Sheffield Hallam University | Sport Industry Research Centre

# *The Economic Importance of Olympic and Paralympic Sports, an update (2017)*

Sport Industry Research Centre
Sheffield Hallam University
A118 Collegiate Hall
Sheffield
S10 2BP

https://www.shu.ac.uk/research/specialisms/sport-industry-research-centre

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# EXECUTIVE SUMMARY

## INTRODUCTION

UK Sport commissioned the Sport Industry Research Centre (SIRC) at Sheffield Hallam University to produce a 'Sport Satellite Account' (SSA) for Olympic and Paralympic sports, in order to quantify their economic importance to the UK economy, for the year 2017. This is the second report, on Olympic and Paralympic SSAs; the original one was constructed with 2014 data. This report shows the results, mainly in terms of GVA and employment and their distribution per sport. The methods employed are consistent with the Government's 2017 estimates for the sport industry as a whole, produced by DCMS.

The *Sporting Future* policy asks sports to quantify and report on their economic scale and significance, with employment being a *Key Performance Indicator*. UK Sport can therefore be seen to be taking an important leadership role in quantifying the economic scale of Olympic and Paralympic sports.

## METHODS

The 'Economic Importance of Olympic and Paralympic Sports', is produced using the UK Satellite Account for Sport (SSA) for 2017 as its base and as a test of reasonableness. The Satellite Account technique is used to measure the size of economic sectors that are not identified explicitly in the National Accounts. The current research makes the distinction between 'statistical', 'narrow' and 'broad' definitions of sport as outlined in the Vilnius Definition[1] of sport. These three definitions refer to the sport-related economic activities that can be identified explicitly in the national statistics (e.g. sport facilities); the economic activities required to play sport (e.g. manufacturing of sport equipment); and, the economic activities that use sport as an input in the production process (e.g. sport betting) respectively.

Satellite Accounts analyse industries from four perspectives:

- Gross Value Added (GVA);
- Employment (head count and full time equivalent jobs);
- Consumer spending, and
- Turnover.

In addition, indirect effects (associated with the underlying supply chain activity) are calculated in the cases of GVA, employment and turnover giving a comprehensive economic impact for Olympic and Paralympic sports.

Certain sports such as golf, tennis, football and rugby were excluded because the Olympic and/or Paralympic Games are not the pinnacle of achievement in these sports. The five new sports for Tokyo 2020 are included to enable like for like comparisons to be made in future updates of this study.

Four main sources are used to acquire the relevant data:

- National data sets (for example the Annual Business Survey and Annual Survey of Hours and Earnings);
- Sport participation datasets such as the Active Lives Survey and the Taking Part Survey,
- Analysis of company accounts; and
- The 2017 Input Output Tables and the most recent Analytical Tables for the UK economy (2016).

[1] The Vilnius Definition of sport is explained in sections 1.2, 1.3 and 2.1 of the main report.

## KEY FINDINGS

### *Gross Value Added (GVA)*[2]

The Gross Value Added of Olympic and Paralympic sports in the UK was £24,718 million in 2017 with the largest single area being summer Olympic sports, generating £20,754m (84%) of this GVA. The GVA of Olympic and Paralympic sports is equivalent to 54% of the whole sport industry, as estimated by DCMS. The GVA is largely a function of the pattern of participation (or demand) among sports. For this reason, the sector is driven by Athletics, Swimming and Cycling. When both direct and indirect effects are taken into account, the importance of the sector increases to £38,506m.

| GVA £m | Statistical Definition | | Narrow Definition | | Broad Definition | |
|---|---|---|---|---|---|---|
| Summer Olympic sports | £5,948 | 28.7% | £13,997 | 67.4% | £20,754 | 100% |
| Winter Olympic sports | £413 | 35.3% | £764 | 65.3% | £1,169 | 100% |
| Paralympic sports | £696 | 24.9% | £1,786 | 63.9% | £2,795 | 100% |
| Total direct effect | £7,057 | 28.6% | £16,547 | 66.9% | *£24,718* | 100% |
| Total direct and indirect effect | | | | | *£38,506* | |

### *Employment*

The Olympic and Paralympic sector provides employment for 783,760 people (head count). The sector generates employment equivalent to 55.2% of all sport employment (DCMS) and 2.5% of total employment nationally. Most employment occurs in Olympic summer sports followed by Paralympic sports and Olympic winter sports. When the indirect effects are taken into account, the sector generates approximately 1.1 million jobs.

| Employment (head count) | Statistical Definition | | Narrow Definition | | Broad Definition | |
|---|---|---|---|---|---|---|
| Summer Olympic sport | 233,560 | 35.5% | 478,840 | 72.9% | 657,260 | 100% |
| Winter Olympic sport | 16,210 | 42.4% | 27,170 | 71.1% | 38,230 | 100% |
| Paralympic sport | 27,340 | 31.0% | 60,580 | 68.6% | 88,270 | 100% |
| Total direct | 277,110 | 35.4% | 566,590 | 72.3% | *783,760* | 100% |
| Total direct and indirect effect | | | | | *1,115,800* | |

### *Consumer spending*

Consumer spending on Olympic and Paralympic sports in the UK was found to be £25,290 million which is equivalent to £384 per head of population over the year 2017. This is equivalent to 1.9% of overall household spending. Almost a third of consumer spending on sport is located in the statistical definition of sport which is consistent with the cases of GVA and employment.

[2] Gross Value Added measures the contribution to the economy of each individual producer, industry or sector in the UK, and approximates to the sum of gross profits and wages/salaries.

| Consumer spending £m | Statistical Definition | | Narrow Definition | | Broad Definition | |
|---|---|---|---|---|---|---|
| Summer Olympic sports | £6,800 | 33.0% | £14,670 | 71.2% | £20,610 | 100% |
| Winter Olympic sports | £470 | 27.2% | £1,300 | 75.1% | £1,730 | 100% |
| Paralympic sports | £790 | 26.8% | £2,040 | 69.2% | £2,950 | 100% |
| Total | £8,060 | 31.9% | £18,010 | 71.2% | *£25,290* | 100% |

### *Turnover*

Turnover, or the total economic activity associated with Olympic and Paralympic sports is also comprised of: direct effects such as the operation of clubs; and indirect effects, such as supply chain activity. The turnover associated with these effects on Olympic and Paralympic sports is £75,163 million as indicated below. From this £46,110 million is produced through direct demand and the rest indirectly through the supply chain.

| Turnover £m | Statistical Definition | | Narrow Definition | | Broad Definition | |
|---|---|---|---|---|---|---|
| Summer Olympic sports | £11,120 | 28.8% | £25,740 | 66.6% | £38,660 | 100% |
| Winter Olympic sports | £770 | 35.0% | £1,400 | 63.6% | £2,200 | 100% |
| Paralympic sports | £1,300 | 24.8% | £3,310 | 63.0% | £5,250 | 100% |
| Total direct | £13,190 | 28.6% | £30,450 | 59.2% | *£46,110* | 100% |
| Total direct and indirect effect | | | | | *£75,163* | |

### *The sporting context*

The value of sport as a whole in the UK has been reported by the Department for Culture, Media and Sport using the Satellite Account methodology. Comparing our Olympic and Paralympic data with the DCMS' overall sport data reveals that Olympic and Paralympic sport is the main component of the sport industry accounting for: 54.1% of the sector's GVA and 55.2% of its employment. As shares of the national economy, Olympic and Paralympic sport generates 1.3% of GVA, 2.5% of employment and 1.9% of consumer spending respectively. Olympic and Paralympic sport is an industry which is larger than four entire sectors of the UK economy, including the agriculture, forestry and fishing industry.

| Measure | Olympic and Paralympic sports (2017) | Sport (2017) | % of the sport economy | % of the UK economy |
|---|---|---|---|---|
| GVA | £24,720 million | £45,730 million | 54.1% | 1.3% |
| Employment | 783,760 | 1,420,000* | 55.2% | 2.5% |
| Consumer spending | £25,290 million | n/a | n/a | 1.9% (households) |
| Turnover | £46,110 million | n/a | n/a | 1.3% |

## Conclusion

This report has shown that Olympic and Paralympic sports are fundamental in creating GVA and employment within the overall sport industry, accounting for the majority of the output produced. Their contribution to employment at 2.5% is much higher than the contribution of GVA (1.3%) implying that growth in Olympic and Paralympic sports will result in an accelerated rate of growth in employment so long as the supply side infrastructure flexes to accommodate increased demand.

The statistical definition of sport occupied a large share within the broad definition of sport, reaching 29%, 35%, 32% and 29% in GVA, employment, consumer spending and turnover respectively. The larger share in the case of employment verifies that the core of the sport industry (the statistical definition) contributes disproportionately in generating employment, assisted often by an 'army' of volunteers. Future research on the economics of sport should investigate the significance of sport volunteering, which is not included in the Vilnius Definition, and the growth in sport employment.

# 1. INTRODUCTION

## 1.1. The project

UK Sport commissioned the Sport Industry Research Centre (SIRC) at Sheffield Hallam University to produce a 'Sport Satellite Account' (SSA) for Olympic and Paralympic sports, in order to quantify their economic importance to the UK economy, for the year 2017. This is the second report, on Olympic and Paralympic SSAs; the original one was constructed with 2014 data. This report shows the results, mainly in terms of GVA and employment and their distribution per sport. The methods employed are consistent with the Government's 2017 estimates for the sport industry as a whole, produced by DCMS[3].

As mentioned in the original 2014-data report, the current project is aligned with the general Government's strategy for sport, outlined in the publications *Sporting Future*[4], by focusing on the sport economy and quantifying the economic importance of Olympic and Paralympic sports.

The year 2017 was chosen for this research, as it is the latest year for which we have finalised SSA results from DCMS, which is recognised as an Official Statistic. It follows, that Olympic and Paralympic sports comprise a subset of all sport, and therefore as a test of reasonableness we would expect the economic importance of Olympic and Paralympic sports to be a proportion of the overall total for sport. The research challenge, therefore, was to produce a credible estimate for Olympic and Paralympic sports that was consistent with the overall Satellite Account for Sport.

## 1.2. Background

An SSA is developed as a satellite around a System of National Accounts (SNA) to report the economic scale of specific sport related activities. The UK's National Accounts are summarised annually in the Input Output Tables published by ONS. Occasionally a very detailed system of Analytical Input Output Tables is produced that gives insights into indirect effect and economic multipliers. Outlines of the structure of the UK's National Accounts and an insight into Section A (Agriculture) are shown in Table 1.

*Table 1: The structure of the UK's National Accounts*

| Structure | Number | Abbreviated Examples |
|---|---|---|
| Sections | 21 | A: Agriculture, forestry and fishing |
| Divisions | 88 | 01: Crop and animal production |
| Groups | 272 | 01.1 Growing of non-perennial crops |
| Classes | 615 | 01.11 Growing of cereals |

The 'Classes' shown in Table 1, for example 01.11, are commonly known as Standard Industrial Classification codes or SIC codes (at the four digit level.) and form the basis of our investigations.

[3]https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/863632/DCMS_Sectors_Economic_Estimates_GVA_2018.pdf

[4] HM Government (2015 & 2018) Sporting Future: A New Strategy for an Active Nation, (HM Government), London.

Sport, in its totality, is not recognised as an industry within the framework of National Accounts. However, as will be shown later, sport and sport-related economic activity is found to varying extents in 158 out of 615 SIC codes. Throughout Europe, the method used to identify sport's contribution to the economy is the production of a 'Satellite Account'. The Satellite Account technique was developed by the United Nations to measure the size of economic sectors that are not defined as specific industries in the National Accounts, but which are clearly linked to the economy. In the UK there is a tourism Satellite Account, a Satellite Account for sport (SSA), including a Satellite Account for golf. Satellite Accounts usually analyse industries from four perspectives.

- Gross Value Added (GVA), which is the core of the National Accounts, and is defined as the profits plus wages within an industry, less an adjustment for taxation and subsidies. GVA is a proxy for Gross Domestic Product (GDP), the key measure of the scale of an economy.
- Employment is reported as a head count of employees and the self-employed to quantify the number of workers, and as Full Time Equivalents to quantify the number of jobs.
- Consumer spending, which is defined as the spending of individuals and households on sport-related goods and services.

The fourth, less commonly used measure is turnover, which captures the revenue flows associated with a given level of GVA. In order to generate £1,000 in wages and profits it might be necessary for a business to have a turnover of £1,800. This would include spending on all of the inputs required in the production process. Turnover is estimated by using appropriate industry specific ratios derived from the Input-Output Tables (IOT) of the UK.

Prior to *Sporting Future*, there was no explicit requirement for sports to quantify and report on their economic scale and significance. The new policy direction requires taking a different perspective on the 'performance' of sport. UK Sport can therefore be seen to be taking an important leadership role in quantifying the economic scale of Olympic and Paralympic sports. The key performance indicator stated in *Sporting Future* (2015) for measuring economic development through sport is employment as estimated in the Department for Culture, Media and Sport's Sport Satellite Account:

*Key Performance Indicator 16: Employment in the sport sector (from the Sport Satellite Account)*

The research aims of this report are to:

- Outline the economic groupings in the UK's System of National Accounts which contain Olympic and Paralympic sport activities;
- Estimate the GVA for each Olympic and Paralympic sport;
- Estimate employment for each sport;
- Estimate the associated consumer spending on these sports using the Vilnius Definition of sport (see explanation later);
- Estimate turnover for each sport; and
- Contextualise the research relative to the DCMS's 2017 Satellite Account for Sport.

The 'Economic Importance of Olympic and Paralympic Sports', is produced using the UK Satellite Account for Sport (SSA) for 2017 as its base and as a test of reasonableness. The 2017 SSA estimates the GVA

generated by the UK's sport economy to be 2.48% of the whole economy, and therefore equivalent to £45.7bn. However, it has not published any estimates for employment, consumer spending or turnover, which will be estimated in the context of this research. The UK SSA is explicitly constructed to be consistent with the internationally agreed 'Vilnius Definition' of sport [5] which provides the most conceptually robust description of the sport industry.

The focus of this research is on those sports for which the Olympic and Paralympic Games are the pinnacle of sporting achievement. Consequently, we have excluded four Olympic sports in golf, tennis, football, and rugby because the Olympic Games is not the pinnacle of achievement in them. Other popular sports such as motorsport, snooker and cricket are also excluded because they are not Olympic or Paralympic sports. However, in order to replicate the study meaningfully in future years, we have included in the analysis the five new sports for Tokyo 2020, namely: baseball / softball; climbing; karate; skateboarding; and surfing.

Table 2 shows the headline findings from the research. The total GVA generated by Olympic and Paralympic sports is approximately £24,718 million. It equates to 54.1% of the overall sport GVA and 1.3% of total GVA for the economy as a whole, generating approximately 784,000 jobs. Olympic and Paralympic employment is equivalent to 2.4% of total employment, highlighting sport's capacity to generate jobs at a greater rate than suggested by its GVA share of the economy. This, as Table 2 illustrates, is equivalent to 55.2% of the overall sport employment detailed in the UK SSA.

*Table 2: Value of Olympic and Paralympic Sports, UK 2017*

| Indicators | Units |
|---|---|
| Olympic and Paralympic GVA | £24,718 million |
| Olympic and Paralympic GVA as % of sport GVA: | 54.1% |
| Olympic and Paralympic GVA as % of total GVA: | 1.3% |
| Olympic and Paralympic, employment | 784,000 |
| Olympic and Paralympic employment as % of sport employment | 55.2% |
| Olympic and Paralympic employment as % of total employment | 2.4% |

## 1.3. Positioning the research

Generally, without a specific methodology, such as the construction of SSA, the contribution of sport to the economy is significantly underestimated. Since the System of National Accounts focuses on a small fraction of what is generally understood to be sport (SIC code 93.1), the contribution of sectors other than those explicitly addressed can be easily ignored. For instance, sport plays an important role in retail trade and tourism; however the sport industry does not receive recognition for this role in terms of GVA or employment as the relevant data are reported in different areas of the National Accounts. This finding implies that there is a discrepancy between the statistical reporting of the sport sector within National Accounts and the common understanding of what constitutes sport activities.

[5] http://ec.europa.eu/eurostat/documents/6921402/0/Vilnius+Definition+Sport+CPA2008+official+2013_09_19.pdf/30838d11-01ea-431f-8112-50786e187c1c

There have been several publications of SSA in European countries and in Japan. The UK is the only country to have produced a SSA for most years since 2004 and it is now produced annually by DCMS. As mentioned earlier, the latest year we have confirmed SSA data is 2017, which provides the background for the current study into Olympic and Paralympic sports.

To complement the UK SSA, we have derived a methodology for providing estimates of the economic importance of sport for specific sports that are consistent with the SSA. In this sense, the most important development has been the SSA for Golf[6] in the UK and the Republic of Ireland[7]. The key findings in both reports were centred on GVA, employment, consumer spending and turnover. The approach used was transparent, replicable and consistent with the UK's National Accounts.

Underpinning these applications of the Sport Satellite Account methodology is the 'Vilnius Definition' of sport which has been used to determine the Standard Industrial Classification (SIC) codes of economic activities which are associated with sport. The Vilnius Definition has been the common denominator across all SSA research in Europe. Economic activities are measured within a specific statistical nomenclature called NACE (***N****omenclature statistique des* ***A****ctivités économiques dans la* ***C****ommunauté* ***E****uropéenne)*. Within it, NACE category 93.1 "Sporting Activities" is identified as the core 'statistical definition' of sport in the National Accounts. This category includes sport facilities for participation and spectating purposes as well as the activities of professional and community clubs. Sport is contained within Section R of the UK's National Accounts and a breakdown of the Section as a whole and the SIC codes relevant to sport are listed below.

**Section R Arts, Entertainment and Recreation**

90 Creative arts and entertainment activities

91 Libraries, archives, museums and other cultural activities

92 Gambling and betting activities

**93 Sports activities and amusement and recreation activities**

93.1 Sports activities

93.11 Operation of sports activities

93.12 Activities of sport clubs

93.13 Fitness facilities

93.19 Other sports activities

93.19/1 Activities of racehorse owners

93.19/2 Other sports activities not elsewhere classified

However, to limit the sport sector to Division 93 of the Nation Accounts is quite arbitrary from an economic point of view. Another, conceptually better, definition of the economic sport sector encompasses all industries which produce goods that are necessary to play sport. In addition to sport

[6] SIRC: A Satellite Account for Sport in the UK, 2016, a research supported by the R&A (http://www.sportsthinktank.com/uploads/economic-impact-of-golf.pdf)

[7] SIRC: A Satellite Account for Golf in the Republic of Ireland, 2016, a research supported by the R&A and CGI, (https://www.golfnet.ie/News%20Listing%20Assets/CGI%20Report%20Economic%20Impact.pdf

facilities, this definition includes, for example, manufacturing of sport clothing and footwear as well as sports equipment. The latter definition (together with the statistical definition) is referred to as the '**narrow definition of sport'**. In addition to these two measures, the so-called '**broad definition of sport'** includes not only the statistical definition and the narrow definition, but also relevant parts of the industries for which sport is an important input for their production processes, e.g. television broadcasting. It is this broad definition of sport that has been reported in SSAs to date.

This report on Olympic and Paralympic sports, divides all the major outputs into 'statistical', 'narrow' and 'broad' definitions of the sport industry. The distribution of the sport-related economic activities among the three definitions can be seen in full in Table A1 of the Appendix ('Mapping of the UK Olympic and Paralympic sport industry'). All of the economic activity found in the statistical definition relates directly to sport. By contrast, for the SIC codes in the narrow and broad definitions only a proportion of the economic activity relates to sport.

## 1.4. Participation rates

Participation data were used to derive an estimate for the number of participants in each sport, which has been used subsequently as one of the determinants of the economic scale of a sport. Two frequencies were considered: at least once a week and at least twice every four weeks using the results from two national surveys: the Active Lives Survey (ALS) and the Taking Part Survey (TPS).

It is important to emphasise that the objective of collecting the participation rates was not to form a participation time series but to form the basis for distributing GVA among sports. For this reason, we wanted a participation pattern not dissimilar to the 2014 study. This became more challenging because of the termination of the original Active People Survey and its replacement by ALS. We found that taking a definition of participation at least twice in the past four weeks gave the most consistent results in the Grid. More difficulties in consistency arose because in some sports, such as Athletics, the basis of the definition of sport changed radically, and it became impossible to reproduce in 2017 the 2014 concept. Hence, some modelling of the participation rates was applied to avoid sharp changes from 2014 to 2017, which would have given unaccountable results in terms of GVA and employment.

Table 3 details the participation rates for adults (16 years old and above) for both competitive and recreational sport. Where possible children's participation rates were also taken into account using the Taking Part Children's Survey, as it was found that a considerable amount of commercial activity is driven by children's participation (e.g. in gymnastics). Paralympic sport participation rates are based on ALS data. Some Paralympic sports are identified explicitly within the surveys. However, in the majority of cases, we applied a filter to the overall dataset (for each sport) to derive them. This filter included all respondents who reported having visual, hearing, mobility, breathing and dexterity disabilities. Once this filter was applied, it was possible to separate out estimates for participation rates in each Paralympic sport and then to subtract this figure from the corresponding Olympic sport participation rate. Sports using this method included: Alpine skiing; athletics; badminton; canoe; cycling; equestrian; football; judo; rowing; sailing; shooting; volleyball; snowboarding; swimming; wheelchair curling, and wheelchair fencing.

Amongst the Olympic sports, the highest participation rates are found in athletics, swimming and children's gymnastics, judo and cycling, with all of them exceeding the 5% mark. Winter Olympic sports have lower participation rates, with the highest being ice-skating (0.80% adults, 3.55% children). In Paralympic sports, swimming, cycling and football have highest adult participation rates at 5.4%, 2.0%

and 2.2% respectively. It is important to note that the sum total of participants is not the same as the number of unique participants. There are some people who participate in more than one sport and who will be counted multiple times. However, the approach of counting participants per sport is appropriate because even those who take part in multiple sports will still have to pay to participate and to purchase the necessary equipment and clothing.

*Table 3: Participation rates, Olympic and Paralympic Sports, 2017*

| Olympic Sport | Adult participation | Child participation | Adult participants | Child participants |
|---|---|---|---|---|
| Archery | 0.25% | | 133,730 | |
| Athletics | 8.22% | 5.01% | 4,395,480 | 396,730 |
| Badminton | 3.07% | 1.85% | 1,243,120 | 146,020 |
| Basketball | 0.91% | 4.02% | 565,125 | 318,050 |
| Boxing | 0.90% | 1.76% | 481,430 | 139,130 |
| Canoeing | 1.10% | 0.75% | 445,420 | 59,570 |
| Cycling BMX | 0.13% | | 52,640 | |
| Cycling Mountain Bike | 1.51% | | 611,440 | |
| Cycling Road | 2.43% | | 983,970 | |
| Cycling Track | 0.13% | | 52,640 | |
| Cycling in children | | 22.37% | | 1,770,200 |
| Equestrian Dressage | 0.10% | | 40,490 | |
| Equestrian Jumping | 0.09% | | 36,443 | |
| Equestrian – combined | 0.92% | 2.64% | 372,530 | 208,820 |
| Fencing | 0.10% | | 40,490 | |
| Gymnastics (& trampoline in children) | 0.19% | 12.43% | 101,640 | 983,180 |
| Handball | 0.08% | | 42,790 | |
| Hockey | 0.28% | 2.19% | 149,780 | 172,940 |
| Judo, (or martial arts in children) | 0.08% | 5.80% | 32,390 | 459,000 |
| Rowing | 0.94% | | 380,630 | |
| Sailing | 0.69% | | 279,400 | |
| Shooting | 0.76% | | 307,743 | |
| Swimming/Diving | 15.29% | 35.45% | 6,191,310 | 2,804,880 |
| Table Tennis | 2.17% | 3.95% | 878,690 | 312,740 |
| Taekwondo | 0.13% | | 52,640 | |
| Trampoline | 0.97% | | 518,880 | |
| Triathlon | 0.15% | | 60,740 | |
| Volleyball | 0.24% | 0.45% | 97,180 | 35,760 |
| Water Polo | 0.05% | | 26,750 | |
| Weightlifting | 2.16% | | 874,640 | |
| Wrestling Freestyle | 0.07% | | 37,450 | |
| Wrestling Greco-Roman | 0.07% | | 37,450 | |

| | | | | |
|---|---|---|---|---|
| Baseball and softball | 0.07% | 0.75% | 37,450 | 59,250 |
| Karate | 0.22% | | 117,680 | |
| Skateboarding | 0.18% | | 96,290 | |
| Climbing | 0.86% | | 462,180 | |
| Surfing | 0.40% | | 213,970 | |
| **Winter Olympic Sport** | | | | |
| Alpine Skiing | 0.22% | | 117,680 | |
| Free Style Skiing | 0.05% | | 26,750 | |
| Cross Country Skiing | 0.01% | | 5,350 | |
| Curling | 0.01% | | 5,350 | |
| Ice Skating | 0.80% | 3.55 | 430,080 | 280,500 |
| Ice Hockey | 0.04% | | 21,400 | |
| Nordic Combined | 0.04% | | 21,400 | |
| Snowboard | 0.07% | | 37,450 | |
| | | | | |
| **Paralympic Sport** | | | | |
| Skiing | 0.06% | | 7,800 | |
| Athletics | 0.34% | | 216,840 | |
| Badminton | 1.01% | | 131,300 | |
| Boccia | 0.02% | | 10,700 | |
| Canoe | 0.45% | | 58,500 | |
| Wheelchair Archery | 0.10% | | 13,000 | |
| Cycling | 2.00% | | 260,000 | |
| Equestrian | 0.15% | | 19,500 | |
| Football | 2.23% | | 289,900 | |
| Judo | 0.08% | | 10,400 | |
| Power lifting | 0.10% | | 12,480 | |
| Rowing | 0.06% | | 7,800 | |
| Sailing | 0.34% | | 44,200 | |
| Shooting | 0.53% | | 68,900 | |
| Sitting Volleyball | 0.17% | | 22,100 | |
| Swimming | 5.44% | | 707,200 | |
| Table Tennis | 0.48% | | 62,400 | |
| Taekwondo | 0.03% | | 3,900 | |
| Triathlon | 0.03% | | 3,900 | |
| Wheelchair Basketball | 0.38% | | 49,400 | |
| Wheelchair Curling | 0.02% | | 2,340 | |
| Wheelchair Fencing | 0.04% | | 5,200 | |
| Wheelchair Tennis | 0.50% | | 65,000 | |

### 1.5 Comparisons with the 2014-data study

There are two problems in comparing the results between 2014 and 2017: Firstly, the discontinuity of the Active People Survey (as noted in the previous section) and secondly the extensive revision by ONS in the Input Output Tables over a number of years. We negotiated the first problem by selecting a participation concept that did not give results too dissimilar to the 2014 study (at least twice in the past two weeks). We also made some initial calculations on the effect that the ONS data revisions would have had on the previous report: estimating that the GVA values could have gone up by 16%. However, this is only an indicative estimate and to establish it firmly, the whole 2014 model needs to be recalculated.

### 1.6. Report structure

The rest of the report is structured as follows:

- Section 2 outlines the methods employed, including the construction of a 'sport grid' for the distribution of GVA and employment among sports, as well as the use of multipliers for the estimation of indirect effects;
- Section 3 outlines the estimation of sport specific GVA;
- Section 4 provides estimates for: employment, consumer spending and turnover in Olympic and Paralympic sports;
- Section 5 presents case studies on swimming, athletics and the five new Olympic sports;
- Section 6 examines the indirect effects on GVA, employment and turnover;
- Concluding comments are presented in section 7; and
- the Appendices provide more detailed data on the headlines included in the main body of the report.

## 2. METHODS

### 2.1. Underpinning methods

The estimation of the Olympic and Paralympic SSA involved undertaking a systematic sequence of tasks as outlined below.

- Approximation of GVA and employment in the economy as a whole according to four digit SIC codes.
- Estimation of 'sport shares' in GVA leading to sport-related GVA and employment.
- Estimation of a price indices for all sport-related economic activities spanning the years 2014-2017, which are then combined to provide the 2017 GVA estimate using 2014 prices.
- Estimation of full time equivalent sport employment, by using full time employment statistics.
- Estimation of consumer spending (households) and turnover using appropriate ratios from the National Accounts.
- Distribution of sport related GVA, employment, consumer spending and turnover across sports to derive the Olympic and Paralympic sport components.
- Classification of all the sport estimates according to the statistical, narrow and broad definition (as defined within the Vilnius Definition of sport).

- Estimation of indirect effects in GVA, employment and turnover.

Our analysis is consistent with the Vilnius Definition of sport, which articulates the consensus reached at European Union level and which included the active participation of the UK[8] in all the studies that have been conducted so far. The research presented in this report uses the key sources listed below as its basic inputs.

1. Examination of the commercial sector through the annual financial statements of sport-related businesses filed with Companies House.
2. Analysis the finances of sports clubs through annual financial statements and other data in the public domain.
3. The trade of goods as reported by Her Majesty's Revenue and Customs (HMRC).
4. Annual financial statements for governing bodies, associations and charities.
5. Participation data for Olympic and Paralympic sports through ALS, TPS and TPCS.
6. The Input-Output Tables for the national economy, together with data concerning average earnings provided by the Annual Survey of Hours and Earnings which is used to estimate the number of employees in each SIC activity.
7. ONS data for number of self-employed people in SIC code groups.
8. The results of the 2017 Annual Business Survey for the UK, broken down by SIC code.

This method represents an attempt to disaggregate an existing estimate for GVA and employment for sport as a whole to its constituent sports. The method is transparent making it possible to revise and update the estimates in the future.

## 2.2. Approximation of GVA for the economy as a whole

GVA must be approximated for economic activities in the Vilnius Definition of sport at the four-digit SIC code level. The National Accounts are presented at a two-digit level, making such an approximation a necessary first step in the calculations. To illustrate this point, Table 4 below shows, as an example, an extract of the economic activities analysed in this research, which contribute, in part, to the output generated by sport:

For each of the economic categories used, (such as 93.11 or 93.12 in Table 4) we computed a GVA estimation (reflecting the economy as a whole, not just sport). As an example, in the economic category 93.11, the four digit GVA detail can be approximated through the use of the Annual Business Survey (which has such detail available).

By using:

- ABS (93.11): GVA £3,203 million;

[8] SpEA, SIRC, (2018). Study on the economic impact of sport through sport satellite accounts. Research Report. *European Commission, Directorate-General Education and Culture*. (https://op.europa.eu/en/publication-detail/-/publication/865ef44c-5ca1-11e8-ab41-01aa75ed71a1/language-en/format-PDF/source-71256399)

- ABS (93): GVA £13,070 million, and
- IOT (93): GVA £12,651 million

an estimate of overall GVA for the sector 93.11 can be derived as:

[ABS(93.11) / ABS(93)] * IOT(93).

In the example above, the estimated GVA for the sector 93.11 equals £3,100.3 million: (3203/13070)*12651. In other words, the share suggested by ABS (of 93.11 as a subset of 93) is applied to the Input Output Tables (IOT), making the final estimate consistent with national statistics.

A total of 158 economic activities were analysed in this way. After deriving the overall GVA for each of the code specific economic activities, we proceeded to estimate the share of GVA attributable to each Olympic and Paralympic sport. This is done though data that are in the public domain, as well as by models constructed on the basis of the annual accounts of sport-related companies. The derived sport shares can be used in the estimation of both GVA and employment, as explained in the paragraphs below.

***Table 4: Sample economic activities used in the analysis***

| SIC codes | Economic activity | Sport content (examples) | Definition and sport percentages |
|---|---|---|---|
| 93.11 | Operation of sports facilities | Sports facility operation services; Operation of swimming pools and stadiums; Operation of other sports arenas and stadiums | Statistical, 100% |
| 93.12 | Activities of sport clubs | Services of sport clubs; | Statistical, 100% |
| 93.13 | Fitness facilities | Services of fitness facilities | Statistical, 100% |
| 93.19 | Other sports activities | Services of athletes; Support services related to sports and recreation; Other sports and recreational sports services; Sports and recreational sports event promotion services | Statistical, 100% |
| 93.29 | Other amusement and recreation activities | Services of marinas, ski services, table football games, coin-operated machines for car racing games | Narrow, 45% |
| 95.23 | Repair of footwear and leather goods | Sport repairs | Narrow, 13% |
| 95.29 | Repair of other personal and household goods | Refurbishment and selling of donated bicycles. | Narrow, 26% |

## 2.3. Estimation of sport related GVA.

For the current research the DCMS's SSA is taken as the basis upon which any sport-specific SSA can be built. The task here is to analyse the sport sector in such a way as the total sport related GVA (£45.73bn in 2017) can be reproduced within an acceptable tolerance level (+/-5%) and broken down into the constituent parts of the Vilnius Definition of sport. Although some elements of the Vilnius Definition of sport are 100% sport (the statistical definition), the 'narrow' and the 'broad' definitions (as explained in the introduction) include activities in which only a proportion of the total is eligible sport-related economic activity. For this part of the project, the data inputs are provided primarily by:

- the annual reports of limited companies filed with Companies House (CH) and processed through the 'Financial Analysis Made Easy' (FAME) database;
- the Annual Business Survey;
- the Input Output Tables provided by the Office for National Statistics (ONS); and
- The overall GVA estimates of the previous step.

Through the analysis of annual reports by Standard Industrial Classification (SIC) code, a sport percentage can be assigned to the sport-related component in each relevant economic activity. This is a critical element in the calculation of sport GVA and its subsequent allocation across the portfolio of Olympic and Paralympic sports. This highly detailed distribution of GVA should be regarded as a pragmatic device by which to generate aggregate values for each sport, rather than as a publishable statistical output with the status of an Official Statistic. The four digit SIC codes that were found to be relevant to the generation of GVA and employment, for Olympic and Paralympic sports, are listed in Table A.1 of the Appendix.

The important point of note here is that these derived shares provide an overall estimation of sport-related GVA that is consistent with the DCMS data. This finding should provide strong reassurance about the validity of the method we have used.

For example, in the case of category 95.23, by multiplying the sport share (in this case 13%) with the estimated GVA for the overall economic activity (£28.7m), we computed the sport generated GVA that is associated with repairs of footwear and leather goods (£3.8m).

After calculating the sport GVA for each of the relevant activities, we identified a total sport GVA of £45.65bn. This is very close to the output figure of £45.73bn for 2017 implied by the DCMS publication on Sport Satellite Accounts[9]. By making a small proportional adjustment, all the code-specific sport GVAs have been adjusted to match the DCMS total. This approach ensures that the method used is valid and consistent with values stated in both the National Accounts and the DCMS's Sport Satellite Account. A further benefit is that that the model can be adjusted easily in the event of any future update.

[9]https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/863632/DCMS_Sectors_Economic_Estimates_GVA_2018.pdf

## 2.4. Estimation of sport related employment consumer spending and turnover

In 2017, DCMS did not provide an overall figure for sport-related employment, so the first task is to provide such an estimate for the sport economy as a whole on the basis of the published sport-related GVA figure. The method of achieving this level of alignment included the following steps:

- Using Input Output Tables (IOTs) and sport GVA totals, we estimated wage bills for sport employees per SIC code;
- using mean wages from the Annual Survey for Hours and Earning (ASHE), and wage bills we estimated the number of employees (head count);
- alternatively, by using full time wages we calculated full time equivalents (FTE); and
- by using data from ONS, the number of employees found was adjusted upwards to include those classified as self-employed.

This procedure provides an employment figure for each sport-related SIC code reviewed, which is then distributed around the grid of sports.

Using GVA figures and IOT ratios for each SIC code (for example turnover / GVA for specific economic activities as identified in the National Accounts), we can import sport-related consumer spending and turnover into the model. In each case we derive overall consumer spending and turnover figures for relevant SIC codes, which are then allocated across sports. It is worth noting that consumer spending in this case includes household spending only and excludes final spending from non-profit institutions, which may have the effect of understating the total amount, as presented in the total final demand of the Input Output Tables.

## 2.5. Distribution of sport estimates across sports

The GVA for all sport is allocated to the relevant Olympic and Paralympic sports based on:

- the participation distribution between sports (Active Lives Survey and Taking Part Survey);
- the economic activities that are relevant in each sport, creating a sport grid;
- assumptions about sports and activities that have been excluded, and
- the commercial presence of some sports as a basis for cross-referencing and providing a 'sense check'.

The participation rates have been analysed in section 1.4 above and include both adults and children. The remaining principles for the distribution of sport estimates across sports are described in the paragraphs below:

### 2.5.1. Economic activities associated with sports

The allocation of the overall sport-related GVA to specific sports is a major innovation of this project. Our aim was to link each Olympic and Paralympic sport with the relevant economic activity found in each SIC code that we analysed. Some codes, such as 93.29 are associated with the vast majority of sports. Others, such as 01.19 (‘growing of other non-perennial crops’), are limited to specific sports (in this case equestrian). Hence, from the outset we needed to map the SIC codes that are associated with specific Olympic and Paralympic sports. This process was conducted by using annual reports, trade

profiles and descriptions, financial statements, and associated four-digit SIC codes filed with Companies House (see Appendix).

The first major observation from this mapping exercise is that Olympic and Paralympic sports span many industrial sectors and SIC codes. The breadth of sport's economic reach implies a strong link between sport and the rest of the economy, which in turn means that we should expect to see relatively high indirect effects in GVA and employment (explained in section 6 below).

The association between individual sports and SIC codes was decided on the basis of three methods:

- firstly, by analysing the descriptive narrative and examples used in each category in the Vilnius definition of sport;
- secondly, by assuming that some SIC codes, such as all in the statistical definition; medicines (narrow definition); and newspapers (broad definition), are associated with all sports; and
- thirdly, by researching the Companies House data set for Principal SIC codes under the name and trade description of each sport.

The associations established between sports and SIC codes led to the development of a grid, an extract of which is illustrated in Figure 1.

It should be noted that all of the Olympic and Paralympic sports that are listed in Table 2 (participation rates) are included in the master version of the sport-by-economic-activity grid. Figure 1 is merely for illustrative purposes.

For example, in the case of SIC 13.94 (Manufacture of cordage, rope, twine and netting) the sport-related GVA is estimated to be £7.1m. The only sports in the grid associated with this activity are climbing and sailing, although other sports may use ropes as an indirect input rather than as a necessary requirement. Consequently, the total of sport-related GVA in SIC code 13.94 is distributed solely to climbing and sailing.

### 2.5.2. Assumptions in the model

The detailed restrictions for the allocation of GVA to sports (which is also applicable to the estimates for employment and consumption) are outlined below:

- exclusion of football (Olympics), golf, rugby, cricket, motorsport and tennis;
- exclusion of the majority of sport-related betting as most of it is in horse racing and football with no relationship to Olympic and Paralympic sport; and
- triathlon was based on specific ALS participation data, but its grid pattern was defined by combining data from running, swimming and cycling.
- Health and fitness activity was excluded when the participants did not participate in any recognised Olympic or Paralympic sport.

### 2.5.3. Commercial presence of sports

Commercial information available for individual sports was used as a source of sense checking and to fine-tune the model. This approach was particularly important for approximating the economic size of sports that were excluded from the study. The current research was informed by three recent sport-

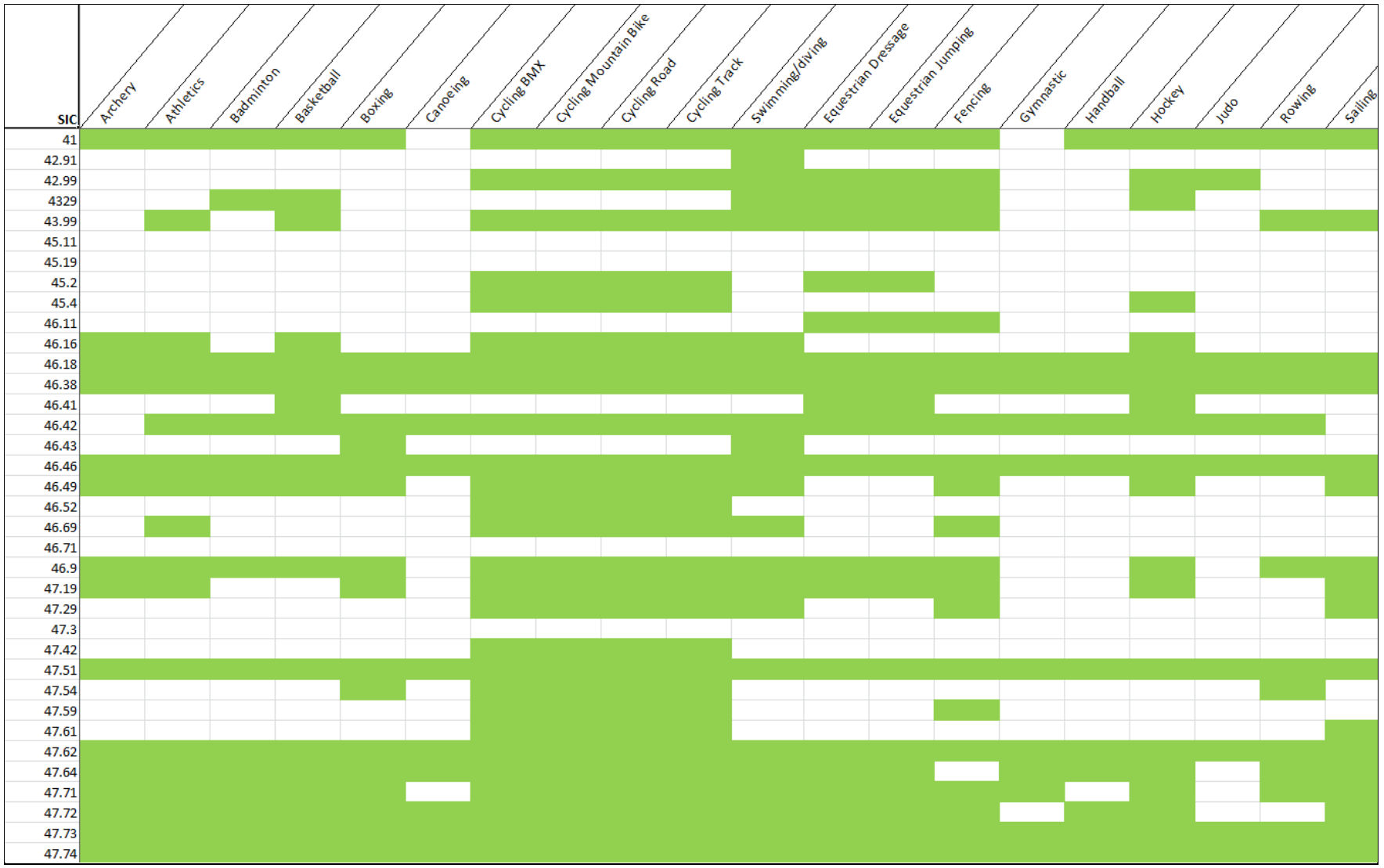
specific economic valuations of golf[10] [11]and football[12]. The golf study for the UK revealed a golf-specific GVA of over £2 billion. The football study was mainly centred on the economics of the Premier League and in this sense was not representative of the entire football sector. A search of company accounts, for the benefit of this project, showed that football generated GVA of approximately £7bn. As football and golf are not part of this research, it follows that Olympic and Paralympic sport will be at least £9 billion less than the overall GVA for sport found in the DCMS Satellite Account for Sport in 2017 (£45.7 billion).

[10] SIRC: A Satellite Account for Golf in the UK, 2016, a research supported by the R&A (http://www.sportsthinktank.com/uploads/economic-impact-of-golf.pdf)

[11] SIRC (2017) A Satellite Account for Golf in the Republic of Ireland, R&A and the Confederation of Golf in Ireland, Dublin. https://www.golfnet.ie/News%20Listing%20Assets/CGI%20Report%20Economic%20Impact.pdf

[12] The Premier League, Economic Impact Analysis; Ernst & Young LLP (2015); http://www.ey.com/Publication/vwLUAssets/EY_-_The_economic_impact_of_the_Premier_League/$FILE/EY-The-economic-impact-of-the-Premier-League.pdf

## *Figure 1: Olympic-Paralympic Sport vs economic activity (SIC) grid- an extract*



## 2.6. Calculation of indirect effects in GVA, employment and turnover.

The main part of the Satellite Account is concerned with the direct demand for Olympic and Paralympic sport in terms of GVA, employment, consumer spending and turnover. This represents the immediate net (or direct) change in economic activity in the sectors of the economy that service Olympic and Paralympic sport such as the manufacture of sports goods. However, the overall economic impact of sport includes an indirect component reflecting the way in which initial expenditure subsequently filters through an economy. Industries that create direct impacts depend on the supply of goods and services from other industries, which in turn have to change their outputs to meet demand. These inter-industry, or supply chain, transactions of intermediate goods and services represent the ***indirect impact***, and originate mainly from the non-sport commercial sector, for example food and drink supplies for clubs or energy requirements of sport stadiums.

As a further development to the initial direct economic impact, the indirect effects on GVA, employment and turnover are also calculated. All multipliers used (associated with the Leontief Type I matrix, as reported by the Office for National Statistics) represent the linkages between different sectors of the economy, and are based on the latest analytical Product-by-Product Tables provided by ONS. When multiplying a change in final demand (direct impact) by a Type I output multiplier, the net effect is to create an estimate of the direct and indirect impacts upon output throughout the economy.

The multipliers for GVA, employment and turnover are published in the 'Analytical' Input Output Tables of ONS. The latest multipliers have been estimated for the year 2016, and these are the ones used in the current study. A difference between the present and the previous (2014-data) study, is that the current Analytical IOTs give multipliers applied on employment cost, whilst the former gave multipliers applied directly on employment. This required a distinct methodology: we applied the multipliers not on employment, but on the wage bills underpinning the estimating employment. Following that, we turned wages into employment by using each sector's mean wage for the direct effect (as before) and the overall mean wage of the economy for the indirect effect. The logic is that the indirect effect is generated in the overall economy, outside what we defined as sport.

## 2.7 Constructing a price index

This stage of the methodology was introduced for the first time in this report to compare in constant 2014 prices the GVAs between this report and the original study. The process focused on the SIC codes of the analysis. For each code, based on published statics (consumer price indices and production price indices), we estimated the percentage change in prices from 2014 to 2017. This then, applied on 2017, transformed the 2017 GVA of each economic activity into an equivalent estimate using 2014 prices. Using the grid, we distribute the constant-price GVA among sports. This enables the comparison of GVA per sport between 2014 and 2017 without the interference of inflation.

## 2.8. Concluding remarks.

Overall, the current methods provide an estimation of the economic impact of Olympic and Paralympic sport in terms of GVA, employment, consumer spending and turnover using an approach consistent with the compilation of the UK's National Accounts and DCMS's SSA. By examining each SIC code separately it is possible to distribute GVA using participation in each sport. This is a pragmatic approach and acts as a reasonable starting point, given that sports such as golf and football which have relatively high

average levels of consumer spending are excluded. Additionally, the approach is transparent and can be updated in the light of new data yet still retain its structural integrity. As a *caveat*, although we have employed the Satellite Account methodology used for the sport industry as a whole, which is recognised as an Official Statistic, the contents of this report are not UK Official Statistics.

## 3. ESTIMATION OF SPORT SPECIFIC GVA

Table 5 below presents the results of the GVA generated by all current and known future Olympic and Paralympic sports. These are the same sports as in the original 2014-data study. The results are presented on the basis of the 'statistical', 'narrow' and 'broad' definitions of sport, consistent with the overarching Vilnius Definition. A more detailed table, including GVA (broad definition) estimates for each sport is attached in Table A.2 in the Appendix. In 2017, Olympic and Paralympic sports generated £24.7bn of GVA, which equates to 54.1% of the total sport-related GVA for that year. This is divided into summer Olympic sports (£20.7bn), winter Olympic sports (£1.2bn) and all Paralympic sports (£2.8bn). The sector is driven by a minority of sports, notably athletics, swimming and road cycling with GVAs of £3.3bn, £4.3bn and £1.5bn respectively. These three sports have a very strong profile both in terms of participation and commercial presence in the Companies House database.

***Table 5, GVA £m, 2017***

| GVA £m | Statistical Definition | | Narrow Definition | | Broad Definition | | Change* 2014-17 | UK Sport Funding** |
|---|---|---|---|---|---|---|---|---|
| Summer Olympic sports | £5,948 | 28.7% | £13,997 | 67.4% | £20,754 | 100% | 23% | £266.5 |
| Winter Olympic sports | £413 | 35.3% | £764 | 65.3% | £1,169 | 100% | 65% | £23.8 |
| Paralympic sports | £696 | 24.9% | £1,786 | 63.9% | £2,795 | 100% | 28% | £74.9 |
| Total | £7,057 | 28.6% | £16,547 | 66.9% | *£24,718* | 100% | 25% | £365.2 |
| Total as % of all sport | | | | | | 54.1% | | |

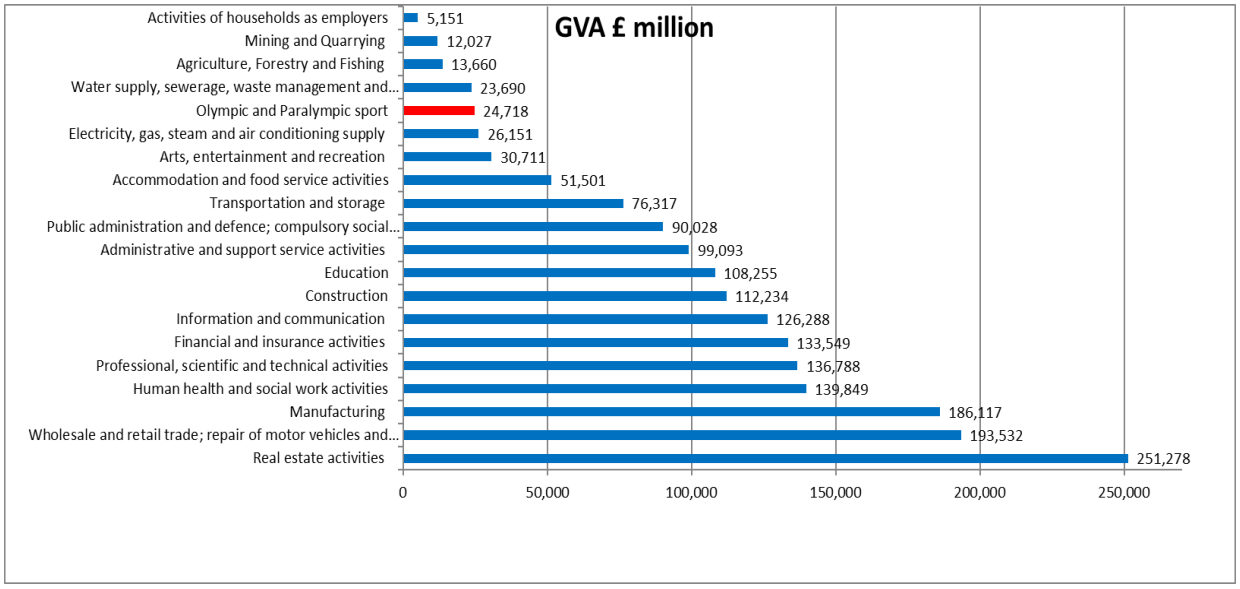
**Percentage change applied on the period 2014-17, using the broad definition and constant 2014 prices.*
***Source: UK Sport (https://www.uksport.gov.uk/our-work/investing-in-sport/current-funding-figures)*

Most GVA is generated in sports associated with the summer Olympics, since these represent the majority of sport participants. When comparing the GVA in 2014 prices (broad definition) with the previous 2014 estimate we can estimate real changes of 23%, 65% and 28% in Olympic sport, Winter sport and Paralympic sport respectively. The overall GVA in constant prices increased by 25%. This unusually high growth of GVA is partly the result of ONS revisions in the Input Output Tables which have affected greatly the statistical definition of sport. For example, the statistical definition of Olympic sport, compared to 2014, has more than doubled. The effect of the revision, on the broad definition, can be as high as 16% which implies that approximately 9% real growth in GVA has been achieved between 2014 and 2017.

As shown in Table 5, the statistical definition, as a percentage of the broad definition, is higher in winter sport (35%) than the other two categories. The narrow definition, which subsumes the statistical definition, is 67% of the broad definition estimate for total Olympic and Paralympic GVA. The final column in Table 5 presents the UK Sport funding allocated to each category of sports for the Tokyo and

PyeongChang cycles. These funding allocations are targeted according to criteria concerned with achieving greater medal success, and do not necessarily reflect the economic scale of sports as determined mainly by participation rates. From these funding figures it is clear that the support for elite sport development systems is only a small fraction of the overall sport industry. In its entirety, the industry associated with Olympic and Paralympic sports is measurable and significant in the context of the UK economy as a whole, as shown in Figure 2.

***Figure 2: Olympic and Paralympic sports relative to the UK economy, 2017***




With a total GVA of £24,718 million, Olympic and Paralympic sports collectively represent an industry which is larger than four entire sectors of the UK economy, namely: activities of households as employers; mining and quarrying; agriculture, forestry and fishing; and water supply, sewage, waste management and remediation services. As a *caveat*, when using the above comparison, one should consider that this is only indicative, as Olympic and Paralympic sport would draw resources from other sectors in the Figure 2 above, such as Education and Manufacturing.

## 4. SPORT EMPLOYMENT, CONSUMER SPENDING AND TURNOVER

In 2017, the economic activity related to Olympic and Paralympic sports was responsible for 783,760 jobs, representing 55% of sport-related employment (head count). Olympic and Paralympic sports also generated £46.1bn and £25.3bn in turnover and consumer spending correspondingly. In all cases turnover is greater than GVA as it includes all other inputs required for production such as raw materials in addition to wages and profits which are the sole focus of GVA. The consumer spending figure is equivalent to £384 per head of the entire population (c. 65.8m) over the year. Comparisons with sport as a whole from the DCMS 2017 Sport Satellite Account are possible for GVA only as employment, consumer spending and turnover are not presented in that report. However, given the consistency between GVA and employment (GVA includes wages), we provided a sport-related figure for employment which is consistent with the published GVA statistics of DCMS (1.42m for overall sport).

As was the case with GVA, employment is driven by athletics, swimming and road cycling, with 106,500, 140,000 and 43,000 jobs (head count) respectively.

*Table 6, Employment (head count), Consumer Spending and Turnover (£m), 2017*

| **Employment (head count)** | **Statistical Definition** | | **Narrow Definition** | | **Broad Definition** | | **Change 2014-2017*** |
|---|---|---|---|---|---|---|---|
| Summer Olympic sports | 233,560 | 35.5% | 478,840 | 72.9% | 657,260 | 100% | 23% |
| Winter Olympic sports | 16,210 | 42.4% | 27,170 | 71.1% | 38,230 | 100% | 85% |
| Paralympic sports | 27,340 | 31.0% | 60,580 | 68.6% | 88,270 | 100% | 26% |
| **Total** | **277,110** | **35.4%** | **566,590** | **72.3%** | ***783,760*** | **100%** | **26%** |
| % of all sport | | | | | | 55% | |
| **Consumer spending £m** | **Statistical Definition** | | **Narrow Definition** | | **Broad Definition** | | |
| Summer Olympic sports | £6,800 | 33.0% | £14,670 | 71.2% | £20,610 | 100% | 19% |
| Winter Olympic sports | £470 | 27.2% | £1,300 | 75.1% | £1,730 | 100% | 52% |
| Paralympic sports | £790 | 26.8% | £2,040 | 69.2% | £2,950 | 100% | 32% |
| **Total** | **£8,060** | **31.9%** | **£18,010** | **71.2%** | ***£25,290*** | **100%** | **22%** |
| **Turnover £m** | **Statistical Definition** | | **Narrow Definition** | | **Broad Definition** | | |
| Summer Olympic sports | £11,120 | 28.8% | £25,740 | 66.6% | £38,660 | 100% | 18% |
| Winter Olympic sports | £770 | 35.0% | £1,400 | 63.6% | £2,200 | 100% | 56% |
| Paralympic sports | £1,300 | 24.8% | £3,310 | 63.0% | £5,250 | 100% | 25% |
| **Total** | **£13,190** | **28.6%** | **£30,450** | **59.2%** | ***£46,110*** | **100%** | **20%** |

*Change on the broad definitions, using constant prices where applicable

In general, both employment and turnover follow a similar pattern to the distribution of GVA. They are derived specifically for each sport on the basis of the GVA distribution in the grid and the ratio between turnover and GVA, for each economic category, suggested by the National Accounts (Input Output Tables). Table 6 presents the estimates for employment, consumer spending and turnover across summer Olympic, winter Olympic and Paralympic sports. All three components of the Vilnius Definition, 'statistical', 'narrow' and 'broad' are used. For employment, the statistical and narrow definitions account for 35.4% and 72.3% of the broad definition respectively. As noted before, there has been a big change in the statistical share of the definition (up from 12.8% in the 2014-data report), which is largely accounted by ONS data revisions.

As Table 6 shows, the share of the broad definition represented by the statistical definition is highest in employment (35.4%), followed by consumer spending (31.9%) and turnover (28.6%). This result underlines the fact that the core of sport (as expressed in the statistical definition) is employment-

intensive compared to the average economic sector. The last column of Table 6 shows real changes from 2014 to 2017. In the cases of consumer spending and turnover price changes during this period have been taken into account. During the period 2014-2017, employment, consumer spending and turnover increased by 26%, 22% and 20% respectively. As mentioned earlier, the largest part of these changes can be sourced to the data revisions by ONS (accounting for 16% of changes compared to the estimates of the first report).

Finally, by using average full-time wages in the calculation of employment (instead of overall average wages) we can derive employment as measured by Full Time Equivalent jobs (FTE) as shown in Table 7. For Olympic and Paralympic sports, it is estimated that the headcount of 783,760 jobs is equivalent to 560,510 FTEs. As is the case with the other indicators, the vast majority of employment is concentrated in the summer Olympic sports (470,080 FTEs, 84%). The distribution of FTE employment is 28.9% in the statistical definition and 69.4% in the narrow definition (compared to the broad definition).

*Table 7, Employment, full time equivalent (FTE), 2017*

| Employment FTE | Statistical Definition | | Narrow Definition | | Broad Definition | |
|---|---|---|---|---|---|---|
| Summer Olympic sports | 136,510 | 29.0% | 328,970 | 70.0% | 470,080 | 100% |
| Winter Olympic sports | 9,470 | 36.0% | 17,780 | 67.5% | 26,350 | 100% |
| Paralympic sports | 15,980 | 24.9% | 42,180 | 65.8% | 64,080 | 100% |
| **Total** | **161,960** | **28.9%** | **388,930** | **69.4%** | ***560,510*** | **100%** |

## 5. CASE STUDIES

In this section, two sports are examined in greater detail - swimming (including diving) and athletics. A third case study considers the five new Olympics sports that will be part of the programme of the rescheduled Tokyo 2020 Games.

### 5.1 Swimming

All the sports included in this research take into account the sport participation rates of both adults and children where data permit. Swimming, for both abled bodied participants and people with disabilities, has the highest combined participation rate across all sports at around 9.7m participants including some 2.8m children. The main estimates for swimming are detailed in Table 8. At £ 4,785m, the GVA for swimming represents approximately 19% of the total direct GVA for all Olympic and Paralympic sports in 2017 (£24,718). In real terms, swimming's GVA increased by 26% relative to the corresponding value found in 2014 (£3,621m). However, this in large part is due to historical data revisions of ONS, where the GVA of Sport and Recreational Activities (SIC 93) more than doubled. After taking data revisions into account the GVA generated by swimming increased by 10% in volume terms during the period 2014-17.

### *Table 8 Economic impact of swimming/diving*

| Measure | 2017 | | 2014 | 2014-17 |
|---|---|---|---|---|
| | Actual value | 2014 prices | Past value | Change post ONS revisions |
| GVA | £4,785m | £4,577m | £3,621m | 10% |
| Employment (head count) | 156,700 | NA | 121,600 | 10% |
| Employment (FTE) | 112,000 | NA | 85,120 | 10% |
| Consumer spending | £4,450m | £4,260m | £3,620m | 10% |
| Turnover | £8,800m | £8,420m | £6,219m | 10% |

The economic activity associated with swimming is the catalyst for 156,700 jobs in terms of the total head count of employment dependent on the sport. When adjusted for part-time workers, this head count converts to some 112,000 FTE. Finally, swimming generates £4,450m in consumer spending through expenditure on swimwear, accessories and the costs of participation in clubs, events and the National Governing Body, which by the time it filters its way through the economy results in turnover of £8,800m.

The GVA of swimming is associated with a wide range of business activities as indicated in the breakdown shown in Table 9 below. The two most important economic activities for the generation of GVA are in the statistical definition (codes 93.12 and 93.11). Some factors that might have contributed collectively to the popularity of swimming and the observed growth in economic value of the sport between 2014 and 2017 include:

- the success of the GB swimming team at the 2016 Olympic and Paralympic Games;
- London hosting the European Aquatics Championships in 2016;
- a shift away from traditional team sports to individual sports;
- an increased demand for outdoor and open water swimming; and,
- more organised races and events.

Moving from 2017, to the current context, the enforced closure of pools during 2020 in response to the Covid-19 pandemic has had a significant economic impact on the swimming industry, resulting in the temporary closure of 5,000 swimming pools and more than 2,000 swim schools (according to evidence submitted by Swim England to the Government). A key challenge facing pool operators is dealing with issues concerning water treatment, air circulation and social distancing to allow aquatic activities to resume in a safe environment.

*Table 9 SIC codes and GVA for swimming/diving, 2017*

| SIC | General description | Swimming /diving | |
|---|---|---|---|
| | | GVA, £m | % |
| 93.12 | Activities of sport clubs | 512 | 12.0% |
| 93.11 | Operation of sports facilities | 279 | 6.5% |
| 4764 | Retail sale of sporting equipment in specialised stores | 241 | 5.6% |
| 86 | Hospital activities | 185 | 4.3% |
| 56.1 | Restaurants and mobile food service activities | 146 | 3.4% |
| 85.51 | Sport and recreation education | 144 | 3.4% |
| 85.42 | Tertiary education | 144 | 3.4% |
| 93.19 | Other sports activities | 140 | 3.3% |
| 85.2 | Primary education | 121 | 2.8% |
| 55.1 | Hotels and similar accommodation | 121 | 2.8% |
| 93.13 | Fitness facilities | 119 | 2.8% |
| 85.31 | General secondary education | 110 | 2.6% |
| 84 | Public administration and defence; compulsory social security | 107 | 2.5% |
| 46.42 | Wholesale of clothing and footwear | 100 | 2.3% |
| 92 | Gambling and betting activities | 97 | 2.3% |
| 60.2 | Television programming and broadcasting activities | 86 | 2.0% |
| 42.99 | Other construction installation | 86 | 2.0% |
| 4771 | Retail sale of clothing in specialised stores | 84 | 2.0% |
| 41 | Civil engineering | 83 | 1.9% |
| 78.2 | Temporary employment agency activities | 80 | 1.9% |
| 4778 | Other retail sale of new goods in specialised stores | 71 | 1.7% |
| 87 | Residential care activities | 66 | 1.5% |
| 55.3 | Recreational vehicle parks, trailer parks and camping grounds | 64 | 1.5% |
| 4711 | Retail sale in non-specialised stores with food, beverages or tobacco predominating | 57 | 1.3% |
| 56.3 | Beverage serving activities | 57 | 1.3% |
| 93.29 | Other amusement and recreation activities n.e.c. | 57 | 1.3% |
| 55.2 | Holiday and other short-stay accommodation | 55 | 1.3% |
| 21.2 | Manufacture of pharmaceutical preparations | 55 | 1.3% |
| 79.12 | Tour operator activities | 43 | 1.0% |
| | Other | 765 | 17.9% |
| | **Total:** | **4,274** | **100%** |

## 5.2 Athletics

Athletics has the second highest combined participation rate for adults and children across all sports at around 5 million participants and also the second highest GVA of all Olympic and Paralympic sports

(3,560 or 14%). The main estimates for athletics are shown in Table 10 and Table 11 illustrates the distribution of GVA for athletics according to specific SIC codes.

*Table 10 Economic impact of athletics, 2017*

| Measure | 2017 | | 2014 | 2014-17 |
|---|---|---|---|---|
| | Actual value | 2014 prices | Actual value | Change post ONS revision |
| GVA | £3,560m | £3,410m | £2,240m | 19% |
| Employment (head count) | 113,530 | NA | 73,120 | 19% |
| Employment (FTE) | 79,200 | NA | 43,860 | 19% |
| Consumer spending | £2,620m | £2,510m | £1,830m | 19% |
| Turnover | £6,440m | £6,170m | £4,330m | 19% |

Athletics' GVA grew by 19% in real terms between 2014 and 2017, after taking into account historical data revisions by ONS, where the GVA of Sport and Recreational Activities (SIC 93) more than doubled. Employment in 2017 was a head count of 113,530, which equates to 79,200 FTEs and reflects the large number of people working in the sport on a part-time basis. As in the case of swimming, the turnover for athletics at £6,440m was substantially greater than the size of GVA and consumer spending. The economic value of athletics has been boosted by the hosting of the IAAF Word Championships and the World Para Athletics Championships in London in 2017, which resulted in a combined total GDP contribution of between £62m and £90m[13].

[13] https://files.londonandpartners.com/l-and-p/assets/events/london_2017-report.pdf

*Table 11 SIC codes and GVA for athletics, 2017*

| SIC | General description | Athletics GVA, £m | % |
|---|---|---|---|
| 93.12 | Activities of sport clubs | 546 | 16% |
| 93.11 | Operation of sports facilities | 298 | 9% |
| 4764 | Retail sale of sporting equipment in specialised stores | 257 | 8% |
| 86 | Hospital activities | 197 | 6% |
| 85.51 | Sport and recreation education | 153 | 5% |
| 93.19 | Other sports activities | 149 | 4% |
| 852 | PRIMARY | 129 | 4% |
| 93.13 | Fitness facilities | 127 | 4% |
| 85.31 | General secondary education | 117 | 3% |
| 84 | Public administration and defence; compulsory social security | 114 | 3% |
| 46.42 | Wholesale of clothing and footwear | 106 | 3% |
| 92 | Gambling and betting activities | 104 | 3% |
| 60.2 | Television programming and broadcasting activities | 92 | 3% |
| 4771 | Retail sale of clothing in specialised stores | 90 | 3% |
| 41 | Civil engineering | 89 | 3% |
| 4778 | Other retail sale of new goods in specialised stores | 76 | 2% |
| 4711 | Retail sale in non-specialised stores with food, beverages or tobacco predominating | 61 | 2% |
| 93.29 | Other amusement and recreation activities n.e.c. | 60 | 2% |
| 21.2 | Manufacture of pharmaceutical preparations | 58 | 2% |
| | Other | 522 | 16% |
| | **Total:** | **3,340** | **100%** |

Finally, as in the case of swimming, the two most important economic activities for GVA generation are in the statistical definition,93.12 and 93.11, generating 16% and 9% of GVA respectively.

## 5.3 New Olympic sports for Tokyo 2020

The five new sports that have been included on the Tokyo 2020 Olympic programme include baseball/softball, karate, skateboarding, climbing and surfing. The economic characteristics of these sports are presented in Table 12 below. Overall, the new sports are responsible for £891m of GVA, 28,810 people in employment, £932m of consumer spending and £1,629m of turnover.

*Table 12 Economic impact of new sports for Tokyo, 2017*

| Measure | Baseball / softball | Karate | Skateboarding | Climbing | Surfing | TOTALS | 2014-17 Change post ONS revision |
|---|---|---|---|---|---|---|---|
| GVA | £80m | £138m | £57m | £447m | £169m | **£891m** | 60% |
| Employment (head count) | 2,650 | 4,520 | 1,810 | 14,420 | 5,410 | **28,810** | 60% |
| Consumer spending | £81m | £119m | £53m | £544m | £135 | **£932m** | 60% |
| Turnover | £144m | £247m | £106m | £821m | £311m | **£1,629m** | 60% |

Table 13 illustrates how the economic value across the portfolio of new Olympic sports has grown between 2014 and 2017. Driven by higher levels of participation by adults in climbing, skateboarding and surfing, the cumulative GVA associated with these sports increased by 83% in real terms alongside increases in employment, consumer spending and turnover. These findings indicate that being granted Olympic status can have a material impact on the economic scale of a sport in the lead up to an Olympic year. It would be worthwhile to monitor whether the impact of these sports increases further post the Tokyo Games. Even when the recent ONS data revision is taken into account the economic significance of these sports has increased by 60% in the period 2014-2017.

*Table 13 Cumulative economic impact of new sports for Tokyo, 2014 v 2017*

| Measure | 2017 | | 2014 |
|---|---|---|---|
| | Actual value | 2014 prices | Actual value |
| GVA | £891m | £851m | £464m |
| Employment (head count) | 28,810 | NA | 15,500 |
| Consumer spending | £932m | £890 | £582m |
| Turnover | £1,629m | £1,555 | £904m |

## 6. INDIRECT EFFECTS IN GVA, EMPLOYMENT AND TURNOVER.

By using the indirect multipliers derived for GVA, employment and turnover, the indirect effect of sport can be estimated. Industries that create direct impacts depend on the supply of goods and services by other industries, which in turn have to change their outputs to meet demand. These inter-industry transactions of intermediate goods and services represent the indirect impact, and originate mainly from the non-sport commercial sector, for example food and drink supplies.

The calculations of the indirect effects are based on the ONS published indirect multipliers, which are part of the analytical Input Output Tables. The latest estimates of multipliers are associated with the year 2016, and these are the ones used in this study. As mentioned in the methodology, the presentation of the employment multiplier as one associated with cost, forced upon us a different model to calculate the total employment effect, compared to the 2014 tables.

The extra indirect demand can be translated into all GVA, employment and turnover indicators as Table 14 below illustrates. The overall estimated direct and indirect effect amounts to £38,506m in GVA, 1,116,000 in employment (headcount), and £75,163m in turnover. The percentage increases of the indirect effects over the direct effects are estimated at 56%, 42% and 63% in GVA, employment and turnover respectively. This is the 'ripple effect' of Olympic and Paralympic sport which can be said to be the catalyst for an even more extensive scale of economic activity. Compared to 2014, overall (direct and indirect) GVA, employment and turnover increased by 28%, 10% and 2.5% respectively.

*Table 14, Total effects in GVA, Employment and Turnover 2017*

| Olympic sport | Direct + Indirect GVA, £m | Direct +Indirect Employment (headcount, 000s) | Direct + indirect Turnover £m |
|---|---|---|---|
| Archery | 188 | 5.5 | 358 |
| Athletics | 5,096 | 149.4 | 9,690 |
| Badminton | 1,908 | 56.3 | 3,628 |
| Basketball | 1,313 | 39.1 | 2,524 |
| Boxing | 968 | 28.8 | 1,862 |
| Canoeing | 684 | 19.5 | 1,329 |
| Cycling BMX | 124 | 3.4 | 246 |
| Cycling Mountain Bike | 1,436 | 39.2 | 2,853 |
| Cycling Road | 2,311 | 63.1 | 4,592 |
| Cycling Track | 62 | 1.7 | 123 |
| Swimming/diving | 6,652 | 197.7 | 12,875 |
| Equestrian Dressage | 989 | 25.2 | 2,112 |
| Equestrian Jumping | 880 | 22.4 | 1,872 |
| Fencing | 70 | 2.1 | 151 |
| Gymnastic | 1,455 | 42.7 | 2,770 |
| Handball | 51 | 1.5 | 99 |
| Hockey | 596 | 17.2 | 1,139 |
| Judo | 131 | 3.9 | 256 |
| Rowing | 618 | 18.2 | 1,227 |
| Sailing | 805 | 24.1 | 1,716 |
| Shooting | 805 | 23.0 | 1,703 |
| Table Tennis | 1,504 | 44.2 | 2,823 |
| Taekwondo | 146 | 4.3 | 276 |
| Trampoline | 709 | 20.8 | 1,362 |
| Triathlon | 149 | 4.2 | 294 |
| Volleyball | 174 | 5.1 | 324 |
| Water Polo | 49 | 1.5 | 96 |
| Weightlifting | 828 | 24.1 | 1,602 |

| | | | |
|---|---|---|---|
| Wrestling Freestyle | 121 | 3.5 | 233 |
| Wrestling Greco-Roman | 121 | 3.5 | 233 |
| Baseball/Softball | 121 | 3.6 | 228 |
| Karate | 206 | 6.2 | 389 |
| Skateboarding | 88 | 2.5 | 170 |
| Climbing | 690 | 20.3 | 1,330 |
| Surfing | 262 | 7.6 | 506 |
| | | | |
| **Winter Games** | | | |
| Alpine Skiing | 301 | 9.0 | 595 |
| Free Style Skiing | 69 | 2.0 | 135 |
| Cross Country Skiing | 14 | 0.4 | 27 |
| Curling | 7 | 0.2 | 14 |
| Skating | 1,233 | 36.5 | 2,412 |
| Ice Hockey | 49 | 1.4 | 94 |
| Nordic Combined | 55 | 1.6 | 108 |
| Snowboard | 96 | 2.9 | 189 |
| | | | |
| **Paralympics** | | | |
| Alpine Skiing | 13 | 0.4 | 27 |
| Archery | 19 | 0.6 | 35 |
| Athletics | 330 | 9.7 | 625 |
| Badminton | 205 | 6.1 | 390 |
| Boccia | 9 | 0.3 | 18 |
| Canoe | 88 | 2.5 | 170 |
| Cycling | 968 | 26.6 | 1,920 |
| Equestrian | 130 | 3.3 | 278 |
| Football | 1,040 | 30.3 | 2,053 |
| Judo | 35 | 1.1 | 69 |
| Power lifting | 12 | 0.4 | 23 |
| Rowing | 14 | 0.4 | 28 |
| Sailing | 107 | 3.2 | 228 |
| Shooting | 180 | 5.2 | 381 |
| Sitting Volleyball | 33 | 1.0 | 61 |
| Swimming | 795 | 23.6 | 1,538 |
| Table Tennis | 110 | 3.2 | 207 |
| Taekwondo | 26 | 0.8 | 48 |
| Triathlon | 10 | 0.3 | 19 |
| Wheelchair Basketball | 114 | 3.4 | 219 |

| | | | |
|---|---|---|---|
| Wheelchair Curling | 2 | 0.1 | 4 |
| Wheelchair Fencing | 9 | 0.3 | 20 |
| Wheelchair Tennis | 124 | 3.6 | 233 |
| | | | |
| ***Total Direct and Indirect effect*** | ***38,506*** | ***1,116*** | ***75,163*** |
| ***Direct effect*** | ***24,718*** | ***784*** | ***46,110*** |
| ***Indirect effect*** | ***13,788*** | ***332*** | ***29,053*** |
| ***Overall change since 2014*** | ***28%*** | ***10%*** | ***2.4%*** |

## 7. CONCLUSION

The publication of this Satellite Account for the Olympic and Paralympic sports is consistent with the Government's sport strategy *Sporting Future*, which cites economic development as one of five high level outcomes required from sport. The key performance indicator to be used to measure the economic importance of sport is the Department for Culture, Media and Sport's Sport Satellite Account in general, and within it Employment in particular (Key Performance Indicator 16, *Sporting Future*, p.80.

The current research firstly reproduces the published DCMS figure for sport GVA in 2017 and based on this it estimates sport associated employment. Then, on the basis of sport GVA and employment, it proceeds to identify the part that is associated with the Olympic and Paralympic sports.

This report presents the findings from the application of the UK Sport Satellite Account methodology to estimate the economic value of the subset of Olympic and Paralympic sports for the year 2017 using four principal measures:

- Gross Value Added (GVA);
- Employment;
- Consumer spending, and.
- Turnover.

This research identifies the allocation of sport-related GVA across Olympic and Paralympic sports. The overall value of £24.72bn equates to 54.1% of the total GVA generated by sport in the UK. When the indirect effect is added to the direct effect, total GVA is estimated at £38.5bn. Olympic and Paralympic sport is an industry which is larger than four entire sectors of the UK economy, namely: activities of households as employers; mining and quarrying; agriculture, forestry and fishing; and water supply, sewage, waste management and remediation services. In terms of employment, Olympic and Paralympic sport is responsible for 783,760 jobs (head count), which is equivalent to 2.5% of employment in the economy as a whole and 55.2% of employment in the sport economy.

*Table 15: The sporting context*

| Measure | Olympic and Paralympic sport (2017) | Sport (2017) | % of the sport economy | % of the UK economy |
|---|---|---|---|---|
| GVA | £24,718 million | £45,730 million | 54.1% | 1.3% |
| Employment | 783,760 | 1,420,000* | 55.2% | 2.5% |
| Consumer spending | £25,290 million | n/a | n/a | 1.9% (households) |
| Turnover | £46,110 million | n/a | n/a | 1.3% |

**SIRC estimate*

In Table 15, when we examine Olympic and Paralympic sports in the context of the overall UK economy, it is notable that the percentage of employment (2.5%) is higher than the percentage of GVA (1.3%). A finding of this type is an indication of an industry that is efficient in generating employment. In general, it has been shown[14] that sport is responsible for a relatively high number of jobs compared with its GVA; however, in this case, it has been demonstrated within the context of the Olympic and Paralympic sports. The main contributing factors for this employment generation are the economic activities within the statistical definition which not only are employment intensive but are also helped in their operations by a large number of volunteers (not included in this study). Further, these ratios show that the Olympic and Paralympic sports are job rich, and it would be reasonable to expect an increase in employment in response to an increase in participation.

Although consumer spending and turnover cannot be identified as percentages of the sport industry because they are not reported in the DCMS's overall Sport Satellite Account, our estimate for the Olympic and Paralympic sports is that they are equivalent to 1.9% and 1.3% of UK consumer spending and turnover respectively. The direct impacts reported above increase considerably when the indirect impact of supply chains is included. When the appropriate multipliers are applied, GVA, employment and turnover increase by 56% and 42% and 63% respectively.

This research has been conducted so that it is consistent with the current UK Sport Satellite Account enabling any adjustments or future updates to be implemented in line with the National Accounts. It has used both participation data and commercial presence to allocate GVA and employment to Olympic and Paralympic sports. The methods used are transparent and can be used in the future for revising previous results in the light of new information

This report can improve by using further information about SSAs associated with Olympic or even non-Olympic sports. Currently among the most economically significant sports, only golf has an SSA. Producing SSAs for football and motorsports would provide an even more realistic GVA value for Olympic and Paralympic sports, once the total sport SSA for the year in question is known. A second way to

[14] SpEA, SIRC, Statistical Service of Republic of Cyprus, Meerwaarde Sport en Economie, FESI, Ministry of Sport and Tourism of the Republic of Poland (2012). Study on the Contribution of Sport to Economic Growth and Employment in the EU. Research Report. *European Commission, Directorate-General Education and Culture*. (http://ec.europa.eu/sport/library/studies/study-contribution-spors-economic-growth-final-rpt.pdf)

improve the usefulness of the report is to recalculate the 2014 model using the revised ONS statistics. This will provide a reliable and analytical basis to judge the changes in GVA and employment over time.

This report has shown that the Olympic and Paralympic sports are fundamental in creating GVA and employment within the sport industry, accounting for the majority of the output produced. Further, this report is an example of the UK sport industry being analysed separately by the three component parts of the Vilnius Definition of sport. Generally, the statistical definition for GVA, employment consumer spending and turnover ranged between 28% and 36%. The resent historical changes in the ONS data in the Input Output Tables underlined the importance of the statistical definition within Olympic and Paralympic sport. Future research should investigate the economic significance of sport volunteering, which is not included in the Vilnius Definition, as well as the growth in sport employment.

# APPENDIX

*Table A.1. -Mapping of the UK Olympic and Paralympic sports industry*

| SIC | General description |
|---|---|
| | **Economic activities in the statistical definition** |
| 93.11 | Operation of sports facilities |
| 93.12 | Activities of sport clubs |
| 93.13 | Fitness facilities |
| 93.19 | Other sports activities |
| | **Additional economic activities in the narrow definition** |
| 1.19 | Growing of other non-perennial crops |
| 1.43 | Raising of horses and other equines |
| 1.62 | Support activities for animal production |
| 10.91 | Manufacture of prepared feeds for farm animals |
| 13.92 | Manufacture of soft furnishings |
| 13.94 | Manufacture of cordage, rope, twine and netting |
| 14.11 | Manufacture of leather clothes |
| 14.12 | Manufacture of workwear |
| 14.13 | Manufacture of other outerwear |
| 14.14 | Manufacture of underwear |
| 14.19 | Manufacture of other wearing apparel and accessories n.e.c. |
| 15.12 | Manufacture of luggage, handbags and the like, saddlery and harness |
| 15.2 | Manufacture of footwear |
| 22.11 | Manufacture of rubber tyres and tubes; retreading and rebuilding of rubber tyres |
| 25.40 | Manufacture of weapons and ammunition |
| 25.71 | Manufacture of cutlery; Swords, cutlasses, bayonets, lances and similar arms and parts |
| 26.52 | Manufacture of watches and clocks |
| 29.1 | Manufacture of motor vehicles |
| 29.2 | Manufacture of bodies for motor vehicles; manufacture of trailers and semi-trailers |
| 30.12 | Building of pleasure and sporting boats |
| 30.30 | Manufacture of air and spacecraft and related machinery |
| 30.91 | Manufacture of motorcycles |
| 30.92 | Manufacture of bicycles and invalid carriages |
| 30.99 | Manufacture of other transport equipment n.e.c. |
| 32.3 | Manufacture of sports goods |
| 32.4 | Manufacture of games and toys |
| 32.99 | Other manufacturing n.e.c. |
| 33.11 | Repair of fabricated metal products |
| 33.12 | Repair of machinery |

| | |
|---|---|
| 33.13 | Repair of electronic and optical equipment |
| 33.15 | Repair and maintenance of ships and boats |
| 33.16 | Repair and maintenance of aircraft and spacecraft |
| 33.17 | Repair and maintenance of other transport equipment n.e.c. |
| 33.19 | Repair of other equipment |
| 33.20 | Installation of industrial machinery and equipment |
| 41.00 | Civil engineering |
| 42.91 | Construction of water projects |
| 42.99 | Other construction installation |
| 43.99 | Other specialised construction activities n.e.c. |
| 45.11 | Sale of cars and light motor vehicles |
| 45.19 | Sale of other motor vehicles |
| 45.20 | Maintenance and repair of motor vehicles |
| 45.40 | Sale, maintenance and repair of motorcycles and related parts and accessories |
| 46.11 | Agents selling agricultural raw materials, livestock, textile raw materials and semi-finished goods |
| 46.16 | Agents involved in the sale of textiles, clothing, fur, footwear and leather goods |
| 46.18 | Agents specialised in the sale of other particular products |
| 46.41 | Wholesale of textiles |
| 46.42 | Wholesale of clothing and footwear |
| 46.46 | Wholesale of pharmaceutical goods |
| 46.71 | Wholesale of solid, liquid and gaseous fuels and related products |
| 47.29 | Other retail sale of food in specialised stores |
| 47.30 | Retail sale of automotive fuel in specialised stores |
| 47.41 | Retail sale of computers, peripheral units and software in specialised stores |
| 47.51 | Retail sale of textiles in specialised stores |
| 47.64 | Retail sale of sporting equipment in specialised stores |
| 47.71 | Retail sale of clothing in specialised stores |
| 47.72 | Retail sale of footwear and leather goods in specialised stores |
| 47.81 | Retail sale via stalls and markets of food, beverages and tobacco products |
| 75 | Veterinary activities |
| 77.21 | Renting and leasing of recreational and sports goods |
| 81.3 | Landscape service activities |
| 84.0 | Public administration and defence; compulsory social security |
| 85.1 | pre-primary education |
| 85.2 | Primary education |
| 85.31 | General secondary education |
| 85.32 | Technical and vocational secondary education |
| 85.42 | Tertiary education |
| 85.51 | Sport and recreation education |
| 85.52 | Cultural education |

85.53 Driving school activities
85.6 Educational support services
93.29 Other amusement and recreation activities n.e.c.
95.23 Repair of footwear and leather goods
95.29 Repair of other personal and household goods

**Additional economic activities in the broad definition**

10.86 Manufacture of homogenised food preparations and dietetic food
11.07 Manufacture of soft drinks; production of mineral waters and other bottled waters
18.11 Printing of newspapers
18.12 Other printing
18.13 Pre-press and pre-media services
18.14 Binding and related services
19.20 Manufacture of refined petroleum products
21.20 Manufacture of pharmaceutical preparations
46.38 Wholesale of other food, including fish, crustaceans and molluscs
46.43 Wholesale of electrical household appliances
46.49 Wholesale of other household goods
46.52 Wholesale of electronic and telecommunications equipment and parts
47.11 Retail sale in non-specialised stores with food, beverages or tobacco predominating
47.25 Retail sales of beverages in specialised stores
47.61 Retail sale of books in specialised stores
47.62 Retail sale of newspapers and stationery in specialised stores
47.63 Retail sale of music and video recordings in specialised stores
47.73 Dispensing chemist in specialised stores
47.74 Retail sale of medical and orthopaedic goods in specialised stores
47.77 Retail sale of watches and jewellery in specialised stores
47.78 Other retail sale of new goods in specialised stores
49.10 Passenger rail transport, interurban
49.31 Urban and suburban passenger land transport
49.32 Taxi operation
49.39 Other passenger land transport
50.1 Sea and coastal passenger water transport.
50.3 Inland passenger water transport
51.1 Passenger air transport
52.21 Service activities incidental to land transportation
55.1 Hotels and similar accommodation
55.2 Holiday and other short-stay accommodation
55.3 Recreational vehicle parks, trailer parks and camping grounds

| | |
|---|---|
| 55.9 | Other accommodation |
| 56.1 | Restaurants and mobile food service activities |
| 56.2 | Event catering and other food service activities |
| 56.3 | Beverage serving activities |
| 58.11 | Book publishing |
| 58.13 | Publishing of newspapers |
| 58.14 | Publishing of journals and periodicals |
| 58.19 | Other publishing activities |
| 58.29 | Other software publishing |
| 59.11 | Motion picture, video and television programme production activities |
| 59.12 | Motion picture, video and television programme post-production activities |
| 59.13 | Motion picture, video and television programme distribution activities |
| 59.2 | Sound recording and music publishing activities |
| 60.1 | Radio broadcasting |
| 60.2 | Television programming and broadcasting activities |
| 63.91 | News agency activities |
| 64.91 | Financial leasing |
| 65.11 | Life insurance |
| 65.12 | Non-life insurance |
| 65.2 | Reinsurance |
| 65.3 | Pension funding services |
| 69.1 | Legal activities |
| 69.2 | Accounting, bookkeeping and auditing activities; tax consultancy |
| 70.10 | Activities of head offices |
| 70.21 | Public relations and communications activities |
| 70.22 | Business and other management consultancy activities |
| 71.11 | Architectural activities |
| 72.11 | Research and experimental development on biotechnology |
| 72.19 | Other research and experimental development on natural sciences and engineering |
| 72.20 | Research and experimental development on social sciences |
| 74.2 | Photographic activities |
| 77.22 | Rental services of video tapes and discs |
| 78.1 | Activities of employment placement agencies |
| 78.2 | Temporary employment agency activities |
| 79.11 | Travel agency activities |
| 79.12 | Tour operator activities |
| 79.9 | Other reservation service and related activities |
| 86 | Hospital activities |
| 87 | Residential care activities |
| 92 | Gambling and betting activities |

*Table A.2. Detailed GVA, Employment, Consumer spending and Turnover tables, 2017.*

| Olympic sport | GVA £m | Employment (thousands) | Consumer spending £m | Turnover £m |
|---|---|---|---|---|
| Archery | 123 | 4.0 | 121 | 222 |
| Athletics | 3,344 | 106.5 | 2,461 | 6,052 |
| Badminton | 1,251 | 40.6 | 968 | 2,259 |
| Basketball | 844 | 28.2 | 1,030 | 1,560 |
| Boxing | 628 | 20.7 | 666 | 1,149 |
| Canoeing | 431 | 13.5 | 479 | 810 |
| Cycling BMX | 78 | 2.3 | 98 | 149 |
| Cycling Mountain Bike | 905 | 26.5 | 1,135 | 1,732 |
| Cycling Road | 1,456 | 42.7 | 1,826 | 2,788 |
| Cycling Track | 39 | 1.1 | 49 | 75 |
| Swimming/diving | 4,274 | 140.0 | 3,972 | 7,865 |
| Equestrian Dressage | 571 | 15.3 | 1,070 | 1,189 |
| Equestrian Jumping | 509 | 13.7 | 948 | 1,053 |
| Fencing | 44 | 1.4 | 38 | 93 |
| Gymnastics | 961 | 31.0 | 792 | 1,746 |
| Handball | 33 | 1.1 | 30 | 61 |
| Hockey | 386 | 12.1 | 341 | 703 |
| Judo | 84 | 2.7 | 75 | 157 |
| Rowing | 383 | 12.3 | 464 | 738 |
| Sailing | 490 | 15.7 | 488 | 1,013 |
| Shooting | 524 | 16.2 | 417 | 1,067 |
| Table Tennis | 997 | 32.5 | 818 | 1,773 |
| Taekwondo | 97 | 3.1 | 77 | 174 |
| Trampoline | 467 | 15.0 | 427 | 858 |
| Triathlon | 94 | 2.9 | 116 | 179 |
| Volleyball | 116 | 3.8 | 107 | 205 |
| Water Polo | 32 | 1.0 | 30 | 58 |
| Weightlifting | 542 | 17.3 | 503 | 1,005 |
| Wrestling Freestyle | 80 | 2.5 | 66 | 147 |
| Wrestling Greco-Roman | 80 | 2.5 | 66 | 147 |
| Baseball/Softball | 80 | 2.6 | 81 | 144 |
| Karate | 138 | 4.5 | 119 | 247 |
| Skateboarding | 57 | 1.8 | 53 | 106 |
| Climbing | 447 | 14.4 | 544 | 821 |
| Surfing | 169 | 5.4 | 135 | 311 |
| | | | | |

| | | | | |
|---|---|---|---|---|
| **Winter Games** | | | | |
| Alpine Skiing | 192 | 6.4 | 245 | 364 |
| Free Style Skiing | 44 | 1.5 | 56 | 83 |
| Cross Country Skiing | 9 | 0.3 | 11 | 17 |
| Curling | 5 | 0.1 | 4 | 9 |
| Skating | 792 | 25.8 | 1,265 | 1,486 |
| Ice Hockey | 32 | 1.0 | 28 | 58 |
| Nordic Combined | 35 | 1.2 | 44 | 66 |
| Snowboard | 61 | 2.0 | 78 | 116 |
| | | | | |
| **Paralympics** | | | | |
| Alpine Skiing | 9 | 0.3 | 11 | 16 |
| Archery | 12 | 0.4 | 12 | 22 |
| Athletics | 216 | 7.0 | 158 | 391 |
| Badminton | 135 | 4.4 | 103 | 243 |
| Boccia | 6 | 0.2 | 5 | 11 |
| Canoe | 55 | 1.8 | 61 | 104 |
| Cycling | 610 | 18.1 | 759 | 1,166 |
| Equestrian | 75 | 2.0 | 140 | 157 |
| Football | 661 | 21.1 | 769 | 1,252 |
| Judo | 23 | 0.7 | 20 | 42 |
| Power lifting | 8 | 0.3 | 7 | 15 |
| Rowing | 9 | 0.3 | 10 | 17 |
| Sailing | 65 | 2.1 | 65 | 135 |
| Shooting | 117 | 3.6 | 93 | 239 |
| Sitting Volleyball | 22 | 0.7 | 20 | 39 |
| Swimming | 511 | 16.7 | 475 | 940 |
| Table Tennis | 73 | 2.4 | 60 | 130 |
| Taekwondo | 17 | 0.6 | 13 | 30 |
| Triathlon | 6 | 0.2 | 7 | 11 |
| Wheelchair Basketball | 74 | 2.5 | 89 | 135 |
| Wheelchair Curling | 1 | 0.1 | 1 | 3 |
| Wheelchair Fencing | 6 | 0.2 | 5 | 12 |
| Wheelchair Tennis | 82 | 2.7 | 67 | 146 |
| | | | | |
| ***Total*** | ***24,718*** | ***784*** | ***25,289*** | ***46,110*** |
| ***Total as % of sport*** | ***54.1%*** | ***55.2%*** | | |