective indicator. Not only do we see generally large differences in the level of integration, but also different specializations of the Member States in certain forms of

economic exchange. For example, Belgium and Hungary showed the highest level of integration in the area of trade in goods in 2022, while for trade in services and FDI, Ireland and Luxembourg in particular stood out as important locations for multinational service groups with their intra-European networks. In general, it is striking that the degree of integration is comparatively lowest in the major economic powers, Germany, France and Italy, particularly with regard to the trade in goods and services. This primarily reflects the comparatively greater role played by third countries such as China in the supply chains of these countries. It is also interesting that a country like Hungary, which shows clear signs of political disintegration, is so closely intertwined economically with the rest of the EU. Despite all these country differences, our long-term comparison shows that the general integration trend in all Member States is positive for all indicators. Therefore, concerns at the political level about a disintegrating EU are not yet echoed by the economic reality.

Figure 13: Comparison of integration indicators across Member States

Sources: Eurostat (2014a;b;c;d); UN Comtrade (2024); OECD (2024a); IMF (2024); own calculations.

4 Comparison of results

We have used cluster analysis to identify patterns from these various results and are initially interested in comparing the performance indicators on and off the football pitch. For this purpose, we have used the profile of the previous analysis, i.e. EU members whose national teams have qualified for the current European Championship, which involves a total of 16 Member States. In order to apply the cluster analysis, it is necessary to decide on the size and number of clusters in which countries should be grouped. For a clear interpretation of the clusters, we have done two separate cluster analyses of the indicators, one for strength and one for form. As strength indicators, we used the total factor productivity indicator from the above analysis on the economy[25], and the market values of the national teams from the football analysis. As form indicator for the economy we used the output gap from Section 3.1., and as form indicator for football we used the negative residual from our anecdotal regression of EURO 2024 betting odds on market values (see Subsection 2.2). To avoid distortions

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[25] Here, missing TFP values for Bulgaria, Croatia, Cyprus, Portugal and Spain were approximated based on data for GDP per capita.

caused by different distribution widths, all indicators were mean-standardized before the application of the cluster analysis.[26] The *kmeans* approach was used as the methodology for the cluster analysis. The number of clusters to be extracted was determined based on the traditional elbow method.[27]

Figure 14 compares the resulting cluster diagrams for the strength and form indicators. In both cases, the course of the elbow function suggested four distinct clusters. In the case of the strength indicators, the geographical subdivision is very striking. The major Mediterranean countries among the European Championship participants, France, Italy, Spain and Portugal, are all in the same cluster, which is characterized by high strength in football, but only mediocre strength (TFP) in the economy. Germany is in the same cluster as the Netherlands, Belgium and Denmark which is characterized, conversely, by comparatively high economic strength but only mediocre strength in football. The other two clusters, containing Austria along with the eastern EU Member States, do not achieve high scores in either dimension. The pattern is more complex when it comes to the current form indicators. Croatia and Romania stand out here primarily thanks to their strong economic form (high output gap). At the other end of the spectrum are Austria, Poland and Slovakia, countries with weak form values in both dimensions.

Figure 14: Cluster analysis of performance indicators
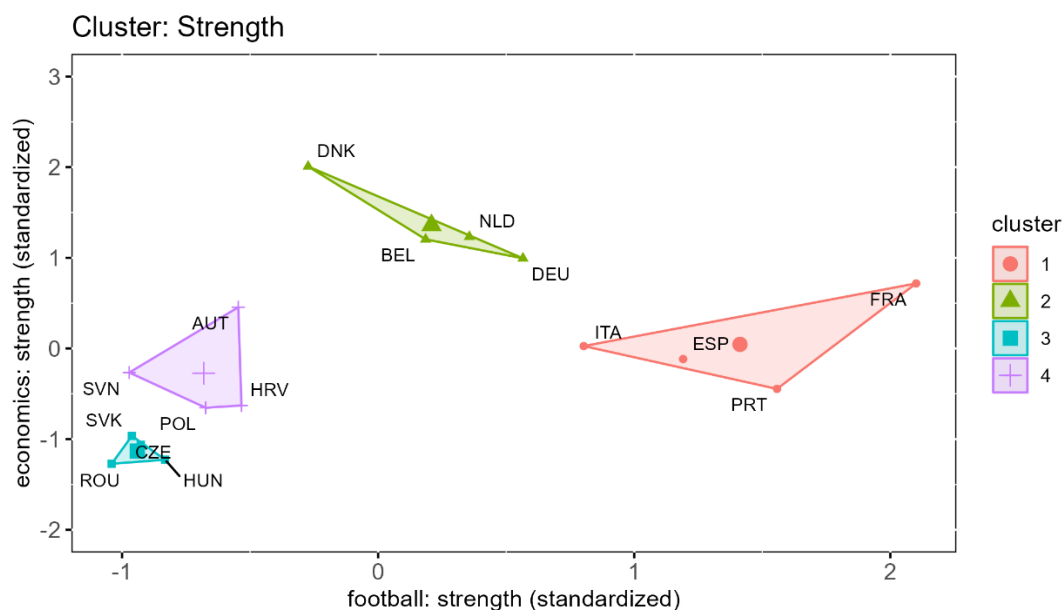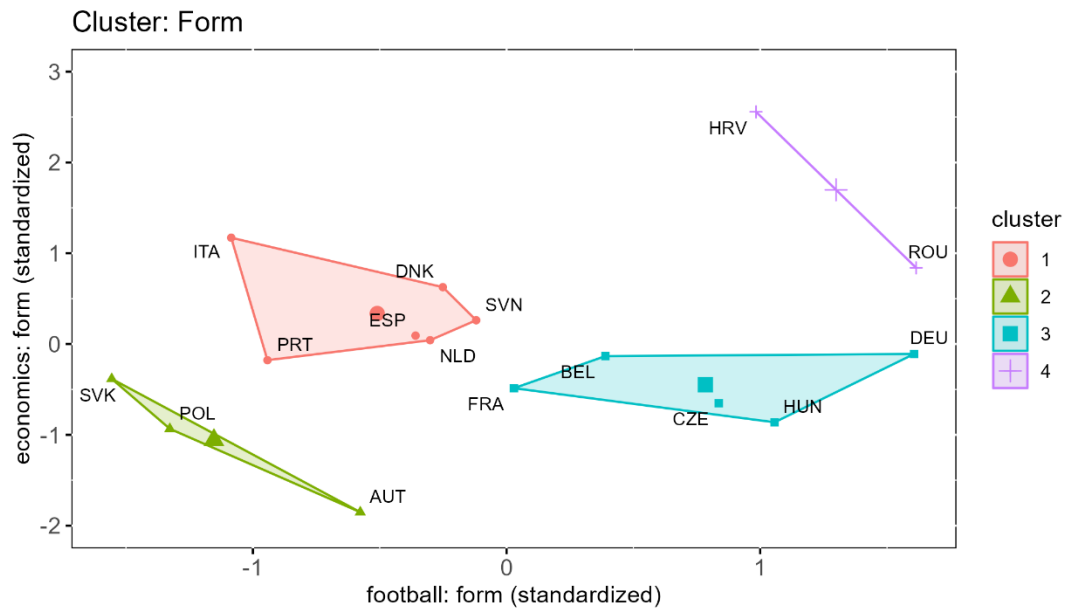
Sources: Eurostat (2024a;b;c); Transfermarkt.de (2024); OECD (2024a); Wettbasis (2024); own calculations.

Finally, we can also use cluster analysis to identify country patterns in the degree of EU integration in football and the economy. From the large number of economic integration indicators from Subsection 3.2, we selected integration in the trade of goods as an important economic measure. We compared this with the market value share of national players playing in other EU countries as a measure of integration in football (see Subsection 2.3). Figure 15 illustrates the resulting cluster structures. Again, striking differences emerge. Austria, Slovenia and Slovakia form a cluster of three countries with an exceptionally high degree of European integration in football. The major footballing nations, Germany, Italy and Spain, together with Romania, form a common cluster of countries that are poorly integrated in terms of both the economy and football. France has moved to a different cluster due to its significantly higher proportion of international players in other EU countries. Together with Poland, Denmark, Portugal, Croatia and the Czech Republic, it forms a cluster that is close to the EU average in both dimensions. In comparison to this group, Hungary, Belgium and the Netherlands have similarly strong links with the rest of the EU in football, but stronger links in the economic sphere.

Figure 15: Cluster analysis of integration indicators
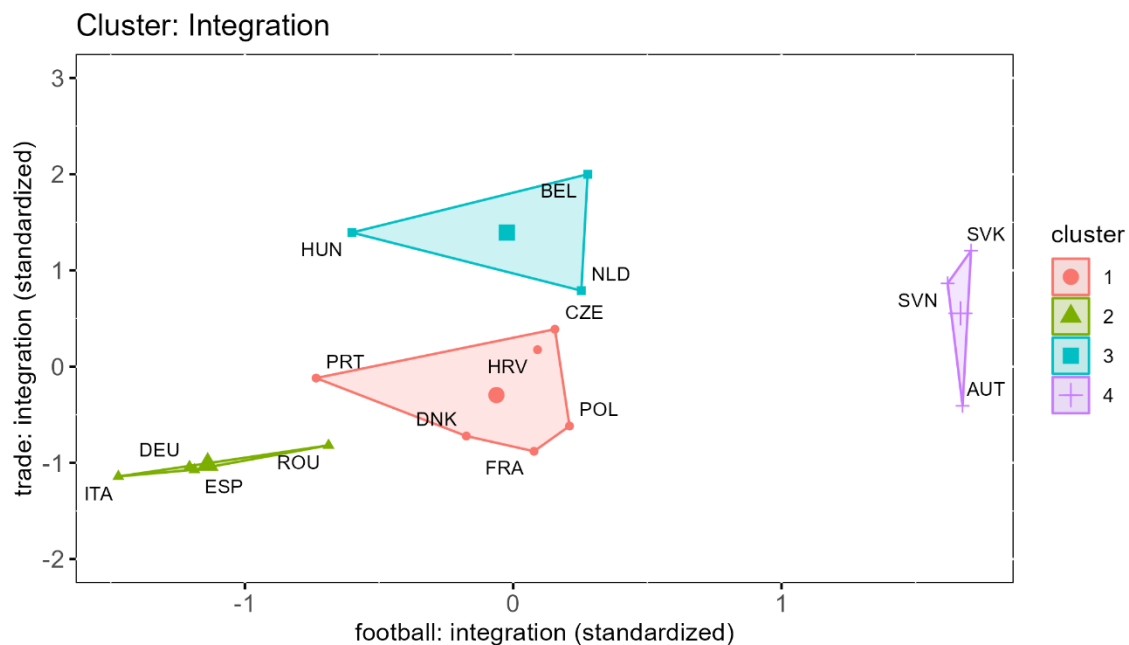
Sources: UN (2024); Eurostat (2024c); Transfermarkt.de (2024); own calculations.

5   Conclusion

With only a few weeks to go before the European Football Championship, hosted by Germany, there is increasing focus on the question of who will become European champion in 2024. Even though there is a long tradition of using economic indicators for forecasting the winner, any evidence that this works is very weak. But in the economy as in sport, success is always a mixture of fundamental quality (assets), current form (output gap), and momentum (expectations). Given all that, our analysis has shown that England's squad has the highest market value followed by France, Portugal, Spain, Italy, and Germany. According to the betting odds, Germany seems to be undervalued, which might be explained by the homefield advantage as well as the current form which has increased sharply as a result of the latest convincing wins against France and the Netherlands. Nevertheless, England and France are clear odds-on favourites.

Conversely, in the EU economy, there are clear signs of a productivity convergence between the Member States. In terms of manufacturing productivity, the large EU economies have largely shown a lack of momentum in recent years and are now clearly outperformed by Ireland and Denmark. This hints at the serious structural weaknesses of countries like Germany, weaknesses that will take much longer to overcome than winning a football tournament. In economics just as in football, creating the momentum and keeping it going will be crucial.

The race is on to get to the final in Berlin on July 14. May the European Football Championship bring everyone together in joyful celebration of the beautiful game and remind us that Europe is more than just an economy!

6   Appendix

Table A 1: List of country codes

Code	Country	Code	Country
AUT	Austria	LVA	Latvia
BEL	Belgium	MLT	Malta
BGR	Bulgaria	NLD	Netherlands
CYP	Cyprus	POL	Poland
CZE	Czechia	PRT	Portugal
DEU	Germany	ROU	Romania
DNK	Denmark	SVK	Slovakia
ESP	Spain	SVN	Slovenia
EST	Estonia	SWE	Sweden
FIN	Finland		**Non-EU**
FRA	France	ALB	Albania
GRC	Greece	CHE	Switzerland
HRV	Croatia	GBR (E)	England (Football)
HUN	Hungary	GBR (S)	Scotland (Football)
IRL	Ireland	GEO	Georgia
ITA	Italy	SRB	Serbia
LTU	Lithuania	TUR	Turkey
LUX	Luxembourg	UKR	Ukraine

Source: own illustration

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