Keeping One's Eye on the Ball:

Exploring the Intensity of Sports Activities across Europe

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and Matt Andrews

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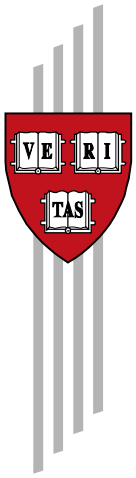

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Introduction

As described in Russell, Barrios & Andrews (2016), past attempts to understand the sports economy have been constrained by a number of data limitations. For instance, many of these accounts use revenues when value added measures would be more appropriate. Similarly, many accounts use top-down definitions that result in double counting and an inflated estimate of the size of the sports economy. More importantly, past accounts have focused most of their efforts estimating the overarching size of the sports economy. Constrained by aggregated data that groups a wide range of sports-related economic activities together, they primarily discuss the size of the sports-related economic activity. Their focus on answering the question of "How big?" conceals substantial differences between activities. Core sports activities, such as professional sports teams, behave very differently than activities, like sporting goods manufacturing that are closer to the periphery of the sports economy. Likewise, there are even important differences amongst core sports activities. Professional sports teams are very different than fitness facilities, and they might differ in different respects.

Guerra (2016) demonstrates that, when detailed, disaggregated data are available, the possibilities to analyze and understand the sports are greatly increased. For instance, Guerra (2016) were able to conduct skills-based analyses, magnitude analyses, employment characterizations, geographic distribution analyses, and calculations of the intensity of sports activities. The sector disaggregation, spatial disaggregation, and database complementarity present in the Mexico data used in that paper therefore enables a more detailed and nuanced understanding of sports and sports-related economic activity.

Data with characteristics similar to those found in Mexico are few and far between. We have, unfortunately, been unable to completely escape such data limitations. However, we have compiled and analyzed a large array of employment data on sports-related economic activities in Europe. In the paper that follows, we describe our analyses of these data and the findings produced.

Section 1 begins with a discussion of employment in sports and an explanation of why we chose this variable for our analyses. Section 2 provides an overview of the data used in this paper particularly focusing on the differences between it and the Mexico data discussed in Guerra (2016). It also describes the methodology we use. We analyze these data using one of two related measures to understand the intensity of sports-related activities across different geographic areas in countries. We also construct measures at the level of a single country in order to compare across entire economies. At the international level, we adopt the revealed comparative advantage (RCA) measure that Balassa (1965) first developed to analyze international trade. Within specific countries, however, we use a population-adjusted version of the RCA measure known as RPOP. Section 3 presents the most relevant findings and Section 4 discusses their limitations. Section 5 concludes with the lessons learned and avenues for future research. While there are limitations on these analyses, they can give policymakers a better understanding of the distribution and concentration of sports across space. Such information can serve as an important input for sports-related investment decisions and other sports-related policies.

Section 1. Employment in Sports

Significant work has already been done with respect to employment in the sports economy. The EU Working Group on Sports and Economics, as discussed in Russell, Barrios & Andrews (2016), devoted a large portion of their 2012 report to sports employment. The report finds that the United Kingdom, Cyprus, Malta, and Greece are the countries with the largest share of national employment in core sports. More than 0.40% of the workforce in each of these countries is employed in the study's statistical definition, which we refer to as core sports (Vilnius 2012 report). In the United Kingdom, 0.61% of national employment is in core sports. Overall, the report indicates that 659,770 people or 0.31% of employment across the European Union is in core sports. Of course, when one considers the other, more expansive definitions of sports that the working group employs, these shares are far higher. Austria's share, for instance, jumps from 0.36% according to the core sports sectors to 5.38% according to the broad definition. One of the primary policy implications of the working group's report was the finding that sports are a relatively labor-intensive industry. It observes that the share of European employment working in core sports (0.31%) is larger than the share of European gross value added in core sports (0.28%). The gap between the employment share and the value added share is even larger when one considers the narrow and broad definitions. The report concludes that "sports-related business is thus more employment intensive than average businesses as more employees are required to generate the same amount of [gross value added]" (European Commission 2013, 79). Nonetheless, we should remain cautious when considering claims associated with these broader definitions, both in the case of Vilnius and Eurostat, given the limitations outlined in Russell, Barrios & Andrews (2016).

Sports employment could be far larger, however, if one considers the methodology adopted by the European-wide statistical agency Eurostat. Eurostat's methodology considers the working group's statistical definition (or the core sports cluster) in addition to any sports-related occupation codes in the International Standard Classification of Occupations (ISCO) for employees who work outside the core sports sectors. Sports instructors working in schools would be considered by Eurostat since their occupation is sports-related, but not by the EU working group since their industry isn't part of the statistical definition. While the EU working group observed European core sports employment to be just over 650,000 in 2011, the Eurostat's methodology increases the number to almost 1.5 million employees (Eurostat 2016). They report that it has grown further to 1,562,800 in 2014. When Eurostat's approach is used, the countries with the largest shares of sports employment are Estonia, Denmark, Spain, Finland, and the United Kingdom. More than 1% of employment in each of these countries is sports-related. Eurostat's report also provides a sense of the characteristics of the sports labor force, concluding that it is far younger than the general European labor force. 36% of employees working in sports are between the ages of 15 and 29, but only 19% of the overall workforce is that young (Eurostat 2016).

In this paper, we build upon these reports and other existing analyses. We use employment data from a variety of countries and sources to characterize the relative size, or intensity, of the sports sector in different sub national areas. We use employment data in part because the sports economy has been characterized as a labor-intensive industry. As the EU working group and Eurostat reports demonstrate, we have found that sports-related

activities are a substantial source of employment for their economies and potentially higher than their share of value added.

However, employment data is also advantageous for another reason: data quality. We find employment data to be collected in a much more reliable, comparable and consistent manner as well with a higher level of industry and spatial disaggregation. Such characteristics allow us to produce indicators and generate comparisons across and within countries.

Section 2. Data Requirements and Methodology

The employment data disaggregated by industry and geography comes from three types of sources: business registries (administrative data) or surveys, labor force surveys, and censuses. The scope and collection methods of these three types are different. Business registries or surveys usually consider employees and owners, often excluding some sectors such as public or nonprofit establishments. Alternatively, labor force surveys and population censuses focus on households and individuals, thereby including all sectors and even the self-employed. While labor force surveys and population censuses allow for an in-depth look at the characteristics or quality of employment in the sports economy, they also have a higher degree of error. This error comes from the fact that workers self-report their industry. Furthermore, surveys are drawn from a sample of the population and therefore their representativeness is limited to how the sample was designed. The issue of representativeness is of particular concern when analyzing highly disaggregated data in terms of geographic location or industry, as is the case with this particular exercise on core sports activities. To limit the concern over these issues and maximize the comparability of the measures, we prioritized obtaining data on employees that was derived from business registries or administrative data sources. Business surveys were the next most preferred type. For some countries, these business statistics do not have the necessary disaggregation to identify the sports sector (or did not survey the sector). We therefore referred to the other sources mentioned above. See Appendix A for a more detailed description of the data sources and the specific characteristics of each dataset.

All of the data were either downloaded from the Internet for free or purchased from national statistical agencies and subsequently mailed. Ultimately, we collected subnational, disaggregated data for eleven countries: Austria, Belgium, the Czech Republic, Finland, France, Germany, Italy, the Netherlands, Portugal, Spain and Switzerland. For each of the other countries in Europe, we also use the national level data collected by Eurostat. We limit the analysis to the most recent year in each dataset, but the exercise could be carried out over multiple years to see how the measures evolve over time.

For our purposes, the datasets contained three important pieces of information. First, each observation contained information on the geographic area of a given observation. In Belgium, for instance, the geographic areas in question were the country's forty-three *arrondissements*, administrative areas that group several municipalities. In Spain, the areas were the fifty-three *provincias*. Geographic disaggregation, as explained above, is generally advantageous because it enables one to more closely examine the distribution of activities. It should be noted, that disaggregation could occasionally be misleading if cities or urban

agglomerations are separated into distinct units, which might not be representative of the way the local urban economy operates. Second, each observation contains information on the industry classifications. Here, we focus on the three-digit industry level, thereby clustering the core sports activities described in Russell, Barrios & Andrews (2016) together as one group. The corresponding codes are "926" for NACE revision 1 and "931" for NACE revision 2. Finally, each observation contains information on the level of employment in the given industry in the area in question.

It is worth emphasizing that we are focusing here only on the core sports activities described in Russell, Barrios & Andrews (2016), not on other sports-related activities or occupations in non-sports activities. This is advantageous because we believe that more peripheral sports-related activities might behave very differently. The drawback, however, is that we are still unable to disentangle activities within these two three-digit classifications. Professional sports teams and fitness facilities are grouped together within these classifications, but it is the case that these activities also have different types of linkages with the rest of the economy. Unfortunately, data constraints prevent us from further disaggregating these industries below the three-digit codes. Therefore, while we want to emphasize that we are referring to only core sports activities in this paper, we also want to highlight that it is difficult to characterize precisely what type of sports, within that category, are causing a given region to have a high RCA or RPOP indicator. Understanding the underlying core sports activities requires either more disaggregated data or further qualitative analysis.

With this data, we can construct two indicators of the intensity of sports-related economic activity in a given geographic area. The first is the RCA metric first developed by Balassa (1965) to illustrate the relative advantage or disadvantage a given country has in the export of a certain good. We can express the RCA formally as the following equation:

$$RCA_{cp} = \frac{X_{cp}}{\sum_c X_{cp}} / \frac{\sum_p X_{cp}}{\sum_{c,p} X_{cp}} \qquad (1)$$

In the equation above, X_{cp} represents the employment of industry p in a given subnational geographic area c. More simply, an RCA can be explained as the share of a given industry in a specific area divided by the share of that industry in a larger, more encompassing area. Consider the Brazilian export of soybeans as an example. In 2010, soybeans represented 0.35% of world trade with total exports of USD 42 billion. Of this total, Brazil exported nearly USD 11 billion. Since Brazil's total exports for that year were USD 140 billion, soybeans accounted for 7.8% of Brazil's exports. Because 7.8 divided by 0.35 is 22, one can say that Brazil exports 22 times its "fair share" of soybean exports. We can therefore say that Brazil has a high "revealed comparative advantage" (RCA) in soybeans. In general, geographies with an RCA over 1 are considered to have a "revealed comparative advantage". The same calculation can be done to estimate intensity for a multitude of variables, rather than just exports (the variable traditionally associated with RCAs) or employment (the variable we use here).

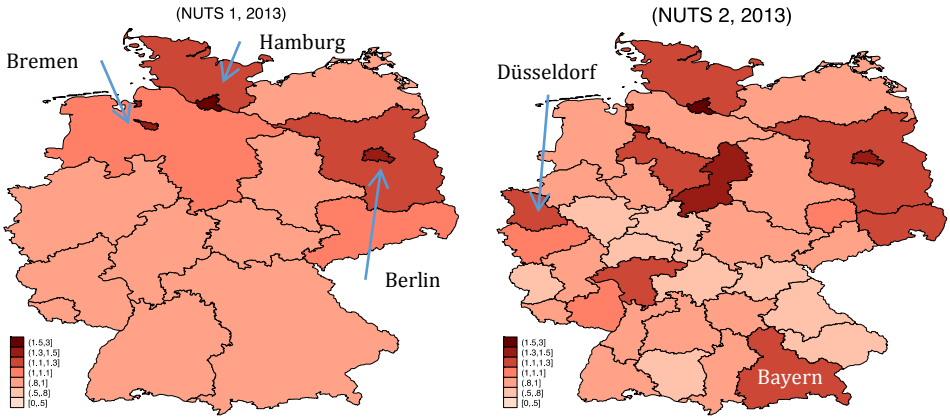
The second is a population-adjusted version of the RCA indicator known as RPOP. RPOP can be expressed formally as the following equation: $RPOP_{cp} = \frac{X_{cp}}{Z_c} / \frac{\sum_c X_{cp}}{\sum_c Z_c}$ (2)

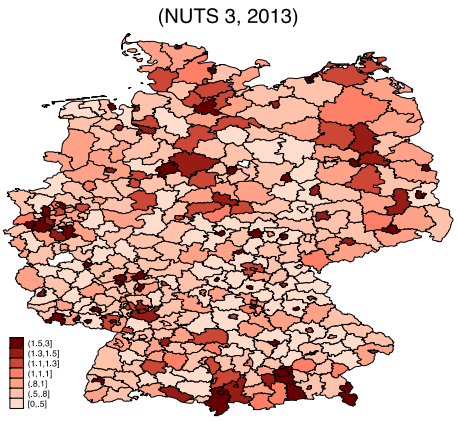
In the equation above, X_{cp} represents the employment of industry p in a given geographic area c. This equation differs from the RCA equation because of the two Z terms in the numerator and the denominator where Z represents the population of the geographic area c. For the analysis in this paper we use the RPOP measure instead of the RCA, because previous observations of the sector have signaled that the concentration of core sports activities may be correlated with overall population. We believed it was therefore appropriate to account for population.

Section 3. Comparing the Intensity of Core Sports

Appendix B displays the RPOP and RCA measures constructed for the 28 EU Members States and intra-country measures for 11 European countries. Many of the subnational measures confirm prior assumptions about the intensity of core sports activities. We observe that, in some countries, the areas with the highest indicators are those with the largest populations. Consider the measures in Germany (Figure 3.1). We observe that Hamburg, Berlin and Bremen are the regions with the largest intensity measures and are by far the most populous when considering inhabitants per kilometers. At the regional level (NUTS 2), the three states mentioned above and the two most populous regions — Düsseldorf and Bayern— also are among the areas with the highest RPOP values. At the district level (NUTS 3) most of the higher RPOP values coincide with urban areas. The apparent correlation between large, or dense, populations and high core sports intensity makes intuitive sense. Core sports activities, whether they are professional teams or gyms, are associated with larger populations.

Figure 3.1. RPOP of sports activities in Germany, NUTS 1, 2 and 3 (2013)



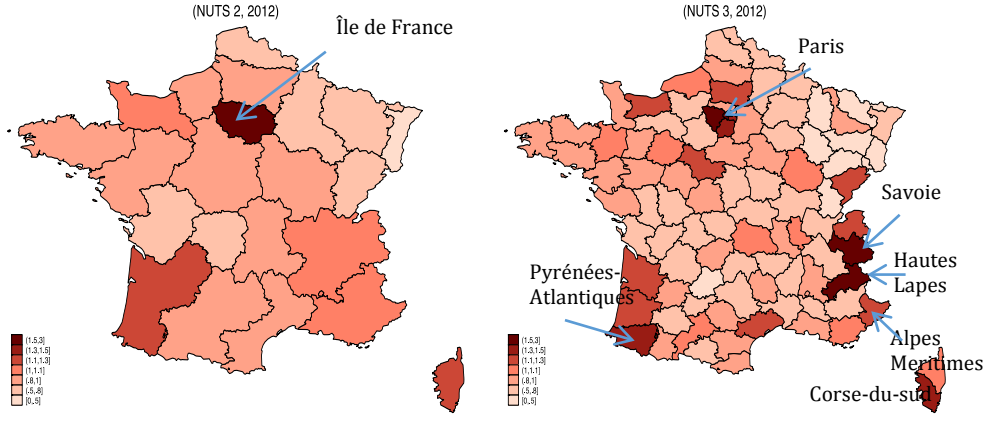


Source: Staff calculation based on data from Federal Statistical Office and the statistical Offices of the Länder

Many countries, however, don't show that same correlation. In these countries, the areas with the highest core sports intensity are generally those with many resorts. They are regions with popular beaches or well-known mountains that attract significant numbers of fitness-related activities. Here, the intensity measure is capturing the fitness facilities and gyms represented within the core sports cluster rather than professional stadiums and clubs. France is an excellent example of this.

While the IÎle de France as a region (NUTS 2) or Paris as a district (NUTS 3) have the second highest intensity measure and is the most populous region and district of the country, other less populous areas stand out in terms of their employment in core sports (Figure 3.2). For example, the Savoie district has the largest intensity measure, almost three times more than its "fair share" of core sports employment. However, it is a relatively small area in terms of total population (420 thousand in a country of over 65 million people). Situated on the French Alps, it has some of the best ski resorts in the world. Albertville, host of the 1992 Winter Olympics, is located in this district. Hautes-Alpes and Corse-du-Sud, the other districts outside the Île de France region with an RPOP over 1.5, both have less than 150 thousand in population)

Figure 3.2. RPOP of sports activities in France, NUTS 2 and 3 (2012)



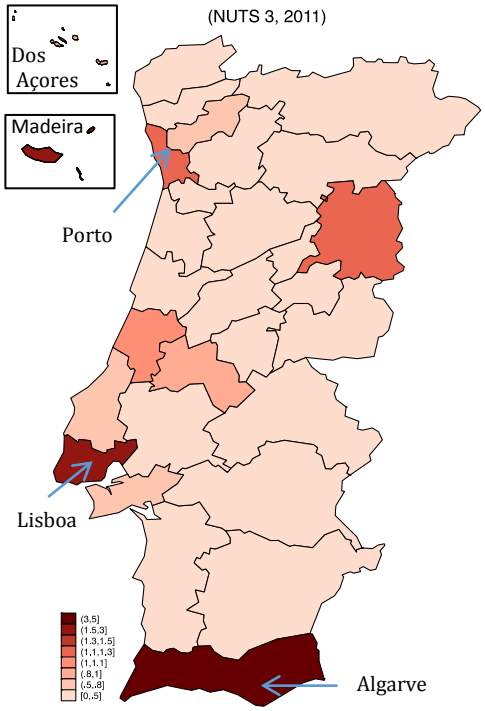
Source: *Staff calculation based on data from INSEE*

The rankings in Portugal confirm both the both observations made in Germany as well as those made in France (Figure 3.3). Algarve and Madeira are the Portuguese sub-regions

(NUTS 3) with the two highest intensity measures. As in France, neither one of these regions are particularly large in terms of population. Madeira is only the thirteenth most populous region in Portugal (of thirty regions). Algarve has slightly more people and is the 6th most populous. Like the Savoie, however, Algarve and Madeira are areas with significant numbers of resorts. Algarve is located on the southwestern tip of the Iberian Peninsula and possesses an ideal climate for golf. Its many golf courses frequently host some of Europe's largest tournaments. Likewise, Madeira is a Portuguese archipelago in the Atlantic Ocean with an economy that features numerous professional sports. While the region is only a collection of small islands, it features three of the eighteen football clubs that competed in the 2015 Portuguese Liga. One of these clubs, C.S. Maritimo, has a rich tradition of producing football stars like Cristiano Ronaldo and Pepe.

Although the resort areas at the top of the Portuguese rankings create natural comparisons to the French rankings, the rest of the rankings in Portugal also illustrate the trend that was previously discussed with respect to Germany. The most populous subregions of Portugal, Lisboa and Porto, both feature prominent cities with numerous professional sports teams in addition to large resort economies. Accordingly, Portugal demonstrates that the importance of understanding a country's context for analyzing its sports economy. Core sports activities cluster for different reasons in different places. At an observational level it appears that in some cases, like Germany, core sports activities tend to cluster around population centers. For others, like France, resort areas may play an important role. Finally, in other countries like Portugal, there may be a mixture of combination of both effects at play. Again, this just serves a cursory look at intensity trends that require further examination.

Figure 3.3. RPOP of sports activities in Portugal, NUTS 3 (2011)

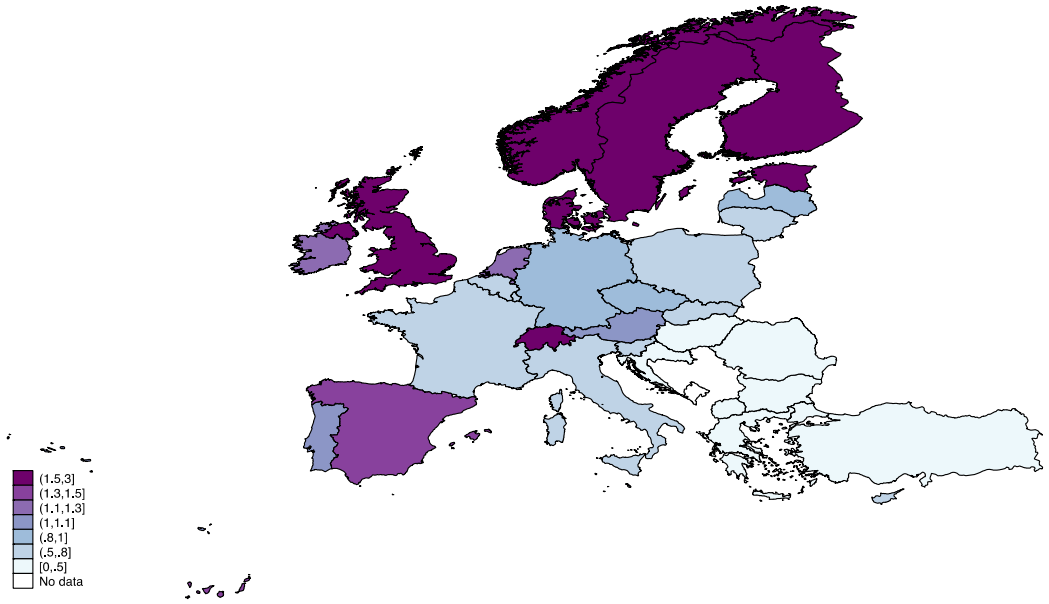


Source: *Staff calculation based on data from INE*

The importance of context is further borne out at the international level. Understanding the sports intensity of an entire country requires one to disentangle the rankings and challenge pre-existing assumptions. For instance, when people consider European sports, they immediately think about European football, the most popular spectator sport in Europe by far. European football is dominated by the leagues in five countries; the United Kingdom, Spain, Germany, Italy, and France. It is interesting, therefore, that the countries with an RPOP above one[1] don't correspond to these five large football leagues in Europe. Two of these countries, the United Kingdom and Spain, have high sports intensity according to the RPOP measure, but the other three countries with prominent leagues don't.

There are two potential reasons for the disparity. First, countries that are successful in professional sports like football are likely also successful and competitive in many other economic activities. These countries likely have large, diverse economies in which professional sports play a relatively small role, thereby diminishing the size of the RPOP. This could explain for instance why Germany's RPOP is below one. Second, it is important to recall that our construction of the RPOP measure includes other types of core sports like fitness facilities instead of just professional spectator sports. These recreational sport activities may be more intensive in labor and therefore countries with many of them may have a higher RPOP. The significant ski sector in Switzerland is likely an example of how employment-intensive recreational sports can boost a country's RPOP.

Figure 3.4. RPOP of sports activities in the EU-28 Member States (2014)



Source: Own calculations based on EU-LFS

Moreover, what is even more remarkable about the countries with RPOP measures above one is their diversity in terms of size, geography, and economic activity. Some are large countries, while others are small. Some have warm climates with the potential of significant resorts, but others are in far colder areas of northern Europe. It is difficult to draw any direct lessons from these countries, as they are such a diverse group. One reason that our

[1] The range above which a place is considered to be particularly intensive on a given activity

methodology indicates that such a diverse group is highly sports-intensive is that, as described in Russell, Barrios & Andrews (2016), the three-digit industry code that we employ actually bundles together a rather diverse array of economic activity. It groups large professional sports teams with smaller fitness facilities and gyms. Spectator sports may play a larger role in some of these economies (like the United Kingdom), while fitness facilities and sports-related resorts may be more important in others (like Portugal). Because the RPOP measures were calculated at the three-digit level, we are unable to identify such nuances. The clustering of these different core sports activities into one industry code is one of the limitations of our approach. We discuss some of the other limitations below.

Section 4. Limitations to the Approach

The results described in Section 3 are insightful, but it is important to highlight the limitations of both the data we used and the methodology we implemented. To start, the data that we used was narrower in some respects than was used in the Eurostat work described above. Most notably, Eurostat was able to pool data for more countries over more years. Such breadth in terms of geography and time is insightful. While we didn't cover as many countries or such a long a period in time, our data collection efforts focused on geographic disaggregation within a smaller group of countries and years. This means that, although our findings offer new insights with respect to geographic disaggregation, they are more limited in terms of comparisons across time and country.

Additionally, Eurostat considered industry and occupation data, meaning that they included sports-related occupations in non-sports industry codes as part of sports employment. Even though this provides a more accurate picture of overall sports related employment, we chose to focus on industry level data, meaning that our employment measures don't consider sports-related occupations outside of the core sports sectors described in Russell, Barrios & Andrews (2016). The main rationale for this was that this type of employment might be driven by forces behind the performance of those non-sports industry codes, which would increase complexity when trying to understand underlying dynamics behind RCA and RPOP trends in the core sports sector. However, future analyses might want to attempt including this type of data.

In addition to the data we used, the methodology we implemented faced some constraints. To start, a given geographic area may score low on the RPOP indicator for several reasons. Some geographic areas may possess very large, diverse economies benefitting from a wide range of activities. Even if sports play a large role in terms of employment in these economies, it could be outweighed by even larger industries like manufacturing or services. Areas with large, diverse economies would have a large denominator in the RPOP equation shown above, thereby decreasing the value of the overall indicator. Such an effect would occur even if the magnitude of the sports economy is very large itself.

Conversely, a given geographic area may also score high on the RPOP indicator for reasons unrelated to the sports economy. High RPOP values may occur if there are relatively few economic activities in the area other than sports. Guerra (2016) suggests that sports-related activities are relatively ubiquitous in the sense that they occur widely throughout

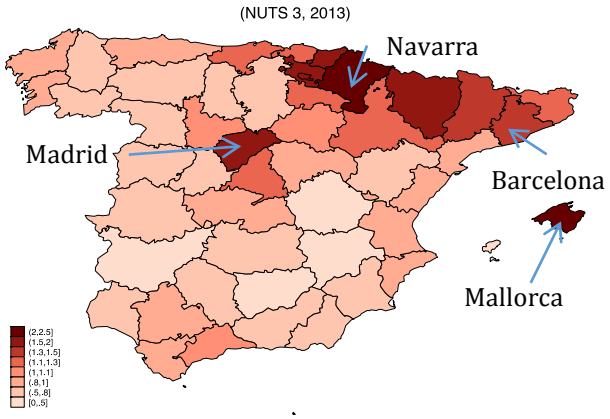
any country. Most communities have a desire to either watch or participate in sporting activities, so they appear in a large number of places. The ubiquity of sports means that, while they appear in areas with large economies, they also appear in areas with much smaller economies that are far more limited in terms of their economic diversity. In such areas, sports may be one of only a handful of relevant industries. As a result, the RPOP indicator could suggest that the intensity of sports is very high in the region. In this case, however, the indicator would be hiding the fact that the RPOP is high because few industries other than sports are present.

Perhaps even more importantly, a given geographic area may score low, or high, on the RPOP indicator for reasons unrelated to the suitability of the area for sports. It shouldn't be interpreted to suggest that an economy in question is particularly ripe to support further development of sports-related activities. Regions may score high on the RPOP indicator, but the market for sports-related firms may be saturated. Similarly, the measure doesn't indicate that the sports economy in the area in question is privately or socially desirable. The area in question could have, for instance, many sports-related firms but they could be financially unsound. Likewise, simply because a given area has few sports-related firms doesn't mean that increasing the presence of the sports economy is the best way to promote development in that region. Instead, the RPOP measure simply provides a sense of the relative importance of sports in a given economy.

Consider the cases of the Spanish provinces of Barcelona, Madrid, and Navarra as illustrative examples of the limitations of the RPOP indicator. One might normally assume that the Barcelona and Madrid regions would score higher than a small region like Navarra. Not only are the cities of Barcelona and Madrid home to prominent football clubs like Real Madrid FC, FC Barcelona, and Atlético Madrid, but their large populations also support a high number of gyms, fitness facilities, and associated sports activities. One might think that Barcelona, a coastal city with beautiful beaches and a comfortable climate, would have significant opportunities for outdoor sports. In contrast, Navarra is a far smaller region in terms of population and economic production.

However, of the fifty-two provinces in Spain, Navarra scores the highest in terms of the intensity of sports-related economic activity. It has an RPOP value of 2.00. With values of 1.30 and 1.15, Barcelona and Madrid score high, but well below Navarra. Their RPOP measures are lower than that of Navarra for some of the reasons described above. One of the reasons Navarra's indicator is higher derives from the fact that the economies of Barcelona and Madrid are very large and diverse. Since Navarra's economy is small and sports are ubiquitous, it naturally has a higher measure. There may be, however, other reasons relating to factors specific to the Navarra that make it especially suited for sports. However, at this stage, it is impossible to exactly disentangle what these reasons might be without further inspection of the specific context of the region.

Figure 3.5. RPOP of sports activities in Spain, NUTS 3 (2013)



Source: Calculations based on data from the Ministerio de Empleo y Seguridad Social de España

The case of these three Spanish provinces indicates that, while informative, the RPOP indicator is a limited measure. The value of the indicator - and the corresponding ranking - are a snapshot of the intensity of sports-related economic activity in a region and can help one understand in what areas the sports economy has a relatively larger presence. However, RPOP doesn't tell the complete story of an area's sports economy. Fully understanding the reason why a given geographic area scores high or low on the RPOP indicator requires a more holistic depiction that more closely resembles the analysis described in Section 1. Despite these limitations, the RPOP measure can serve as an important input for those wishing to understand the distribution of the sports economy across countries or regions.

Section 5. Applying the RPOP or RCA Measures

Despite these limitations, the RPOP or RCA indicators are still a highly useful measure. They offer new insights that were previously not considered in the work of Eurostat, EOSE, and the EU Working Group on Sports and Economics, and the European Observatoire of Sports. Most notably, our analyses consider sub national sports employment, thereby allowing one to uncover and disentangle the distribution of the sports employment across regions and cities within one country. Previous work only addressed sports at the national level. These insights related to disaggregation are illustrative of the important themes of asking "How different?" discussed in Russell, Barrios & Andrews (2016).

Additionally, we introduce the RPOP and RCA indicators, concepts adopted from international economics, as methods to better describe the intensity of an area's sports economy. These measures provide a more nuanced approach than statistics on the sheer magnitude of sports employment. Based on the RPOP and RCA indicators, one can conclude that areas with a RPOP or RCA over 1 are generally areas where spectator sports or sports-related resort are important parts of the economy. For instance, Savoie in France or Algarve in Portugal have large, sports-related resorts. While these conclusions may not be entirely surprising for those who are familiar with the country, they are insightful for

external observers of the economy in question.

Using these indicators, external observers can gain a better understanding of the distribution of sports-related activities across a given geographic area. For instance, suppose an external stakeholder was looking to support the development of a resort specializing in sports-related fitness activities. One might think that a beach city would be a natural area to locate his project, but selecting between different beach towns could prove difficult. Comparing the intensity of existing core sports activities like fitness facilities and gyms could provide a sense for the investor as to what regions already possess the labor force or associated facilities to make his investment worthwhile and cost effective. Existing sports-related activities could suggest that the necessary capabilities to host additional sports-related activities like these are already present in the area. The RPOP or RCA measures of the intensity of sports-related activity are helpful means, through which these external investors or organizations could explore these factors,

Russell, Barrios & Andrews (2016) highlights the difficulty of obtaining data that allows one to rigorously account for the size of the sports economy, while Guerra (2016) describes the analyses that one could perform if that sort of data was more widely available. Based on these findings, this paper has attempted to produce a rigorous indicator that allows one to compare sports-related economic activities within and across countries. We have sought to transparently describe the data we used, the methodology we implemented, and the limitations that we believe continue to constrain the measure. The measure has a number of constraints, most of which prevent it from being used in a purely prescriptive manner. That said the indicator is a useful descriptive measure for indicating the presence or absence of sports-related economic activity. We have described some surprising insights that these rankings of core sports intensity have revealed. Furthermore, we have discussed how external observers like investors or international organizations could benefit from this type of measure.

Future avenues of research could seek to combine our approach with others, most notably the methodology used by Eurostat. Such work could apply the RPOP or RCA measures sub nationally in a larger group of countries and across a longer period of time. Eurostat, for instance, could replicate our subnational analyses for all of the countries that they investigated at the national level. Following these applications, other research could uncover the factors that cause a given city or region to have a high RPOP or RCA indicator. Other research could also construct similar RPOP or RCA measures based on production, value added, or other variables besides employment. Moreover, future research could strive to further disentangle the employment and productive spillovers associated with the sports sector. In other words, further research could answer questions like the following: What factors drive the appearance and growth of core sports activities? What causes core sports activities to co-locate? What are the effects for surrounding communities when core sports activities do cluster? How does the quality of employment vary across regions and levels of sports intensity? While it would require significantly disaggregated data, such work would provide important insights as to the ability of cities and regions to develop new sports economies.

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Appendix A. Data Collection and Sources

A.1. Employment data

Employment data was collected from a variety of sources: business registries, business surveys, social security data, tax payments data, labor force surveys and censuses. The largest constraint in terms of data collection was obtaining data that allows one to disentangle the sports sector from other economic activities. Following regulations set forth by the European Commission, European countries use the NACE industry classification – or a national classification derived from it —to record their economic activities. These systems consist of four levels: sections (an alphabetical code), divisions (two numerical digits), groups (three numerical digits) and classes (four numerical digits). Most countries register the economic activity code at the four-digit class level when storing industry-related information, but publicly-available data is usually only at the more aggregated section or division level. Only at the three-digit group level is it possible to identify sports activities as a sector separate from the amusement and recreation activities included in the larger two-digit division. To characterize different dimensions of the sports industry -- such as the operation of sports facilities from fitness facilities, for example -- the data needs to be fully disaggregated at the four-digit class level.

The second constraint we encountered during data collection was obtaining data disaggregated geographically, which is required to determine the relative size of the sports sector within a country. For the most part, data derived from administrative sources are not available with high disaggregation on both the industry and regional level since such disaggregation means it might be possible to identify specific businesses or individuals. On the other hand, data obtained through surveys might not be representative or meaningful at very high levels of disaggregation such as municipality level. They might be subject to reporting errors such as the industry classification of the individual's workplace.

For comparability purposes, the cross-country analysis is based on labor force survey data on sports employment, compiled and published by Eurostat. Given that the sample size in labor force surveys may be very small within a country, we prioritized obtaining employment data from business registries or other employee administrative data for the sub-national calculations.

The tables bellow present the data used for each country, its main characteristics, and how it was obtained. In general, most of the business registries or business survey data was found online in the country's statistical office's website and downloaded directly. For social security data, tax administrative data, or labor force surveys that supply microdata (records at the individual level), user agreements were signed between the relevant office and CID. The table also provides details on additional data sources that were consulted, but were ultimately not used in the final version of this document. These sources could serve as reference for future work.

Table A.1.1. Employment data sources

Country	Geographic Level	Data Source	Institution	User Agreement	website
European Union	Country	Eurostat, Labor Force Survey ([sprt_emp_sex] and [lfsa_egan] tables)	Eurostat	Online	http://ec.europa.eu/eurostat/web/sport/overview
Austria	NUTS 2	Wage Tax Statistics	Statistiks Austria	user agreement	http://www.statistik.at/web_en/statistics/Economy/Public_finance_taxes/tax_statistics/index.html
Belgium	NUTS 3	Social Security Payments Data	National Social Security Office	user agreement	http://www.onssrszlss.fgov.be/en
Czech Republic	NUTS 4	Labor Force Survey	Czech Statistical Office	user agreement	https://www.czso.cz/csu/czso/labour_and_earnings_ekon
Switzerland	NUTS 3	Statistique structurelle des entreprises STATENT, Statistiques Suisse	Federal Statistics Office	Online	http://www.bfs.admin.ch/bfs/portal/fr/index/infothek/erhebungen__quellen/blank/blank/statent/01.html
Spain	NUTS 3	Muestra de Vidas Laborales	Ministerio de Empleo y Seguridad Social	user agreement	http://www.seg-social.es/Internet_1/Estadistica/Est/Muestra_Continua_de_Vidas_Laborales/index.htm
Portugal	NUTS 3	Integrated business accounts system	Statistics Portugal	Online	http://www.ine.pt
Germany	NUTS 3	Sozialversicherungspflichtig Beschäftigte nach (Social Insurance Contributions)	Statistik der Bundesagentur für Arbeit	user agreement	http://statistik.arbeitsagentur.de
Netherlands	NUTS 3	LISA, Workplace Registry	LISA Association	user agreement	http://lisa.nl/homepage
Finland	NUTS 3	Employment Statistics	Statistiks Finland	online	http://www.stat.fi/meta/til/tyokay_en.html
France	NUTS 3	Connaissance locale de l'appareil productif (CLAP)	INSEE	user agreement	http://www.insee.fr/fr/methodes/default.asp?page=sources/ope-adm-clap.htm
Italy	NUTS 2	The informative system on employment – ASIA-employment (Business Registry)	INSTAT	online	http://dati.istat.it/
Other sources consulted					
Italy	NUTS 3	Longitudinal Labour Source Survey	INSTAT	user agreement	http://www.istat.it/en/archive/36385
Portugal	NUTS 3	Census/ Public Use File	Statistics Portugal	user agreement	https://www.ine.pt/xportal/xmain?xpgid=ine_main&xpid=INE
Great Britain	Country	The Business Register and Employment Survey (BRES)	ONS	online	http://www.ons.gov.uk/ons/publications/re-reference-tables.html?edition=tcm%3A77-391230
Denmark	Country	Register Based Labour Force Statistics	Statistics Denmark	online	http://www.statbank.dk/RAS300
Sweden	Country	Structural Business Statistics	Sweden	online	http://www.scb.se/en_/Finding-statistics/Statistics-by-subject-area/Business-activities/Structure-of-the-business-sector/Structural-business-statistics/
France	Country	ALISE, DADS	INSEE	online	http://www.alisse2.insee.fr/SelectionMesureT1.jsp?p=1942168385

Table A.1.2. Employment data characteristics

Country	Year	Industry Level	Classification	Industry Codes	Data Type
European Union[1]	2014	Group	NACE 2	931	Labor Force Survey
Austria	2011	Subclass	NACE 2	93111, 93119, 93120, 93130, 93190	Administrative Data (Tax)
Belgium	2007	Subclass	NACE Bel Rev 1.1	92611, 92612, 92613, 92621, 92622, 92623	Administrative Data (Social Security)
Czech Republic	2014	Class	CZ_NACE 2	9311, 9312, 9313, 9319	Labor Force Survey
Switzerland[2]	2013	Subclass	NOGA (based on NACE 2)	93110, 93120, 93130, 93190	Administrative data
Spain[3]	2013	Group	CNAE 09 (based NACE Rev 2)	931	Administrative Data (Social Security)
Portugal	2011	Class	CAE Rev 3 (based on NACE 2)	9311, 8312, 9313, 9319	Business Register
Germany	2013	Group	WZ 2008 (baed on NACE 2)	931	Administrative Data (Social Security)
Netherlands	2008	Subclass	SBI 93 (based on NACE rev 1.1)	92611-4, 92621-9, 92631-6, 92641-4, 92651-6	Administrative Data (Social Security)
Finland[4]	2012	Class	NACE 2	9311, 8312, 9313, 9319	Administrative data
France[5]	2012	Subclass	APET (based on NACE 2)	9311Z, 9312Z, 9313Z, 9319Z	Administrative data
Italy[6]	2013	Group	ATECO 2007 (based on NACE 2)	931	Business Register

Notes: 1.Eurostat publishes employment in sports activities derived from the EU-LFS. Asides from NACE 93.1 it also includes sports related occupations (ISCO 342) outside the sports sector.
2. Data is based on social security data (AVS), business registry, and also business surveys (Profiling, Profiling light, ERST, BESTA, STRU)
3. The data is a random sample consisting of 4% of those who were affiliated or received Social Security payments.
4. Based on several administrative data, including business, social security and tax registers
5. Data is obtained from several administrative sources including business register and social security data.
6. Register based on various legal, administrative and tax data. Does not include enterprises under Sections A, O, T and U, and private non-profit bodies.

A.2. Population and NUTS concordances

Population data for the RPOP measure were obtained from the statistical institutes of each country. In some cases, it was necessary to download geographical concordance tables to match local administrative units used in each country to the NUTS classification. These concordances can be downloaded from Eurostat's website[2].

Table A.2.1. Population data sources

Country	Source	Website
European Union	Eurostat Population	http://ec.europa.eu/eurostat/en/web/products-datasets/-/DEMO_PJAN
Austria	Statistiik Austria	http://www.statistik.at/web_en/statistics/PeopleSociety/population/population_censuses_register_based_census_register_based_labour_market_statistics/index.html
Belgium	Statistics Belgium	http://statbel.fgov.be/nl/modules/publications/statistiques/bevolking/population_-_cijfers_bevolking_1990-2009.jsp
Czech Republic	Czech Statistical Office	https://www.czso.cz/documents/10180/20555783/13006215q314.pdf/335f34db-bca8-48e2-8238-a9f38093d4ac?version=1.0
Switzerland	Federal Statistics Office	http://www.bfs.admin.ch/bfs/portal/en/index/themen/01/02/blank/key/bevoelkerungsstand.html
Spain	National Statistics Office	http://www.ine.es/jaxi/menu.do?L=1&type=pcaxis&path=%2Ft20%2Fe260&file=inebase
Portugal	National Statistics Office	https://www.ine.pt/xportal/xmain?xpid=INE&xpgid=ine_indicadores&indOcorrCod=0006350&contexto=bd&selTab=tab2
Germany	Federal Statistical Office and the statistical Offices of the Lander	http://www.statistik-portal.de/Statistik-Portal/en/en_inhalt01.asp
Netherlands	Statistics Netherlands	http://www.cbs.nl/nl-NL/menu/themas/bevolking/nieuws/default.htm
Finland	Statistics Finland	http://www.stat.fi/til/vrm_en.html
France	Insee	http://www.insee.fr/fr/themes/detail.asp?reg_id=99&ref_id=estim-pop
Italy	I.Stat	http://dati.istat.it/Index.aspx?lang=en&SubSessionId=4febddf5-6a79-4ecf-b3a2-0c83c65a21cb&themetreeid=21#

[2] http://ec.europa.eu/eurostat/web/nuts/correspondence-tables/postcodes-and-nuts

Appendix B. Results Tables

Table B.1. Sports activities' RCA and RPOP in Europe

Country	RCA	RPOP	Country	RCA	RPOP
Belgium	0.63	0.59	Hungary	0.49	0.47
Bulgaria	0.44	0.43	Malta	0.79	0.76
Czech Republic	0.81	0.89	Netherlands	**1.24**	**1.30**
Denmark	**1.44**	**1.62**	Austria	0.93	**1.06**
Germany	0.76	0.88	Poland	0.51	0.50
Estonia	**1.40**	**1.55**	Portugal	0.99	**1.00**
Ireland	**1.31**	**1.25**	Romania (u)	0.17	0.18
Greece	0.56	0.42	Slovenia	0.63	0.65
Spain	**1.50**	**1.31**	Slovakia	0.74	0.75
France	0.89	0.80	Finland	**1.76**	**1.83**
Croatia (u)	0.54	0.47	Sweden	**2.14**	**2.45**
Italy	0.75	0.64	United Kingdom	**1.81**	**1.99**
Cyprus	0.81	0.79	Iceland	**2.72**	**3.39**
Latvia	0.92	0.94	Norway	**1.26**	**1.52**
Lithuania (u)	0.63	0.65	Switzerland	**1.29**	**1.63**
Luxembourg	0.68	0.71	FYR Macedonia (u)	0.39	0.30
			Turkey	0.36	0.28

Source: CID staff calculation based on Eurostat [sprt_emp_sex] ,[demo_pjan], and [lfsa_egan] tables.

Note: u- unreliable data due to small sample size

Table B.2. Sports activities' RCA and RPOP in Austria, NUTS 1 and 2 (2008)

NUTS_ID	Name	Population	RCA	RPOP
AT	**ÖSTERREICH**	**8,341,324**	**0.93**	**1.06**
AT1	OSTÖSTERREICH	3,567,521	0.95	0.93
AT11	Burgenland	282,765	1.49	1.49
AT12	Niederösterreich	1,603,707	0.84	0.84
AT13	Wien	1,681,049	0.96	0.92
AT2	SÜDÖSTERREICH	1,766,757	0.99	0.97
AT21	Kärnten	560,262	1.01	0.96
AT22	Steiermark	1,206,495	0.98	0.98
AT3	WESTÖSTERREICH	3,007,046	1.07	1.10
AT31	Oberösterreich	1,409,445	0.79	0.82
AT32	Salzburg	528,536	1.49	1.56
AT33	Tirol	702,299	1.29	1.33
AT34	Vorarlberg	366,766	1.08	1.04

Source: Staff calculation based on EU-LFS (for country level) and data from Statistics Austria

Table B.3. Sports activities' RCA and RPOP in Belgium, NUTS 1, 2 and 3 (2007)

NUTS_ID	Name	Population	RCA	RPOP
BE	**BELGIQUE-BELGIË**	**10,584,534**	**0.63**	**0.59**
BE1	RÉGION DE BRUXELLES-CAPITALE	1,031,215	0.80	1.36
BE10	Région de Bruxelles-Capitale	1,031,215	0.80	1.36
BE100	Arr. de Bruxelles-Capitale	1,031,215	0.80	1.36
BE2	VLAAMS GEWEST	6,117,440	1.04	1.03
BE21	Prov. Antwerpen	1,700,570	1.08	1.18
BE211	Arr. Antwerpen	961,131	1.07	1.24
BE212	Arr. Mechelen	316,224	1.00	1.04
BE213	Arr. Turnhout	423,215	1.18	1.17
BE22	Prov. Limburg (BE)	820,272	1.15	1.07
BE221	Arr. Hasselt	398,055	1.08	1.23
BE222	Arr. Maaseik	228,034	1.38	1.12
BE223	Arr. Tongeren	194,183	1.06	0.69
BE23	Prov. Oost-Vlaanderen	1,398,253	1.10	1.01
BE231	Arr. Aalst	267,274	1.10	0.75
BE232	Arr. Dendermonde	189,638	0.97	0.67
BE233	Arr. Eeklo	80,547	0.73	0.52
BE234	Arr. Gent	512,407	1.10	1.30
BE235	Arr. Oudenaarde	117,125	0.99	0.80
BE236	Arr. Sint-Niklaas	231,262	1.37	1.22
BE24	Prov. Vlaams-Brabant	1,052,467	0.79	0.76
BE241	Arr. Halle-Vilvoorde	580,407	0.78	0.81
BE242	Arr. Leuven	472,060	0.80	0.69
BE25	Prov. West-Vlaanderen	1,145,878	1.05	1.04
BE251	Arr. Brugge	274,772	1.13	1.18
BE252	Arr. Diksmuide	48,570	0.87	0.58
BE253	Arr. Ieper	104,798	1.06	0.93
BE254	Arr. Kortrijk	278,160	1.00	1.15
BE255	Arr. Oostende	148,325	1.16	0.88
BE256	Arr. Roeselare	142,776	0.73	0.83
BE257	Arr. Tielt	89,178	0.90	0.89
BE258	Arr. Veurne	59,299	1.97	1.63
BE3	RÉGION WALLONNE	3,435,879	1.04	0.84
BE31	Prov. Brabant Wallon	370,460	1.18	0.99
BE310	Arr. Nivelles	370,460	1.18	0.99
BE32	Prov. Hainaut	1,294,844	1.01	0.79
BE321	Arr. Ath	81,825	0.63	0.39
BE322	Arr. Charleroi	422,598	0.99	0.86
BE323	Arr. Mons	249,878	0.73	0.56
BE324	Arr. Mouscron	70,718	2.86	2.86
BE325	Arr. Soignies	180,154	0.88	0.59
BE326	Arr. Thuin	147,475	0.68	0.35
BE327	Arr. Tournai	142,196	0.98	0.88
BE33	Prov. Liège	1,047,414	1.13	0.95
BE331	Arr. Huy	104,756	1.00	0.67

NUTS_ID	Name	Population	RCA	RPOP
BE332	Arr. Liège	594,579	1.04	0.97
BE334	Arr. Waremme	73,106	1.44	0.70
BE335	Arr. Verviers (including BE336)	274,973	1.35	1.09
BE34	Prov. Luxembourg (BE)	261,178	0.74	0.59
BE341	Arr. Arlon	55,593	0.38	0.36
BE342	Arr. Bastogne	43,444	1.23	0.86
BE343	Arr. Marche-en-Famenne	53,123	1.02	0.89
BE344	Arr. Neufchâteau	58,151	0.28	0.25
BE345	Arr. Virton	50,867	1.28	0.67
BE35	Prov. Namur	461,983	0.97	0.76
BE351	Arr. Dinant	104,017	1.00	0.66
BE352	Arr. Namur	294,320	0.97	0.86
BE353	Arr. Philippeville	63,646	0.89	0.48

Source: Staff calculation based on EU-LFS (for country level) and data from Statistics Belgium and ONSS

Table B.4. Sports activities' RCA and RPOP in Czech Republic, NUTS 1,2 and 3 (2014)

NUTS_ID	Name	Population	RCA	RPOP
CZ	**ČESKÁ REPUBLIKA**	**10,538,275**	0.81	0.89
CZ0	ČESKÁ REPUBLIKA	10,538,275	1.00	1.00
CZ01	Praha	1,259,079	1.79	1.95
CZ010	Hlavní město Praha	1,259,079	1.79	1.95
CZ02	Střední Čechy	1,315,299	0.80	0.81
CZ020	Středočeský kraj	1,315,299	0.80	0.81
CZ03	Jihozápad	1,212,423	0.61	0.62
CZ031	Jihočeský kraj	637,300	0.73	0.73
CZ032	Plzeňský kraj	575,123	0.48	0.49
CZ04	Severozápad	1,123,265	1.19	1.13
CZ041	Karlovarský kraj	299,293	1.26	1.25
CZ042	Ústecký kraj	823,972	1.16	1.09
CZ05	Severovýchod	1,506,813	1.26	1.24
CZ051	Liberecký kraj	438,851	1.22	1.19
CZ052	Královéhradecký kraj	551,590	1.74	1.71
CZ053	Pardubický kraj	516,372	0.78	0.79
CZ06	Jihovýchod	1,682,748	0.44	0.45
CZ063	Kraj Vysočina	509,895	0.27	0.27
CZ064	Jihomoravský kraj	1,172,853	0.52	0.52
CZ07	Střední Morava	1,220,972	1.04	1.00
CZ071	Olomoucký kraj	635,711	1.02	0.96
CZ072	Zlínský kraj	585,261	1.05	1.04
CZ08	Moravskoslezsko	1,217,676	0.99	0.95
CZ080	Moravskoslezský kraj	1,217,676	0.99	0.95

Source: Staff calculation based on EU-LFS (for country level) and data from the Czech Statistical Office

Table B.5. Sports activities' RCA and RPOP in Finland, NUTS 1, 2 and 3 (2012)

NUTS_ID	Name	Population	RCA	RPOP
FI	**SUOMI / FINLAND**	**5,486,616**	**1.00**	**1.00**
FI1	MANNER-SUOMI	5,457,624	1.00	1.00
FI19	Länsi-Suomi	1,378,955	0.91	0.88
FI193	Keski-Suomi	275,722	1.25	1.15
FI194	Etelä-Pohjanmaa	192,580	0.65	0.62
FI195	Pohjanmaa	181,635	0.58	0.60
FI196	Satakunta	222,920	1.03	0.99
FI197	Pirkanmaa	506,098	0.92	0.89
FI1B	Helsinki-Uusimaa	1,620,163	1.21	1.38
FI1B1	Helsinki-Uusimaa	1,620,163	1.21	1.38
FI1C	Etelä-Suomi	1,160,166	0.96	0.90
FI1C1	Varsinais-Suomi	474,164	0.84	0.82
FI1C2	Kanta-Häme	174,682	0.87	0.80
FI1C3	Päijät-Häme	201,532	1.24	1.13
FI1C4	Kymenlaakso	178,675	0.92	0.82
FI1C5	Etelä-Karjala	131,113	1.20	1.11
FI1D	Pohjois- ja Itä-Suomi	1,298,340	0.80	0.73
FI1D1	Etelä-Savo	150,292	0.81	0.73
FI1D2	Pohjois-Savo	248,112	0.92	0.86
FI1D3	Pohjois-Karjala	164,744	0.97	0.86
FI1D4	Kainuu	78,388	1.01	0.89
FI1D5	Keski-Pohjanmaa	68,990	0.81	0.78
FI1D6	Pohjois-Pohjanmaa	406,966	0.73	0.66
FI1D7	Lappi	180,848	0.54	0.49
FI2	ÅLAND	28,992	1.09	1.36
FI20	Åland	28,992	1.09	1.36
FI200	Åland	28,992	1.09	1.36

Source: Staff calculation based on EU-LFS (for country level) and data from Statistics Finland

Table B.6. Sports activities' RCA and RPOP in France, NUTS 1 and 2 (2012)[3]

NUTS_ID	Name	Population	RCA	RPOP
FR	**FRANCE**	**65,241,241**	**0.89**	**0.80**
FR1	ÎLE DE FRANCE	11,898,502	1.18	1.51
FR10	Île de France	11,898,502	1.18	1.54
FR2	BASSIN PARISIEN	10,800,000	0.98	0.87
FR21	Champagne-Ardenne	1,339,270	0.67	0.61
FR22	Picardie	1,922,342	1.11	0.93
FR23	Haute-Normandie	1,845,547	1.00	0.94
FR24	Centre	2,563,586	1.00	0.91
FR25	Basse-Normandie	1,477,209	1.13	1.03
FR26	Bourgogne	1,641,130	0.90	0.84
FR3	NORD - PAS-DE-CALAIS	4,050,756	0.76	0.69
FR30	Nord - Pas-de-Calais	4,050,756	0.76	0.71
FR4	EST	5,385,369	0.60	0.54
FR41	Lorraine	2,349,816	0.64	0.55
FR42	Alsace	1,859,869	0.43	0.44
FR43	Franche-Comté	1,175,684	0.81	0.72
FR5	OUEST	8,653,702	0.93	0.87
FR51	Pays de la Loire	3,632,614	0.97	0.96
FR52	Bretagne	3,237,097	0.97	0.90
FR53	Poitou-Charentes	1,783,991	0.78	0.70
FR6	SUD-OUEST	6,951,195	1.05	0.97
FR61	Aquitaine	3,285,970	1.22	1.14
FR62	Midi-Pyrénées	2,926,592	0.91	0.88
FR63	Limousin	738,633	0.86	0.77
FR7	CENTRE-EST	7,695,264	1.00	0.99
FR71	Rhône-Alpes	6,341,160	1.01	1.04
FR72	Auvergne	1,354,104	0.95	0.87
FR8	MÉDITERRANÉE	6,579,576	1.11	1.18
FR81	Languedoc-Roussillon	2,700,266	1.16	0.95
FR82	Provence-Alpes-Côte d'Azur	4,935,576	1.07	1.02
FR83	Corse	316,257	1.28	1.17
FR9	DÉPARTEMENTS D'OUTRE-MER	1,865,270	0.88	0.65
FR91	Guadeloupe	388,364	0.72	0.60
FR92	Martinique	388,364	0.90	0.77
FR93	Guyane	239,648	0.70	0.43
FR94	La Réunion	833,944	1.00	0.73

Source: Calculations based on EU-LFS (for country level) and data from INSEE

[3] Data for France at the NUTS 3 (district) level is available upon request

Table B.7. Sports activities RCA and RPOP in Germany, NUTS 1 and 2 (2013)[4]

NUTS_ID	Name	Population	RCA	RPOP
DE	**DEUTSCHLAND**	**80,767,464**	**0.76**	**0.88**
DE1	BADEN-WÜRTTEMBERG	10,631,278	0.91	0.86
DE11	Stuttgart	3,972,881	1.04	0.86
DE12	Karlsruhe	2,702,831	0.95	0.92
DE13	Freiburg	2,174,500	0.82	0.84
DE14	Tübingen	1,781,066	0.73	0.80
DE2	BAYERN	12,604,244	0.79	0.92
DE21	Oberbayern	4,469,342	1.33	1.25
DE22	Niederbayern	1,189,153	0.46	0.62
DE23	Oberpfalz	1,077,991	0.52	0.67
DE24	Oberfranken	1,056,365	0.44	0.64
DE25	Mittelfranken	1,707,376	0.76	0.85
DE26	Unterfranken	1,297,992	0.44	0.59
DE27	Schwaben	1,806,025	0.72	0.88
DE3	BERLIN	3,421,829	2.67	1.32
DE30	Berlin	3,421,829	2.67	1.32
DE4	BRANDENBURG	2,449,193	0.88	1.14
DE40	Brandenburg	2,449,193	0.88	1.14
DE5	BREMEN	657,391	1.77	1.45
DE50	Bremen	657,391	1.77	1.45
DE6	HAMBURG	1,746,342	3.29	1.64
DE60	Hamburg	1,746,342	3.29	1.64
DE7	HESSEN	6,045,425	1.00	0.97
DE71	Darmstadt	3,822,479	1.32	1.17
DE72	Gießen	1,023,150	0.53	0.57
DE73	Kassel	1,199,796	0.60	0.69
DE8	MECKLENBURG-VORPOMMERN	1,596,505	0.86	1.00
DE80	Mecklenburg-Vorpommern	1,596,505	0.86	1.00
DE9	NIEDERSACHSEN	7,790,559	1.00	1.05
DE91	Braunschweig	1,574,936	1.24	1.34
DE92	Hannover	2,099,079	1.54	1.26
DE93	Lüneburg	1,670,199	0.74	0.86
DE94	Weser-Ems	2,446,345	0.70	0.82
DEA	NORDRHEIN-WESTFALEN	17,571,856	1.17	0.99
DEA1	Düsseldorf	5,088,748	1.48	1.22
DEA2	Köln	4,333,015	1.35	1.05
DEA3	Münster	2,574,148	0.94	0.81
DEA4	Detmold	2,024,392	0.90	0.86
DEA5	Arnsberg	3,551,553	0.90	0.78
DEB	RHEINLAND-PFALZ	3,994,366	0.80	0.94
DEB1	Koblenz	1,474,378	0.69	0.86
DEB2	Trier	519,136	0.48	0.64
DEB3	Rheinhessen-Pfalz	2,000,852	0.99	1.08
DEC	SAARLAND	990,718	0.91	0.98
DEC0	Saarland	990,718	0.91	0.98

[4] Data for Germany at the NUTS 3 (district) level is available upon request

NUTS_ID	Name	Population	RCA	RPOP
DEC3	Neunkirchen	133,222	0.38	0.47
DED	SACHSEN	4,046,385	1.03	1.06
DED2	Dresden	1,590,927	1.17	1.13
DED4	Chemnitz	1,468,954	0.87	0.97
DED5	Leipzig	986,504	1.07	1.06
DEE	SACHSEN-ANHALT	2,244,577	0.73	0.92
DEE0	Sachsen-Anhalt	2,244,577	0.73	0.92
DEF	SCHLESWIG-HOLSTEIN	2,815,955	0.96	1.10
DEF0	Schleswig-Holstein	2,815,955	0.96	1.10
DEG	THÜRINGEN	2,160,840	0.57	0.82
DEG0	Thüringen	2,160,840	0.57	0.82

Source: Staff calculation based on EU-LFS (for country level) and data from Federal Statistical Office and the statistical Offices of the Länder

Table B.8. Sports activities' RCA and RPOP in Italy, NUTS 1 and 2 (2013)

NUTS_ID	Name	Population	RCA	RPOP
IT	**ITALIA**	**59,685,227**	**0.75**	**0.64**
ITC	NORD-OVEST	15,861,548	0.92	1.23
ITC1	Piemonte	4,374,052	1.00	1.09
ITC2	Valle d'Aosta/Vallée d'Aoste	127,844	2.13	1.94
ITC3	Liguria	1,565,127	1.35	1.18
ITC4	Lombardia	9,794,525	0.85	1.30
ITF	SUD	13,980,833	1.08	0.60
ITF1	Abruzzo	1,312,507	1.37	1.06
ITF2	Molise	313,341	0.45	0.22
ITF3	Campania	5,769,750	1.12	0.62
ITF4	Puglia	4,050,803	0.94	0.53
ITF5	Basilicata	576,194	0.94	0.50
ITF6	Calabria	1,958,238	1.16	0.45
ITG	ISOLE	6,640,311	1.13	0.55
ITG1	Sicilia	4,999,932	1.16	0.53
ITG2	Sardegna	1,640,379	1.05	0.61
ITH	NORD-EST	11,521,037	1.08	1.34
ITH1	Provincia Autonoma di Bolzano/Bozen	509,626	1.58	2.08
ITH2	Provincia Autonoma di Trento	530,308	1.18	1.32
ITH3	Veneto	4,881,756	1.03	1.26
ITH4	Friuli-Venezia Giulia	1,221,860	0.67	0.73
ITH5	Emilia-Romagna	4,377,487	1.16	1.51
ITI	CENTRO (IT)	11,681,498	0.95	1.09
ITI1	Toscana	3,692,828	1.22	1.21
ITI2	Umbria	886,239	1.35	1.24
ITI3	Marche	1,545,155	0.85	0.84

NUTS_ID	Name	Population	RCA	RPOP
ITI4	Lazio	5,557,276	0.80	1.05

Source: Staff calculation based on EU-LFS (for country level) and data from IStat

Table B.9. Sports activities' RCA and RPOP in the Netherlands, NUTS 1, 2 and 3 (2008)

NUTS_ID	Name	Population	RCA	RPOP
NL	**NEDERLAND**	**16,485,787**	**1.24**	**1.30**
NL1	NOORD-NEDERLAND	1,708,821	1.12	1.00
NL11	Groningen	574,092	0.85	0.86
NL111	Oost-Groningen	152,172	1.06	0.59
NL112	Delfzijl en omgeving	49,401	0.99	0.81
NL113	Overig Groningen	372,519	0.79	0.92
NL12	Friesland (NL)	644,811	1.53	1.29
NL121	Noord-Friesland	331,455	1.58	1.42
NL122	Zuidwest-Friesland	105,802	2.48	0.43
NL123	Zuidoost-Friesland	207,554	1.37	1.33
NL13	Drenthe	489,918	0.98	0.97
NL131	Noord-Drenthe	188,915	1.02	0.92
NL132	Zuidoost-Drenthe	171,479	1.05	0.96
NL133	Zuidwest-Drenthe	129,524	0.85	0.87
NL2	OOST-NEDERLAND	3,499,946	1.01	1.06
NL21	Overijssel	1,125,435	0.89	0.97
NL211	Noord-Overijssel	351,878	0.83	0.91
NL212	Zuidwest-Overijssel	152,265	1.18	1.13
NL213	Twente	621,292	0.87	0.88
NL22	Gelderland	1,991,062	1.07	1.21
NL221	Veluwe	650,922	1.10	1.24
NL224	Zuidwest-Gelderland	402,200	0.87	0.50
NL225	Achterhoek	703,792	1.02	0.58
NL226	Arnhem/Nijmegen	234,148	1.12	3.69
NL23	Flevoland	1,210,869	1.06	0.34
NL230	Flevoland	368,174	1.06	1.07
NL3	WEST-NEDERLAND	7,719,856	1.03	1.00
NL31	Utrecht	1,210,869	1.01	1.24
NL310	Utrecht	1,210,869	1.01	1.18
NL32	Noord-Holland	2,646,445	1.09	1.28
NL321	Kop van Noord-Holland	368,174	1.30	0.87
NL322	Alkmaar en omgeving	229,879	1.66	1.58
NL323	IJmond	191,470	1.83	1.72
NL324	Agglomeratie Haarlem	217,977	1.61	1.46
NL325	Zaanstreek	159,955	0.94	0.83
NL326	Groot-Amsterdam	1,235,514	0.84	1.18
NL327	Het Gooi en Vechtstreek	243,476	1.20	1.24
NL33	Zuid-Holland	3,481,558	1.03	0.85
NL332	Agglomeratie 's-Gravenhage	391,986	1.57	1.24
NL333	Delft en Westland	794,009	1.21	0.37
NL337	Agglomeratie Leiden en Bollenstreek	213,551	0.98	1.55
NL338	Oost-Zuid-Holland	322,240	0.98	0.69
NL339	Groot-Rijnmond	1,367,012	0.98	0.91

NUTS_ID	Name	Population	RCA	RPOP
NL33A	Zuidoost-Zuid-Holland	392,760	0.69	0.62
NL34	Zeeland	380,984	0.58	0.60
NL341	Zeeuwsch-Vlaanderen	107,191	0.45	0.45
NL342	Overig Zeeland	273,793	0.63	0.62
NL4	ZUID-NEDERLAND	3,557,164	0.89	0.94
NL41	Noord-Brabant	2,434,560	0.92	1.07
NL411	West-Noord-Brabant	612,073	0.93	1.00
NL412	Midden-Noord-Brabant	456,033	1.29	1.31
NL413	Noordoost-Noord-Brabant	633,723	0.85	0.97
NL414	Zuidoost-Noord-Brabant	732,731	0.76	0.89
NL42	Limburg (NL)	1,122,604	0.81	0.81
NL421	Noord-Limburg	279,355	0.58	0.49
NL422	Midden-Limburg	234,364	1.10	1.09
NL423	Zuid-Limburg	608,885	0.79	0.78

Source: Staff calculation based on EU-LFS (for country level) and data from Statistics Netherlands and LISA

Table B.10. Sports activities' RCA and RPOP in Portugal, NUTS 1,2 and 3 (2011)

NUTS_ID	Name	Population	RCA	RPOP
PT	**PORTUGAL**	**10562178**	**0.99**	**1.00**
PT1	*CONTINENTE*	*10047621*	*0.98*	*1.00*
PT11	Norte	3689682	0.70	0.66
PT111	Alto Minho	244,836	0.73	0.49
PT112	Cávado	410,169	0.49	0.46
PT113	Ave	511,737	0.48	0.54
PT114	Grande Porto	1287282	1.04	1.16
PT115	Tâmega	550,516	0.54	0.48
PT116	Entre Douro e Vouga	274,859	0.26	0.26
PT117	Douro	205,902	0.11	0.05
PT118	Alto Trás-os-Montes	204,381	0.27	0.11
PT15	Algarve	451,006	3.66	3.33
PT150	Algarve	451,006	3.66	3.33
PT16	Centro (PT)	2327755	0.72	0.54
PT161	Baixo Vouga	390,822	0.49	0.42
PT162	Baixo Mondego	332,326	0.41	0.30
PT163	Pinhal Litoral	260,942	0.91	1.01
PT164	Pinhal Interior Norte	131,468	0.15	0.09
PT165	Dão-Lafões	277,240	0.68	0.46
PT166	Pinhal Interior Sul	40,705	0.22	0.11
PT167	Serra da Estrela	43,737	0.17	0.07
PT168	Beira Interior Norte	104,417	2.67	1.27
PT169	Beira Interior Sul	75,028	0.05	0.02
PT16A	Cova da Beira	87,869	0.25	0.13
PT16B	Oeste	362,540	0.80	0.63

NUTS_ID	Name	Population	RCA	RPOP
PT16C	Médio Tejo	220,661	1.41	0.92
PT17	Área Metropolitana de Lisboa	2821876	1.17	1.70
PT171	Grande Lisboa	2042477	1.17	2.05
PT172	Península de Setúbal	779,399	1.19	0.78
PT18	Alentejo	757,302	-	-
PT181	Alentejo Litoral	97,925	-	-
PT182	Alto Alentejo	118,410	-	-
PT183	Alentejo Central	166,822	-	-
PT184	Baixo Alentejo	126,692	-	-
PT185	Lezíria do Tejo	247,453	-	-
PT2	*REGIÃO AUTÓNOMA DOS AÇORES*	246,772	0.74	0.48
PT20	Região Autónoma dos Açores	246,772	0.74	0.48
PT200	Região Autónoma dos Açores	246,772	0.74	0.48
PT3	*REGIÃO AUTÓNOMA DA MADEIRA*	267,785	2.15	1.65
PT30	Região Autónoma da Madeira	267,785	2.15	1.65
PT300	Região Autónoma da Madeira	267,785	2.15	1.65

Source: Calculations based on EU-LFS (for country level) and data from INE

Table B.11. Sports activities' RCA and RPOP in Spain, NUTS 1 and 2 (2013) [5]

NUTS_ID	Name	Population	RCA	RPOP
ES	**ESPAÑA**	**47,129,784**	**1.50**	**1.31**
ES1	NOROESTE	4,425,993	0.91	0.88
ES11	Galicia	2,765,940	0.84	0.81
ES12	Principado de Asturias	1,068,165	0.92	0.86
ES13	Cantabria	591,888	1.23	1.23
ES2	NORESTE	4,505,336	1.27	1.38
ES21	País Vasco	2,191,682	1.20	1.32
ES22	Comunidad Foral de Navarra	644,477	1.82	2.00
ES23	La Rioja	322,027	1.12	1.17
ES24	Aragón	1,347,150	1.17	1.21
ES3	COMUNIDAD DE MADRID	6,495,551	1.04	1.15
ES30	Comunidad de Madrid	6,495,551	1.04	1.15
ES4	CENTRO (ES)	5,724,877	0.73	0.70
ES41	Castilla y León	2,519,875	0.83	0.81
ES42	Castilla-La Mancha	2,100,998	0.71	0.67
ES43	Extremadura	1,104,004	0.53	0.48
ES5	ESTE	13,779,139	1.13	1.15
ES51	Cataluña	7,553,650	1.16	1.26
ES52	Comunidad Valenciana	5,113,815	0.96	0.89
ES53	Illes Balears	1,111,674	1.52	1.59
ES6	SUR	10,080,208	0.82	0.75
ES61	Andalucía	8,440,300	0.81	0.74
ES62	Región de Murcia	1,472,049	0.81	0.77

[5] Data for Germany at the NUTS 3 (district) level is available upon request

NUTS_ID	Name	Population	RCA	RPOP
ES63	Ciudad Autónoma de Ceuta	84,180	1.35	0.99
ES64	Ciudad Autónoma de Melilla	83,679	2.07	1.54
ES7	CANARIAS	2,118,679	1.03	0.99
ES70	Canarias	2,118,679	1.03	0.99

Source: *Calculations based on EU-LFS (for country level) and data from Ministerio Ministerio de Empleo y Seguridad Social de España*

Table B.12. Sports activities' RCA and RPOP in Switzerland, NUTS 1, 2 and 3 (2011)

NUTS_ID	Name	Population	RCA	RPOP
CH	**CONFÉDÉRATION SUISSE**	**8,035,391**	**1.29**	**1.63**
CH0	CONFÉDÉRATION SUISSE	8,035,391	1.29	1.63
CH01	Lémanic	1,523,811	0.98	0.96
CH011	Vaud	734,604	1.12	1.03
CH012	Valais / Wallis	324,843	1.05	0.89
CH013	Genève	464,364	0.78	0.91
CH02	Espace Mittelland	1,783,851	1.06	1.02
CH021	Bern / Berne	992,782	1.22	1.25
CH022	Fribourg / Freiburg	287,066	0.77	0.62
CH023	Solothurn	258,733	0.91	0.78
CH024	Neuchâtel	174,373	0.86	0.82
CH025	Jura	70,897	0.67	0.64
CH03	Nordwestschweiz	1,089,565	0.88	0.87
CH031	Basel-Stadt	189,365	0.83	1.32
CH032	Basel-Landschaft	277,014	0.87	0.74
CH033	Aargau	623,186	0.92	0.78
CH04	Zürich	1,405,140	1.08	1.22
CH040	Zürich	1,405,140	1.08	1.22
CH05	Ostschweiz	1,129,694	0.95	0.88
CH051	Glarus	39,834	1.07	0.96
CH052	Schaffhausen	77,999	0.99	0.93
CH053	Appenzell Ausserrhoden	53,566	0.85	0.67
CH054	Appenzell Innerrhoden	15,794	0.81	0.71
CH055	St. Gallen	486,380	0.91	0.88
CH056	Graubünden / Grigioni / Grischun	201,796	1.16	1.19
CH057	Thurgau	254,325	0.81	0.67
CH06	Zentralschweiz	764,051	0.94	0.96
CH061	Luzern	384,665	0.90	0.90
CH062	Uri	35,775	0.99	0.82
CH063	Schwyz	149,244	1.04	0.88
CH064	Obwalden	36,323	1.29	1.27
CH065	Nidwalden	41,609	1.15	1.02
CH066	Zug	116,435	0.83	1.22
CH07	Ticino	339,279	1.08	1.11
CH070	Ticino	339,279	1.08	1.11

Source: Staff calculation based on EU-LFS (for country level) and data from Swiss Statistics