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Sport Satellite Account Croatia

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SPORT SATELLITE ACCOUNT CROATIA

REPORT

Abstract

The economic importance of sport was calculated using a Sport Satellite Account in an Input-output-table framework. This method has the advantage of staying within the System of National Accounts, allowing for the calculation of indirect results, and the comparison with the other Sport Satellite Accounts of the EU Member States. The main findings are that, for 2015, sport directly contributed 878 m euros of Gross value added or 1.39 bn euros in total (including the indirect effects in the supply network). The latter value corresponds to 3.75 per cent of the total Gross value added in Croatia. Sport also provided employment for 44,800 persons directly or 67,100 persons in total, equivalent to 2.88 per cent and 4.31 per cent of total employment correspondingly.

Several indicators show that sport is better connected to the rest of the economy than an average sector. That means that investing in sport creates more Gross value added and employment within its supply network than investing in an average sector. The main components of sport in Croatia are sport-related tourism and sporting services such as sport clubs and the operation of sport facilities.

EN

CONTENTS

Sport Satellite Account Croatia	Error! Bookmark not defined.
Contents	3
LIST OF ABBREVIATIONS	4
LIST OF TABLES	5
LIST OF FIGURES	5
Executive Summary	6
Methodology	8
Economic Definition of Sport	8
National and Multiregional Input-Output Tables: Sport	10
Direct Effects	10
Indirect Effects	11
Results	14
Direct Gross Value Added	14
Direct Employment	14
Total GVA and Total Employment	15
Sectoral Results	16
Further Research	21
References	23
ANNEXES	24
Annex 1. National Data Sheet for GVA 2015	24
Annex 2. National Data Sheet for GDP 2015	28

LIST OF ABBREVIATIONS

GDP	Gross Domestic Product
GVA	Gross Value Added
IOT	Input-Output Table
IOT-S	Input-Output Table for Sport
MRIOT-S	Multiregional Input-Output Table on Sport
SSA	Sport Satellite Account

LIST OF TABLES

Table 1: Vilnius Definition with examples of sport-related activities and products	8
Table 2: Vilnius Definition Set of Rules	9
Table 3: Direct GVA in m euros generated in the Top-10 sectors	17
Table 4: Indirect GVA in m euros generated in the Top-10 sectors.....	17
Table 5: Total GVA in m euros generated in the Top-10 sectors.....	18
Table 6: Direct employment generated in the Top-10 sectors.....	19
Table 7: Indirect employment generated in the Top-10 sectors	19
Table 8: Total employment generated in the Top-10 sectors	20

LIST OF FIGURES

Figure 1: Structure of GVA as the difference between output and intermediate products including taxes less subsidies on products.....	11
Figure 2: Every product consists of 100 per cent GVA/GDP since in every production step, GVA/GDP is added to the intermediate goods	12
Figure 3: GVA of sport (broad definition) in relation to similarly sized sectors in m euros..	14
Figure 4: Employment of sport (broad definition) in relation to similarly sized sectors in persons	15

EXECUTIVE SUMMARY

- In the European Union, the so-called Vilnius Definition of sport is used to define sport in economic terms. This allows comparable national research results and has been performed in Austria, Belgium, Cyprus, Estonia, Germany, Lithuania, the Netherlands, Portugal, Poland and the United Kingdom. Croatia is now part of this group. The most recent results can be found in the Study on the Economic Impact of Sport through Sport Satellite Accounts (SpEA and SIRC (2018)). Note that the results for Croatia in that pan-EU study are outdated and to be replaced with the ones found in the current study.
- Sport in Croatia directly generated 878 m euros of Gross value added in 2015, equivalent to 2.37 per cent of all Gross value added generated in Croatia. By adding the indirect effects in the supply network, which are necessary for the directly sport related activities, a total effect of 1,390 m euros or 3.75 per cent of total Gross value added can be reported.
- An average euro spent in sport in Croatia leads to 74 cents of domestic Gross value added which is a remarkably high share for a small open economy that imports many goods and services (leading to an outflow of Gross value added, since the imported goods and services are produced abroad).
- For every euro of Gross value added generated in the directly sport-relevant activities, another 58 cents are generated in the supply network. This is above the average of the whole economy.
- Sport contributes 44,860 directly employed persons (2.88 per cent of total employment) which is comparable to the population of Dubrovnik (42,615) or Šibenik (46,332). Another 22,314 are added by the supply network, totalling at 67,174 persons employed in sport (4.31 per cent of total employment); this is equal to the population of Velika Gorica (63,517) or Zadar (75,062 persons). Therefore, for every person working in a directly sport-related company or institution, another 0.50 'persons' are employed in the supply network. This value is above that of the average sector as well.
- Every 27th euro of Gross value added and every 24th employee in Croatia are associated directly or indirectly with the field of sport.
- The 2.88 per cent of employees working directly in sport is ranked fourth in the European Union (see (SpEA and SIRC (2018)), page 10)¹ and compares favourably with the EU-average at 2.72 per cent. Since Gross domestic product (often abbreviated to GDP) indicators were used in the pan-EU study and Gross value added in the current study, an exact comparison with EU sport economies, based on published results, is not possible.
- The percentage of sport employment (out of total employment) is greater than the percentage of sport Gross value added. This is consistent with the findings in the pan-

¹ That pan-EU study is for the base year 2012, while this, Croatian study is for 2015. Although differences are possible, sport is considered and often also found to form a rather constant share of the whole economy.

EU research (SpEA and SIRC (2018)) where all Member States with the exception of Poland reported that result. Therefore, one can conclude that sport is employment intensive and an efficient economic tool against unemployment; this is on top of other economic considerations associated with health, social cohesion, well-being etc.

- The sectors benefitting the most from sport are accommodation and food services as well as retail trade, ranking 1 and 2 in terms of Gross value added (299 m euros and 169 m euros) and employment (12,180 and 10,839 persons) correspondingly. Ranked third in terms of Gross value added and employment are sporting services (72 m euros) and water transport services (6,818 persons) correspondingly.
- When a stimulus to the sport sector reaches other parts of the economy by means of the supply network, these other parts benefit as well. The numbers associated with the sectors below show the relation between direct and indirect impact. For example, the number 2.03 of the production of food and beverages means that for every euro of Gross value added generated in a directly sport-related company, another 1.03 euros are generated in the supply network. The best-connected sport-related sectors (those with a multiplier above 2.0) in terms of Gross value added are
 - Travel agencies (2.91),
 - Air transport services (2.59),
 - Transport equipment other than motor vehicles and trailers (2.04),
 - Production of food and beverages (2.03).

The same can be done for employees, leading to the following results:

- Air transport services (4.49),
- Travel agencies (3.15),
- Production of coke and refined petroleum (3.13),
- Rental and leasing services (mainly of sport equipment, 2.80),
- Production of food and beverages (2.40),
- Furniture and other manufactured goods (thus sport equipment, 2.06),
- Repair and installation services of machinery and equipment (2.06),
- Printing and recording services (2.05),
- Scientific and research services (2.00).

Some of the sectors (Production of food and beverages, Air transport services, and Travel agencies) appear in both lists. These are of special interest for Croatia as any impulse to these sectors feeds through wide areas of the economy in terms of Gross value added and employment. All three are connected to tourism.

- Analysing the largest sectors as well as those which send the most impulses to the rest of the economy clearly shows the economic weight of tourism to the sport industry. Sporting services (mainly clubs and sport facilities) are also of major economic importance.

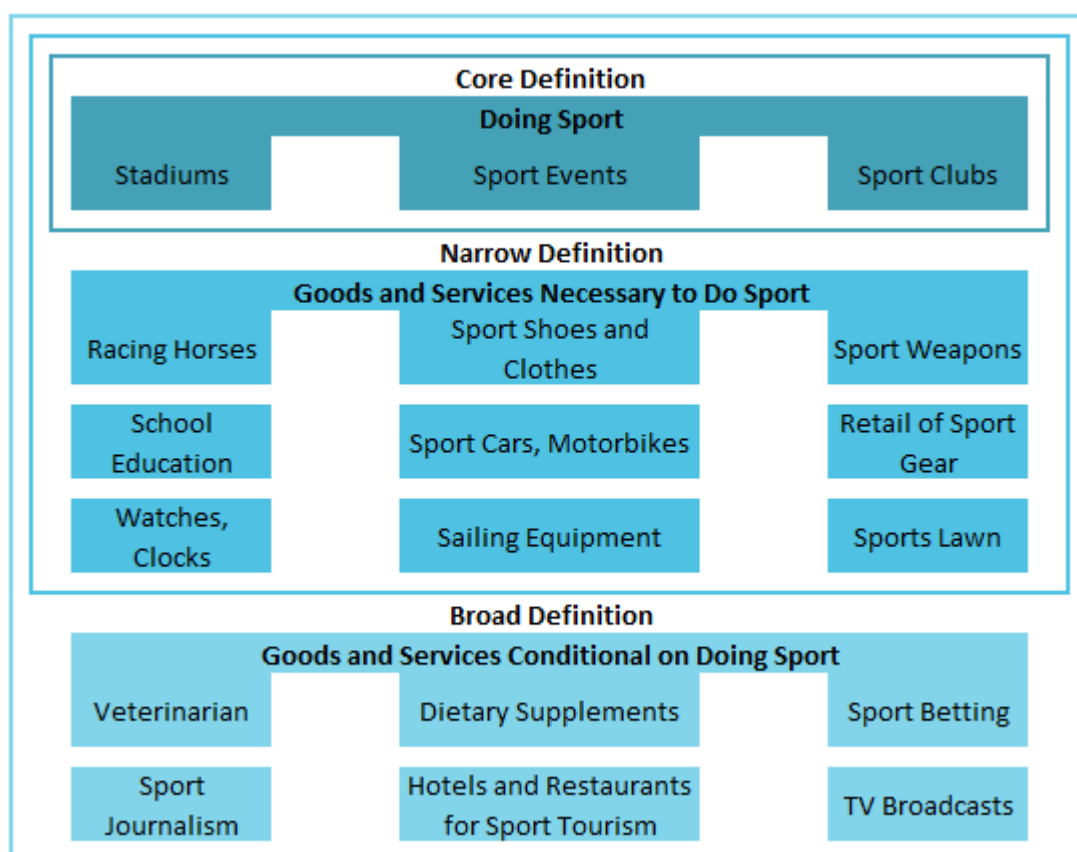
METHODOLOGY

Economic Definition of Sport

The sport economy as a whole is not a separate statistically measured sector, but is part of various other industries and economic sectors. National statistical offices measure sport explicitly only by the category “operation of sports facilities” in NACE 93.1 where NACE stands for “Nomenclature statistique des activités économiques dans la Communauté européenne” and is a classification of industries according to their economic activity. Other categories such as the production of sport articles, sport retail, and sport tourism are ignored in the core definition.

The question arises as to how the economic importance of these sport-related activities can be measured. For this purpose, the EU Working Group "Sport & Economics" agreed upon the Vilnius Definition of sport. The Vilnius Definition of sport relates sport activities to specific industries, as they are registered within the framework of the national accounts.

Table 1: Vilnius Definition with examples of sport-related activities and products



Source: SpEA and SIRC

For most purposes here the NACE categories are still too broad, because NACE refers to specific companies (or production units); a better targeted measure is products instead of production units called CPA. CPA is the abbreviation for “Classification of Products by Activity” and is a classification of products. NACE and CPA are part of an international classification system of industries and products.

The sport sector as such is neither a NACE category nor a CPA category, but NACE and CPA category 93.1 "Sporting services" that refers explicitly to a part of the sport industry. This

category includes sport facilities such as stadiums, swimming pools, sports clubs and professional sport organisations. Currently, sector 93.1 is called "Core Definition" (it was called "Statistical definition" previously) and can be seen as the top-most category in Table 1.

Limiting sports to this NACE category would be quite arbitrary from an economic point of view. Another, conceptually better, definition of the sport sector enlarges the Core definition of sport by all industries which produce goods that are necessary to perform sport. Besides sport facilities, this classification includes, for example, manufacturing of sport shoes and tennis rackets. The latter definition is referred to as the "Narrow definition of sport". This definition is depicted in the middle part of Table 1 comprising the upper Core definition.

In addition, the so-called "Broad definition of sport" includes not only the Core definition and the Narrow definition, but also those industries for which sport is an important input for their production processes, e.g. television broadcasting or hotels accommodating guests doing sports (sailors, skiers, hikers, etc.), as depicted in the lower part of Table 1.

Besides a list of all products which are considered to be sport related, the Vilnius Definition of sports includes several rules, which guide the classification and interpretation of sports products.

Table 2: Vilnius Definition Set of Rules

1	Goods and services which are part of the core and narrow definitions of sport are also part of the broader definition of sport. The broader definition of sport will be the focus of the Working Group "Sport & Economics".
2	Multipurpose infrastructure and multipurpose durable goods which are not part of the core definition of sport (CPA 2008 2.0 93.1) will be excluded, e.g. roads, cars, TV sets. Dedicated infrastructure (e.g. CPA2008 Rev 2.0 F 42.99.22) will be included.
3	To avoid double counting and to ensure comprehensiveness, correspondence will be established between the manufacturing sections and the trade/retailing sections (categories 46-47) of the table. Sections 46 and 47 are only relevant in terms of trade margins.
4	Data will be collected on the basis of a common agreement on which NACE and CPA categories to include. However, to take account of the country-specific sport landscape, additional CPA categories may exceptionally be included over and above the basic list agreed in the Working Group "Sport & Economics".
5	In general, only final expenditure (incl. capital expenditure) will be taken into account, and not intermediate expenditure. Reference will be made to intermediate demand only if it constitutes sizeable input for professional sport. In a similar way, industrial services, where they are not sport-specific, will not be considered.
6	Sport associations are to be classified as 93.19.13 (regulating bodies). They seem to be misclassified often. If such misclassifications occur, correct them for your calculations.

7	E-bikes (pedelecs) are to be categorized as 30.91.13. Since this category already was present in the Vilnius Definition before the rise of e-bikes, no formal changes were made.
8	Clarification: sport ministries are covered by 84.12.14. Note however, that sporting facilities operated by the public (incl. ministries) are accounted for in 93.11.10 (see long description of 84.12.14).

Source: Vilnius Definition of Sport, downloadable at <https://www.spea.at/wp-content/uploads/2019/07/Vilnius-Definition-Sport-CPA2008-official-7-April-2017.xlsx>

The Vilnius Definition of sport is thus an overview of all product groups which are included in the sport satellite account. It is not so much a definition of sport itself but a classification of relevant product groups.

National and Multiregional Input-Output Tables: Sport

Direct Effects

Gross value added (GVA), often shortened to just “Value added”, and Gross domestic product (GDP) are among the main measures to capture economic activity. In short, the difference between the two are taxes less subsidies on products which are part of GDP, but not of GVA. These are taxes (including non-deductible VAT) and subsidies which are applied on any kind of purchased products like mineral oil (sport fuel) or insurances (of athletes or private sport activities). Whether the purchaser is a company (or organisation, association, institution, etc.), which transforms the product into something else, or a final consumer is irrelevant. Therefore, GDP including these taxes and subsidies partially depends on final consumption while GVA does not. As an example, imagine a country raising taxes on care for elderly. The production network remains unaltered, only the final consumer has to pay more. Therefore, it would increase GDP, but not GVA. Due to these taxes less subsidies on final consumption, in 2015 in Croatia, GDP is around 20.5 per cent higher than GVA (44.6 bn euros compared to 37.0 bn euros²). Since these taxes less subsidies are paid not only on production, but also on final consumption (private and public consumption, investments and exports), GVA is somewhat closer to production, while GDP has a final consumption component. Due to this better description of the production process, research tends to use GVA, at least during initial calculations.

To understand what GVA and GDP are, a slightly longer explanation may be helpful. The economic activity of a company leads to its output and revenue (also called turnover) which differ mainly by changes in inventories (everything produced but not sold for revenue is stored in the inventory). Revenue is used to cover a multitude of costs and to produce surplus as shown in Figure 1. Costs fall into two parts: on the one hand intermediate goods and services (supplies from other companies, shown as grey 60 euros in Figure 1) are required to be transformed within the company and sold to its customers; on the other hand, there are the costs of this transformation (the orange bars in Figure 1). Consequently, two definitions of GVA can be derived: the first explains what is created (production side) and the second explains what it is used for (use side).

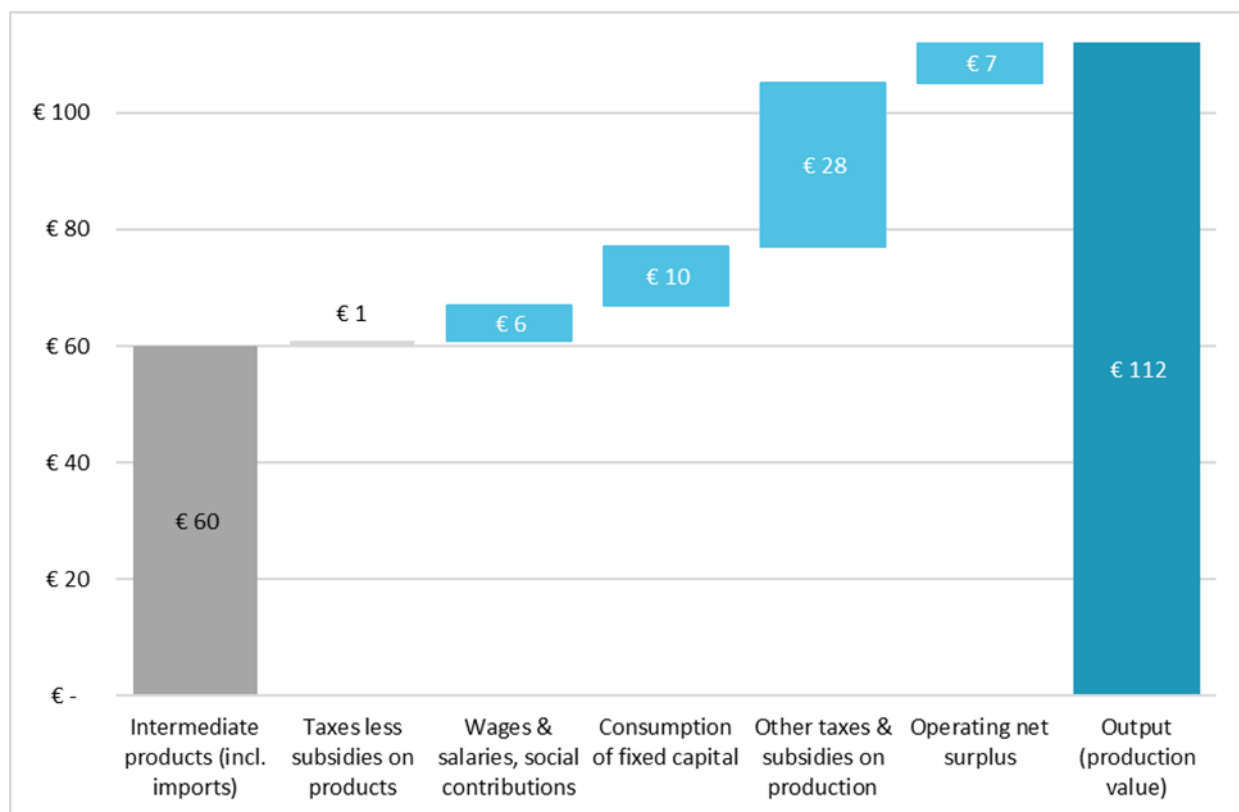
² Symmetric input-output table at basic prices (product by product) [naio_10_cp1700], downloaded from Eurostat on 23 March 2020.

Production side: GVA is the difference between turnover (dark blue, rightmost bar in Figure 1) and costs for intermediate products and services, including imports (dark grey, leftmost bar) as well as taxes less subsidies on these products (light grey, 2nd from the left). For example, carbon fibre, synthetic polymers, and paint are intermediate goods for producing tennis rackets. If the intermediate goods are transformed into a racket worth 112 euros, that racket can be sold for more than the intermediate goods' price plus taxes less subsidies on products (60 + 1 euros). This additional value is called GVA and equals $112 - (60 + 1) = 51$ euros.

Use side: as can also be seen in Figure 1, GVA also is the sum of salaries, wages, consumption of fixed capital, social contributions, taxes less subsidies on production, and surplus (light blue bars in Figure 1). Thus, GVA is used to pay the primary production factors: work (wages, salaries, social contributions), fixed capital (consumption of fixed capital), public services (production-based taxes less subsidies), and ownership (surplus).

GDP is calculated by adding the light grey 1 euro of taxes less subsidies on products to the 51 euros of GVA. Therefore, one can calculate a GDP of $51 + 1 = 52$ euros.

Figure 1: Structure of GVA (light blue) as the difference between output (dark blue) and intermediate products (dark grey) including taxes less subsidies on products (light grey)



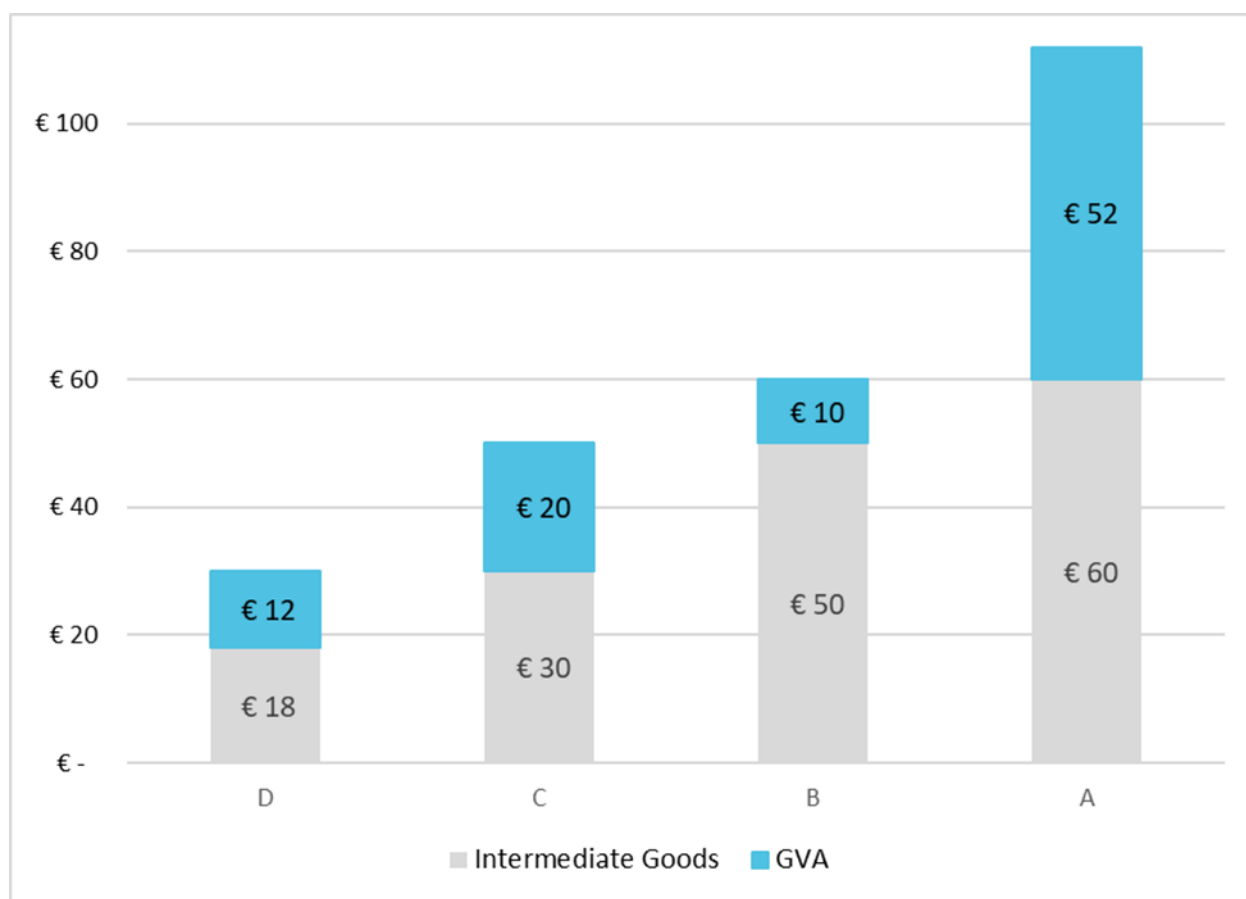
Source: SpEA, SIRC (2020)

Indirect Effects

It is important to understand that everything consists of 100 per cent GVA (and therefore GDP). To see that, note that the grey intermediate goods and services worth 60 euros on the left-hand side of Figure 1 have to be produced by other companies (the suppliers). During

this production in the supply network, GVA is generated as well. This happens again in the suppliers of the suppliers and so on and so forth. Figure 2 shows the company analysed in Figure 1 in the rightmost bar. The 112 euros output are divided into 60 euros intermediate goods and 52 euros GDP. However, it is also shown in Figure 2 that the intermediate goods can be split up into 10 euros GDP in the direct supplier company B and 50 euros intermediate goods and services. In its turn the 50 euros of intermediate demand is made of 20 euros GDP and 30 euros intermediate goods and services, supplied by company C. This logic repeats itself over and over again until the whole 112 euros of original output are attributed as GVA/GDP at some stage of the production chain.

Figure 2: Every product consists of 100 per cent GVA/GDP since in every production step, GVA/GDP is added to the intermediate goods



Source: SpEA, SIRC (2020)

The GVA generated in the directly analysed company A is called “direct effect”. The 60 euros of intermediate goods and services which are required in the production of sport are called “indirect effects”. In the case of company A, the relation between direct and indirect effects is more or less balanced, but company B and D are examples where direct and indirect effects can differ a lot. In order to have a measure for the relation between them, the fraction of total effects (i.e. direct + indirect effects) to direct effects is used and is called the multiplier. If intermediate goods are imported, the GVA generated by its production is attributed to other countries and thus “lost” for the domestic economy.

We can summarise that:

- direct effects occur in the directly analysed sectors and companies,

- indirect effects are generated in the GVA chain of the direct effects,
- this GVA chain is theoretically infinitely long,
- this GVA chain is a GVA network, as practically every company has more than just a single supplier,
- this GVA network nearly certainly contains circles of different lengths,
- every product finally consists of 100% GVA, as explained above.
- the higher the share of direct GVA in a product, the lower the share of indirect GVA and vice versa,
- suppliers may be located abroad. After a number of supply-steps, GVA is "imported" from a foreign economy almost certainly. The more GVA is produced domestically, the better for the economy. Large economies tend to have a higher share of domestic GVA than small economies which have to import many products and thus GVA.

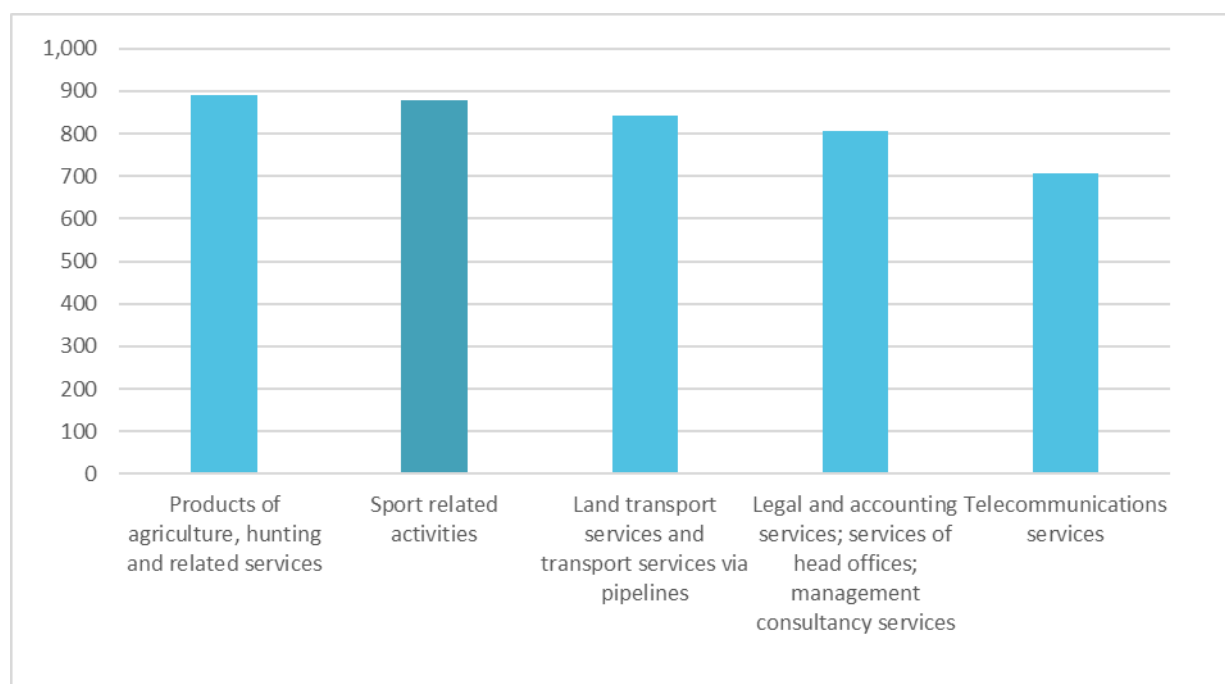
RESULTS

Data was provided from Eurostat, the Croatian Bureau of Statistics, the Institute for Tourism in Zagreb and the Comtrade Database. Results are reported with high precision. This does not necessarily mean that the real value is exactly equal to the one reported. The numbers given in the report are to be interpreted as expected values. Despite using the best available data and methodology, deviations are a natural and unavoidable consequence of every economic calculation.

Direct Gross Value Added

In 2015, the volume of directly sport-related activities in Croatia sums to 878 m euros of GVA which is equivalent to 2.37 per cent of the total economy's GVA. Thus, sport is nearly as large as agriculture (890 m euros) and even a little larger than land transportation (841 m euros), legal and accounting services (806 m euros), and telecommunication services (706 m euros). The implication is that sport thus is well embedded into a number of important sectors which generate a substantial amount of GVA.

Figure 3: GVA of sport (broad definition) in relation to similarly sized sectors in m euros



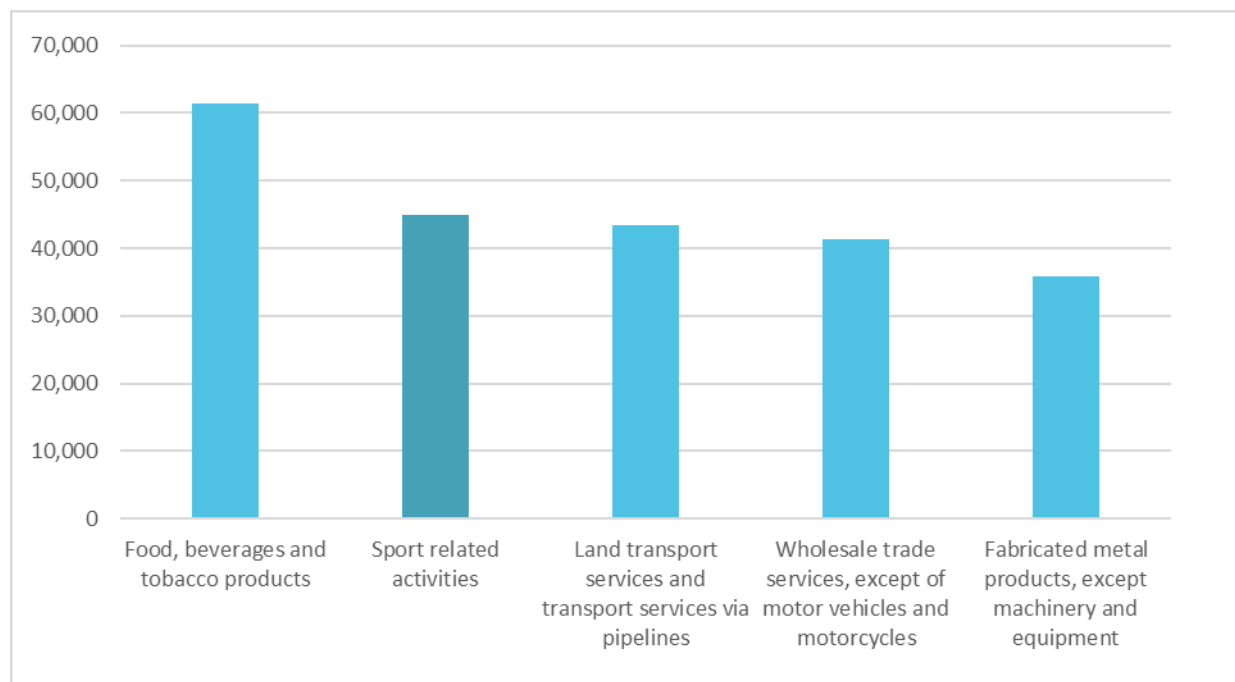
Source: SpEA, SIRC (2020)

Direct Employment

Employment is certainly among the most important economic indicators. It turns out that directly sport-related activities employ 44,861 persons in Croatia or 2.88 per cent of total employment. This share is higher than the GVA's share, meaning that sport is employment intensive: in order to produce one per cent of GVA, one generates more than one per cent of employment. Sport thus is an economic activity which effectively reduces unemployment.

To evaluate the importance of employment in sport-related companies, Figure 3 shows employment figures (all in persons) of comparably sized sectors: food, beverages, and tobacco (61,500), land transportation (43,500), wholesale (without vehicles) (41,400) and fabricated metal products (35,900).

Figure 3: Employment of sport (broad definition) in relation to similarly sized sectors in persons



Source: SpEA, SIRC (2020)

Agriculture or food, beverages and tobacco are examples of economic activities using a lot of labour compared to their GVA – even more than sport and therefore report more employees. Nonetheless, the 44,861 employed persons are comparable to the population of Dubrovnik (42,615) or Šibenik (46,332).³ Every 35th employee in Croatia works in a directly sport-related company.

Total GVA and Total Employment

Absolute Values

In addition to directly sport-related companies, one typically considers their supply network to be indirectly sport-related. Their associated economic effects, are called indirect effects. Direct effects plus indirect effects sum to total effects. The ratio of total effects to direct effects is called “multiplier”. The greater the value of a sport multiplier, the more the associated sector is connected to the rest of the economy; that again means:

- many other sectors grow following an investment in sport and/or
- few goods and services have to be imported.

A multiplier can never be smaller than 1.0. If an employment multiplier equals 1.5, half a ‘person’ is employed in the sectors supply network for every person employed in the directly sport-related sector. Multipliers above 1.8 can be considered “high”, but typical values change from sector to sector and country to country. Large economies tend to have higher multipliers since they have to import fewer goods and services.

In addition to the 878 m euros of direct GVA, another 511 m euros of indirect GVA in the supply network of the sport companies are generated within Croatia. Therefore, a total GVA

effect of 1.39 bn euros can be attributed to sport; that is a share of 3.75 per cent of total GVA. Therefore, out of 27 euros generated in Croatia, one euro is directly or indirectly related to sport. The sport multiplier equals 1.58 and one can thus say that for every euro of GVA in the sport-related companies, another 58 cents of GVA are generated in the supply network. The total 1.39 bn euros of GVA also mean that 74 per cent of sport-related spending is turned into domestic GVA.

Taking another look at employment, one can see that in addition to the 44,860 directly sport-related employees, another 22,314 persons are employed in the supply network of sport. This sums to a total of 67,174 persons (4.31 per cent of total employment) leading to a multiplier of 1.50. Total employment is comparable to the population of cities such as Velika Gorica (63,517) or Zadar (75,062 persons)⁴. Restating this result, every 27th euro of GVA is generated by sport and every 24th employee in Croatia works directly or indirectly in the field of sport.

Multipliers

The overall relation of total GVA to direct GVA equals $1,389 / 878 = 1.58$. That means that for every euro GVA generated within the directly sport-related sector, another 58 cents are generated in the supply network. This is a little higher than the multiplier of the whole economy which is 1.51.⁵ Therefore, sport is, in terms of GVA, better connected to the rest of the economy than an average sector. This supports the finding, presented in the previous section, that 74 per cent of sport output is turned into domestic GVA, which is also above average.

Looking at employment, we find a multiplier of $67,174 / 44,861 = 1,50$. Interpreted in the same manner as GVA, this translates into the statement that for every person directly employed in sport, another 0,50 'persons' are employed in the supply network. The equivalent average multiplier for the whole economy is 1.48. Sport thus has a slightly better connection to the rest of the economy than an average sector. That advantage, however, is rather small, but one must keep in mind that sport already generates a lot of employment in its own right – the multiplier just tells us, how much is added on top of that in the rest of the economy.

Sectoral Results

Gross Value Added

The importance of sport varies in different sectors of an economy. For Croatia, a lot of sport-related tourism could be detected (*Tourism in Figures* (2016), pages 12 and 18), including diving and sailing (*Tomas - Stavovi i Potrošnja Turista u Hrvatskoj* (2018), pages 32 and 33) and the Tourism Satellite Account (*Croatian Bureau of Statistics* (2019)). Tourism thus generates a large amount of GVA: 282.4 m euros for services such as accommodation, restaurants, bars etc. This is directly followed by the retail sector (127.1 m euros). Sporting services, which are identified from NACE code 93.1 in the core definition of sport, generate 68.1 m euros of GVA. Table 3 presents a comparison of direct GVA associated with the ten most economically significant sport sectors.

⁴ Population numbers are from the census 2011 in ("*Popis Stanovništva, Kućanstava i Stanova 2011. Stanovništvo Prema Spolu i Starosti*") (2013)

⁵ Inclusive or exclusive sport are equal within rounding differences.

Table 3: Direct GVA in m euros generated in the Top-10 sectors

Rank	Sector	GVA
1	Accommodation and food services (sport related)	282.4
2	Retail trade services, except of motor vehicles and motorcycles (sport related)	127.1
3	Sporting services	68.1
4	Water transport services (sport related)	64.0
5	Creative, arts, entertainment, library, archive, museum, other cultural services; gambling and betting services (sport related)	52.6
6	Furniture and other manufactured goods (sport related) ⁶	36.8
7	Education services (sport related)	31.8
8	Other transport equipment (sport related)	23.3
9	Publishing services (sport related)	19.7
10	Food, beverages and tobacco products (sport related)	18.2

Source: SpEA, SIRC (2020)

As described before, all these activities require intermediate goods and services which leads to indirect results. The sectors that benefit most from indirectly generated GVA are: retail services (42.4 m euros), food and beverages (36.7 m euros), very closely followed by legal and accounting services (36.3 m euros). As all the directly sport-related effects are presented in Table 3, Table 4 exclusively reports the indirect effects on non-sport sectors.

Table 4: Indirect GVA in m euros generated in the Top-10 sectors

Rank	Sector	GVA
1	Retail trade services, except of motor vehicles and motorcycles (non-sport)	42.4
2	Food, beverages and tobacco products (non-sport)	36.7
3	Legal and accounting services; services of head offices; management consultancy services (non-sport)	36.3
4	Wholesale trade services, except of motor vehicles and motorcycles (non-sport)	35.1
5	Electricity, gas, steam and air conditioning (non-sport)	33.3
6	Financial services, except insurance and pension funding (non-sport)	27.6
7	Real estate services excluding imputed rents (non-sport)	18.9
8	Products of agriculture, hunting and related services (non-sport)	18.4
9	Accommodation and food services (non-sport)	17.1
10	Textiles, wearing apparel, leather and related products (non-sport)	14.0

Source: SpEA, SIRC (2020)

⁶ This sector mainly covers a wide range of sport equipment.

The above tables report either sport-related or non-sport data. As can be seen, some sectors appear in both tables, e.g. accommodation and food services, as the sport-related sectors often purchase intermediate goods from their non-sport counterparts. Therefore, it makes sense to add the values sector-wise in order to know the total impact on each sector, without differentiating between sport-related and non-sport. Results are reported in Table 5. Note that sporting services are merged with the remainder of their sector which therefore bears a longer name. The four most important sectors are unchanged in comparison to the ranking of the direct effects, whilst food and beverages rose substantially from the tenth position in Table 3 to sixth overall.

Table 5: Total GVA in m euros generated in the Top-10 sectors

Rank	Sector	GVA
1	Accommodation and food services (sport plus non-sport)	299.4
2	Retail trade services, except of motor vehicles and motorcycles (sport plus non-sport)	169.5
3	Sporting services and amusement and recreation services (sport plus non-sport)	72.4
4	Water transport services (sport plus non-sport)	68.8
5	Creative, arts, entertainment, library, archive, museum, other cultural services; gambling and betting services (sport plus non-sport)	60.2
6	Food, beverages and tobacco products (sport plus non-sport)	54.9
7	Wholesale trade services, except of motor vehicles and motorcycles (sport plus non-sport)	47.9
8	Furniture and other manufactured goods (sport plus non-sport)	46.3
9	Legal and accounting services; services of head offices; management consultancy services (sport plus non-sport)	37.5
10	Education services (sport plus non-sport)	35.6

Source: SpEA, SIRC (2020)

Looking at the sectoral multipliers, we can find some exceptional values. A multiplier of more than 2.0 can be considered important as for every euro generated directly, more than one euro of GVA is generated within the supply network. The sectors with sport multipliers greater than two:

- Travel agencies (2.91),
- Air transport services (2.59),
- Transport equipment other than motor vehicles and trailers (2.04),
- Production of food and beverages (2.03).

This does not necessarily mean that these sectors are big in terms of generated GVA, although they are very well connected to the rest of the economy. However, stimulating these sectors spreads the impulse throughout many other sectors which, in practically all cases, is desirable.

Sectoral Results: Employment

As can be expected, the “big picture” of the GVA ranking is similar to that of employment, as the generation of a large GVA requires a large number of employees. However, due to

different labour productivity rates in the sectors, some changes can be observed. With 11,486 employees, accommodation and food services are again the number one sector. The second rank is once more taken by retail trade with 8,130, followed by water transport with 6,346 persons.

Table 6: Direct employment generated in the Top-10 sectors

Rank	Sector	Persons
1	Accommodation and food services (sport related)	11,486
2	Retail trade services, except of motor vehicles and motorcycles (sport related)	8,130
3	Water transport services (sport related)	6,346
4	Sporting services	3,078
5	Textiles, wearing apparel, leather and related products (sport related)	2,201
6	Education services (sport related)	2,160
7	Creative, arts, entertainment, library, archive, museum, other cultural services; gambling and betting services (sport related)	2,094
8	Other transport equipment (sport related)	1,995
9	Furniture and other manufactured goods (sport related)	995
10	Land transport services and transport services via pipelines (sport related)	905

Source: SpEA, SIRC (2020)

The indirect effects show some surprising results. As indicated in Table, rank 1 goes, as expected, to retail services, followed by agriculture and textiles; agriculture was not even in the Top-10 in Table 4 and textiles were ranked tenth. This can be explained by different labour productivity in the sectors.

Table 7: Indirect employment generated in the Top-10 sectors

Rank	Sector	Persons
1	Retail trade services, except of motor vehicles and motorcycles (non-sport)	2,709
2	Products of agriculture, hunting and related services (non-sport)	2,283
3	Textiles, wearing apparel, leather and related products (non-sport)	1,864
4	Food, beverages and tobacco products (non-sport)	1,430
5	Legal and accounting services; services of head offices; management consultancy services (non-sport)	1,000
6	Constructions and construction works (non-sport)	757
7	Wholesale trade services, except of motor vehicles and motorcycles (non-sport)	725
8	Accommodation and food services (non-sport)	694

9	Security and investigation services; services to buildings and landscape; office administrative, office support and other business support services (non-sport)	681
10	Residential care services; social work services without accommodation (non-sport)	663

Source: SpEA, SIRC (2020)

Total employment is dominated by the direct effects; this becomes clear when comparing the direct and indirect results in Table 66 and Table 7 correspondingly. Table 8 shows the aggregate results, of direct and indirect effects. Accommodation services employ 12,180 persons, directly or indirectly related to sport, followed by retail services (10,839 person) and water transport services (6,818).

Table 8: Total employment generated in the Top-10 sectors

Rank	Sector	Persons
1	Accommodation and food services (sport plus non-sport)	12,180
2	Retail trade services, except of motor vehicles and motorcycles (sport plus non-sport)	10,839
3	Water transport services (sport plus non-sport)	6,818
4	Textiles, wearing apparel, leather and related products (sport plus non-sport)	4,065
5	Sporting services and amusement and recreation services (sport plus non-sport)	3,273
6	Education services (sport plus non-sport)	2,418
7	Creative, arts, entertainment, library, archive, museum, other cultural services; gambling and betting services (sport plus non-sport)	2,397
8	Products of agriculture, hunting and related services (sport plus non-sport)	2,333
9	Other transport equipment (sport plus non-sport)	2,177
10	Food, beverages and tobacco products (sport plus non-sport)	2,137

Source: SpEA, SIRC (2020)

Multipliers in terms of employment tend to vary more than GVA-multipliers. Values above 2.0 can still be considered important, since they are associated with sectors where more persons are employed in the supply network than in the directly sport-related companies:

- Air transport services (4.49),
- Travel agencies (3.15),
- Production of coke and refined petroleum (3.13),
- Rental and leasing services (mainly of sport equipment, 2.80),
- Production of food and beverages (2.40),

- Furniture and other manufactured goods (e.g. sport equipment, 2.06),
- Repair and installation services of machinery and equipment (2.06),
- Printing and recording services (2.05),
- Scientific and research services (2.00).

Some of the sectors (Production of food and beverages, Air transport services, and Travel agencies) also appear in the high-multiplier list for GVA. These are of special interest for Croatia as any impulse to these sectors feeds through wide areas of the economy in terms of GVA and employment. All these three sectors are connected to tourism. Air transportation and travel agencies have been hit strongly by the Corona-crisis which points at a serious problem. However, once the crisis is overcome, these could also be sectors which catch up quickly.

Results of an Exemplary Sport Event

In this section, an exemplary sport event is analysed. To avoid focussing on any single sport discipline, a large-scale event averaged over different disciplines,⁷ with an estimated value of 100,000 euros, is considered.

The spending of 100,000 euros is associated with 44,600 euros direct GVA and exactly 2.0 persons employed for one year (or more persons for a shorter period of time).

Within the supply network, another 34,300 euros of GVA are generated, which leads to a total of 78,900 euros of domestic GVA. As can be seen quickly, this implies that in Croatia 78.9 per cent of spending on a sport event turns into GVA. This is even higher than the 74 per cent of sport on average. The main reason for this remarkable result is that sport events (as well as recreation activities) require only a small amount of imports: most of the intermediate goods of the first round of the supply chain (i.e. those goods which are delivered to the sport event) are produced in Croatia.

In addition to the 2.0 persons being directly employed, another 1.72 can be expected to be employed in the supply network. Thus, a total of 3.73 persons will be employed for one year.

The GVA-multiplier equals 1.77 – for each euro of direct GVA, another 77 cents of GVA are created indirectly. The employment-multiplier equals 1.85. Both are substantially higher than the average economy-wide multipliers.

Further Research

Obviously, the System of National Accounts does not consider volunteering – which is one of the corner stones of sport. Research connecting volunteers and SSAs has just begun and should be continued.

Central data bases on sport-related topics would help the cause as well. As an example, a list of sport-related trainers and teachers would be beneficial for the SSA as well as for persons and institutions searching for them.

⁷ Analysing single disciplines in fact requires a complete study in its own right.

Another suggestion is to establish a sport-facilities data base. If possible, such a data base should also include semi-private facilities like gyms or tennis courts in hotels. Apart from the more obvious advantages of that data base they also aid planning of further investments.

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ANNEXES

Annex 1. National Data Sheet for GVA 2015

National Data Sheet Croatia				
ECONOMIC IMPACT OF SPORT (according to the Vilnius Definition)				
GROSS VALUE ADDED				
	Direct Effects	% of total		
Core Definition	68,11 bn €	0,18%		
Narrow Definition	353,33 bn €	0,95%		
Broad Definition	878,30 bn €	2,37%		
	Total Effects	% of total		
Broad Definition	1.39 bn	3,75%		
EMPLOYMENT				
	Direct Effects	% of total		
Core Definition	3.078	0,20%		
Narrow Definition	20.399	1,31%		
Broad Definition	44.861	2,88%		
	Total Effects	% of total		
Broad Definition	67.100	4,31%		
DETAILED INFORMATION on SECTORAL LEVEL				
CPA	Description	Sport		Sector-specific domestic Multiplier
		GVA m €	Employment	
A01	Products of agriculture, hunting and related services	0,40	50	1,65
C10-12	Food, beverages and tobacco products	18,15	707	1,80
C13-15	Textiles, wearing apparel, leather and related products	16,49	2.201	1,68
C18	Printing and recording services	3,81	113	1,83
C19	Coke and refined petroleum products	7,68	84	1,55
C21	Basic pharmaceutical products and pharmaceutical preparations	7,94	159	1,44

C22	Rubber and plastic products	0,52	18	1,45
C25	Fabricated metal products, except machinery & equipment	1,23	101	1,46
C26	Computer, electronic and optical products	1,14	52	1,52
C29	Motor vehicles, trailers and semi-trailers	2,08	158	1,53
C30	Other transport equipment	23,32	1.995	1,70
C31_32	Furniture and other manufactured goods	36,85	995	1,60
C33	Repair and installation services of machinery & equipment	1,31	29	1,59
F	Constructions and construction works	13,11	835	1,66
G45	Wholesale and retail trade and repair services of motor vehicles and motorcycles	2,69	126	1,52
G46	Wholesale trade services, except of motor vehicles and motorcycles	12,82	265	1,53
G47	Retail trade services, except motor vehicles & motorcycles	127,11	8.130	1,53
H49	Land transport services and transport services via pipelines	17,50	905	1,58
H50	Water transport services	64,01	6.346	1,55
H51	Air transport services	3,23	68	1,85
H52	Warehousing and support services for transportation	0,08	8	1,62
I	Accommodation and food services	282,39	11.486	1,61
J58	Publishing services	19,66	543	1,58
J59_60	Motion picture, video and	8,06	333	1,79

	television programme production services, sound recording and music publishing; programming and broadcasting services			
J62_63	Computer programming, consultancy and related services; Information services	3,78	85	1,42
K64	Financial services, except insurance and pension funding	3,00	32	1,29
K65	Insurance, reinsurance and pension funding services, except compulsory social security	2,96	129	1,56
M69_70	Legal and accounting services; services of head offices; management consultancy services	1,21	33	1,43
M72	Scientific research and development services	8,17	173	1,55
M74_75	Other professional, scientific and technical services and veterinary services	1,54	167	1,47
N77	Rental and leasing services	11,91	86	1,48
N78	Employment services	0,83	12	1,33
N79	Travel agency, tour operator and other reservation services and related services	10,32	361	2,24
N80-82	Security and investigation services; services to buildings and landscape; office administrative,	2,54	283	1,41

	office support and other business support services			
O	Public administration and defence services; compulsory social security services	1,68	88	1,58
P	Education services	31,78	2.160	1,31
Q86	Human health services	4,06	241	1,35
Q87_88	Residential care services; social work services without accommodation	0,71	63	1,45
R90-92	Creative, arts, entertainment, library, archive, museum, other cultural services; gambling and betting services	52,58	2.094	1,61
R93_1	Sport services	68,11	3.078	1,72
R93_2	Sporting services and amusement and recreation services	1,53	69	1,72
S95	Repair services of computers and personal and household goods	0,00	0	1,00

Annex 2. National Data Sheet for GDP 2015

National Data Sheet Croatia

ECONOMIC IMPACT OF SPORT (according to the Vilnius Definition)

GROSS DOMESTIC PRODUCT

	Direct Effects	% of total
Core Definition	90,65 bn €	0,20%
Narrow Definition	427,10 bn €	0,96%
Broad Definition	1140,19 bn €	2,56%
	Total Effects	% of total
Broad Definition	1761,09 bn €	3,95%

EMPLOYMENT

	Direct Effects	% of total
Core Definition	3.078	0,20%
Narrow Definition	20.399	1,31%
Broad Definition	44.861	2,88%
	Total Effects	% of total
Broad Definition	67.100	4,31%

DETAILED INFORMATION on SECTORAL LEVEL

CPA	Description	Sport		Sector-specific domestic Multiplier
		GDP m €	Employment	
A01	Products of agriculture, hunting and related services	0,48	50	1,65
C10-12	Food, beverages and tobacco products	19,12	707	1,80
C13-15	Textiles, wearing apparel, leather and related products	19,09	2.201	1,68
C18	Printing and recording services	4,24	113	1,83
C19	Coke and refined petroleum products	11,17	84	1,55
C21	Basic pharmaceutical products and pharmaceutical preparations	9,37	159	1,44

C22	Rubber and plastic products	0,58	18	1,45
C25	Fabricated metal products, except machinery & equipment	1,35	101	1,46
C26	Computer, electronic and optical products	1,73	52	1,52
C29	Motor vehicles, trailers and semi-trailers	3,06	158	1,53
C30	Other transport equipment	29,35	1.995	1,70
C31_32	Furniture and other manufactured goods	42,27	995	1,60
C33	Repair and installation services of machinery & equipment	1,81	29	1,59
F	Constructions and construction works	14,85	835	1,66
G45	Wholesale and retail trade and repair services of motor vehicles and motorcycles	3,05	126	1,52
G46	Wholesale trade services, except of motor vehicles and motorcycles	14,77	265	1,53
G47	Retail trade services, except motor vehicles & motorcycles	155,29	8.130	1,53
H49	Land transport services and transport services via pipelines	25,73	905	1,58
H50	Water transport services	132,77	6.346	1,55
H51	Air transport services	9,97	68	1,85
H52	Warehousing and support services for transportation	0,11	8	1,62
I	Accommodation and food services	361,53	11.486	1,61
J58	Publishing services	23,37	543	1,58
J59_60	Motion picture, video and	8,32	333	1,79

	television programme production services, sound recording and music publishing; programming and broadcasting services			
J62_63	Computer programming, consultancy and related services; Information services	4,82	85	1,42
K64	Financial services, except insurance and pension funding	3,21	32	1,29
K65	Insurance, reinsurance and pension funding services, except compulsory social security	3,33	129	1,56
M69_70	Legal and accounting services; services of head offices; management consultancy services	1,39	33	1,43
M72	Scientific research and development services	8,87	173	1,55
M74_75	Other professional, scientific and technical services and veterinary services	2,01	167	1,47
N77	Rental and leasing services	12,80	86	1,48
N78	Employment services	0,85	12	1,33
N79	Travel agency, tour operator and other reservation services and related services	16,09	361	2,24
N80-82	Security and investigation services; services to buildings and landscape; office administrative,	2,66	283	1,41

	office support and other business support services			
O	Public administration and defence services; compulsory social security services	2,07	88	1,58
P	Education services	34,43	2.160	1,31
Q86	Human health services	4,27	241	1,35
Q87_88	Residential care services; social work services without accommodation	0,79	63	1,45
R90-92	Creative, arts, entertainment, library, archive, museum, other cultural services; gambling and betting services	56,57	2.094	1,61
R93_1	Sport services	90,65	3.078	1,72
R93_2	Sporting services and amusement and recreation services	2,01	69	1,72
S95	Repair services of computers and personal and household goods	0,00	0	1,00

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