

The Economic Value of Sport
and Recreation to the

OTAGO REGION



**Lincoln
University**
Te Whare Wānaka o Aoraki

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Acknowledgements

This publication is one of a series of thirteen regional analyses of sport and recreational data prepared for Sport New Zealand by the AERU at Lincoln University. The author is grateful to Statistics New Zealand for providing unpublished data for this report and for providing advice on published data sources. I am particularly grateful to Kieran McMaster, Nalin Patel and Arthur Tse for their help. I thank Lisa Tocker, Asha Patel, Sam Qian and Catherine Campbell at the Auckland Council for providing 2011/12 and 2012/13 data on the Council's asset additions and disposal related to sport and recreation. I am also grateful to colleagues at Sport New Zealand who provided feedback on early drafts of these reports. Grant McLean, Kay Haughey, Chris Daly and Janette Brocklesby devoted considerable time to this project and made many valuable suggestions that have improved the contents of the reports. Interpretations and views expressed in the reports are nevertheless the sole responsibility of the author, and should not be attributed to Sport New Zealand or any of its employees.

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This report was written by Professor Paul Dalziel at the AERU, with editorial assistance from Sport New Zealand.

Copies of the other reports in the Sport New Zealand *Value of Sport and Recreation Series* can be downloaded from its website: www.sportnz.org.nz.

Citation:

Sport New Zealand, 2015. *The Economic Value of Sport and Recreation to the Otago Region*. Wellington: Sport New Zealand.

ISBN: 978-0-947502-36-2

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Summary

Sport and recreation activities are highly valued by people in Otago

- Nearly 9 out of 10 (89.2 per cent) young people (5-17 years) in the region spend at least three hours per week in organised or informal sport and recreation activity.
- Nearly 8 out of 10 (79.9 per cent) adults (18 years or older) take part in at least one sport or recreation activity (excluding walking and gardening) over a year.
- These are supported by 41,000 volunteers.

Sport and recreation industries provide employment for people in Otago

- Nearly 2,500 people (2,424) work in sport and recreation industries (based on the 2013 Census).
- Including people working in sport and recreation occupations outside these sport and recreation industries, the total increases to more than 3,000 people (3,281); this is 3.3 per cent of all those in employment.

Sport and recreation industries contribute to the Otago economy

- The sport and recreation sector (narrowly defined) is estimated to have contributed \$160.7 million to regional GDP in 2012/13, or 1.7 per cent.

Sport and recreation occupations provide income to people in Otago

- Nearly 1,800 (1,799) people work in sport and recreations occupations.
- The total annual personal income for people in sport and recreation occupations in Otago is estimated to have been \$65.9 million (measured in 2013 values).

Sport and recreation education is important in Otago schools

- Just over five per cent of *The National Curriculum* is related to sport and recreation.
- This same share of teacher salaries in 2012/13 adds up to \$7.6 million.

Sport and recreation parks and facilities are a large investment by Otago local governments

- Councils in the Otago region (particularly the Waitaki District Council) disposed sport and recreation facilities in 2012/13 to the aggregate net value of \$11.3 million.
- The Dunedin City Council spent \$3.2 million on net additions to sport and recreation facilities in 2012/13, which contributed \$1.1 million to the value of the construction sector that year.

Sport and recreation volunteers contribute valuable services to Otago

- Volunteers contributed 3.2 million hours to sport and recreation in 2013/14.
- The estimated market value of these volunteered services is \$49.2 million at 2013 values.

Sport and recreation are an important economic sector in Otago

- The contribution of sport and recreation to GDP (including volunteered services) in 2012/13 is estimated to have been \$250.0 million, or 2.6 per cent.

1. Introduction

The importance of valuing the benefits of sport and recreation

Sport and recreation are highly valued in New Zealand. Individuals and communities invest considerable time and money in sport and recreation. Recognising this, Sport New Zealand commissioned Professor Paul Dalziel in 2011 to prepare a comprehensive framework to value the benefits of sport and recreation for New Zealand as a whole and for thirteen regions. There have been several important developments in data collection since that work, including the following:

- In November 2012, Statistics New Zealand published its first data release from its new National Accounts (Industry Benchmarks) series, which replaced its previous National Accounts series (discontinued in 2011). This is a significant improvement on the previous series.
- In 2012, Sport New Zealand published results from its 2011 Young People's Survey; see for example, Sport New Zealand (2012) and Ipsos and Sport New Zealand (2014).
- On 5 March 2013, the delayed New Zealand Census of Population and Dwellings took place.
- In March 2014, Statistics New Zealand released a new series that gives estimates of *regional* gross domestic product.
- In 2013/14, Sport New Zealand undertook its latest *Active New Zealand Survey*; see especially Sport New Zealand (2015).

Consequently, Sport New Zealand has commissioned Paul Dalziel to update the 2011 reports with these new data sources. This report presents results for the **Otago** region. This introduction begins by summarising what is known about participation and volunteering in sport and recreation in the region. The rest of this section explains in more detail the reasons for valuing sport and recreation, how the sport and recreation sector is defined for this work, how the contribution to regional gross domestic product (GDP) is estimated, and the content of the report.

People in Otago value sport and recreation

Like people throughout New Zealand, people in the region enjoy sport and recreation 24/7. Key facts from a survey¹ of **young people** show that:

¹ This information is from Sport New Zealand's Young People's Survey, which took place in 2011. The survey collected information about participation in sport and recreation by 5 to 18-year-olds. Information was collected from parents of 5 to 6-year-olds, from students 7 to 18 years old, and from teachers (see Sport New Zealand, 2012, for further details). Note that Otago and Southland data have been combined for confidentiality reasons.



- nearly 9 out of 10 (89.2%) young people (5-17 years) spend at least three hours per week in organised or informal sport and recreation activity;
- around 6 out of 10 (57.3%) young people (5-17 years) take part at least three hours per week in organised sport and recreation activities;
- around 4 out of 10 (43.7%) young people (10-18 years) give time outside classes in a volunteer role in sport and recreation activities;
- more than 6 out of 10 (63.0%) belong to a sports club (outside of school);
- more than 6 out of 10 (63.0%) belong to a school sports team;
- three-quarters (75.6%) receive some coaching or instruction; and
- almost all (95.1%) young people in the region say they like playing sport, either a lot (65.2%) or a little (29.9%).

The New Zealand Secondary School Sports Council (NZSSSC) takes a census each year about secondary school students' engagement in sport. The data for Otago suggest that participation rates by secondary school students (66.5% in total) and teachers (40.1%) in the region are above the national averages of 53.3% and 33.5%, respectively (see Table A8 in Appendix 3).

The key facts from a survey² of **adults** (18+ years) show that in the region:

- almost all (96.0%) adults take part in at least one sport or recreation activity over a year – this provides a measure of total participation;
- nearly 8 out of 10 (79.9%) adults take part in at least one sport or recreation activity (excluding walking and gardening) over a year;
- around half (46.8%) of adults take part in sport or recreation activity (excluding walking and gardening) during a particular week;
- on average, adults take part in around four activities per year (4.3) or three (3.1) activities if walking and gardening are excluded;
- almost 1 out of 6 (16.1%) adults participate in at least one organised sport or physical recreation event in a year;
- more than 4 out of 10 (44.8%) sport and recreation participants belong to a club, gym or recreation centre in order to take part in sport and recreation activities, including 3 out of 10 (30.2%) that belong to a sport or physical activity club;
- among sport and recreation participants, 5 out of 10 (52.0%) receive some instruction or coaching from a coach, instructor, teacher or trainer for one or more of the activities they take part in; and
- more than 1 out of 4 (28.1%) adults volunteer for sport and recreation.

People also engage in sport and recreation as spectators and supporters – ranging from the interested to the fanatics. This engagement is expressed through attending live matches and events and viewing, listening to and reading about sport and recreation in the media. The extent of this engagement in Otago is not known.

² This information is from Sport New Zealand's 2013/14 Active NZ Survey (see Sport New Zealand, 2015). The figures reported from this survey and the Young People's Survey in footnote 1 are national data. Regional data have larger sampling errors, of course, and previous analyses have revealed no notable differences among regions for participation.



Valuing the benefits of sport and recreation at the national level

The previous page illustrates the high value that people in Otago place on sport and recreation activities. This love of sport and recreation is shared by people throughout New Zealand and is made possible by a high level of public and private investment in a sport and recreation sector that delivers facilities, products and services to allow people to participate in sport and recreation. This sector, in turn, contributes a significant sum to the New Zealand economy.

A recently completed national study of the value of sport and recreation³ found that in 2012/13 the contribution of sport and recreation to gross domestic product (GDP), including volunteered services, was **\$5.0 billion, or 2.3 per cent**.

Valuing the benefits of sport and recreation at the regional level

The analysis in the national report confirmed the well-known belief that sport and recreation are important for all regions in New Zealand. Local councils invest substantial resources in providing facilities, programmes and services for sport and recreation activities in their communities.⁴ Councils are responsible for caring for and maintaining maunga, lakes, rivers, beaches, parks, camping grounds, sports fields, stadiums, swimming pools, recreation centres, gymnasiums, cycle-ways, walkways, playgrounds, picnic areas and botanic gardens.

Given this high level of investment, it is important to have some shared understanding of the net benefits of participation in sport and recreation at the regional level. This is recognised internationally, where it is now commonplace for provinces and regions around the world to commission studies on the contribution of sport and recreation to their local economies.

Consequently, Sport New Zealand commissioned thirteen reports from the AERU, extending the national analysis down to the regional level, along with some supplementary analysis of major urban areas (see Table A1 in Appendix 1). These reports concentrate on the market value of sport and recreation in each region, since data on the social and personal benefits are not available at the regional level.

This report covers the **Otago** region, which includes all of the territories of Central Otago District, Clutha District, Dunedin City and Queenstown-Lakes District, as well as some of the territory of Waitaki District. The report also provides information on the main urban territory in the region – Dunedin City.⁵

³ See Dalziel (2015).

⁴ Section 10 of the Local Government Act 2002, for example, requires regional, district and city councils “to meet the current and future needs of communities for good-quality local infrastructure”. Under this general statutory duty, local councils play a key role in providing sport and recreation facilities for their communities.

⁵ Note that the participation and volunteer figures are based on regional sports trust boundaries, which may differ slightly from the territorial authority boundaries.

Defining the sport and recreation sector

The sector narrowly defined

Statistics New Zealand distinguishes 508 industry categories in the industry classification system (known as ANZSIC06) it has developed with the Australian Bureau of Statistics. The research team and Sport New Zealand has identified 17 of these categories that depend *significantly* on sport and recreation activities in New Zealand. These categories are listed in Table A4 in Appendix 3, along with the number of people in Otago recorded in the 2013 Census as employed in the 17 industries.

The selection of the 17 categories acknowledges that some of these industries are not involved exclusively with sport and recreation. Physiotherapists, for example, provide a range of health services, but the physiotherapy services category was included because of the significance to this industry of ACC-funded treatments for sport and recreation injuries. To balance this approach, the selection process excluded some industries that have a large sport and recreation component. A good example is the exclusion of journalism and broadcasting despite the importance of sport in the media. This sector is excluded because the data to identify the sport and recreation component of journalism and broadcasting are not available.

The 17 industries make up what the study calls the *narrow* definition of the sport and recreation sector. It covers industries providing goods and services directly to people so that they can participate in sport and recreation, including facilities, equipment, racing animals and physiotherapy services.

The sector broadly defined

The study also adopts a *broader* definition of the sector to include three economic activities that are a core part of New Zealand's sport and recreation institutional landscape:

1. Employment of people in sport and recreation *occupations* outside the 17 sport and recreation industries (section 4 explains how these occupations were selected).
2. Time spent by teachers in schools delivering sport and recreation components of *The National Curriculum* (and so a proportion of teachers' salaries).
3. Construction of new sport and recreation facilities by local government.

This definition of the sector allows the *market* benefits of sport and recreation to be calculated. Additionally, the economic value of volunteered services can be calculated and added to give a total figure for the Otago region.

Estimating the contribution to regional GDP

The market value (including volunteer services) of sport and recreation in Otago is shown in the next section as a percentage of the region's GDP. Statistics New Zealand now publishes official regional GDP data; these data have been used in this report (which was not possible in the previous study). More details about the calculation of GDP and regional GDP are provided in Appendix 2.

There have been two main impacts of the new data from Statistics New Zealand. First the quality of the estimates published in 2015 is considerably improved on the quality achieved in 2011. As a result, the estimate of the contribution of sport and recreation to the country's national and regional economies is much more accurate than in the reports of four years ago. Second, the size of that contribution remains significant (as this report will show), but is not as large as was suggested by the estimates presented in the previous reports. This is true at the national level (see Dalziel, 2015) as well as at the regional level.

Report content

Following this introduction are four sections:

- Section 2 presents the study's main results for the Otago region.
- Section 3 explains how the sport and recreation sector's contribution to the region's GDP in 2012/13 is calculated when the sector is *narrowly* defined.
- Section 4 explains how the sport and recreation sector's contribution to the region's GDP in 2012/13 is calculated when the sector is *broadly* defined. It also explains how volunteer services are valued and shows the result of adding this sum to give a total value for sport and recreation in the Otago region.
- Section 5 summarises the key findings and discusses further steps that would enhance our knowledge of the value of the sport and recreation sector to Otago.

The report finishes with three appendices that provide additional information and further explanation about the approaches used:

- Appendix 1 lists the thirteen regions analysed in this study and shows the distribution of sport and recreation employment in these thirteen regions (using 2013 Census data).
- Appendix 2 explains how regional GDP contributions were calculated.
- Appendix 3 provides tables of regional data for the sport and recreation sector in Otago.

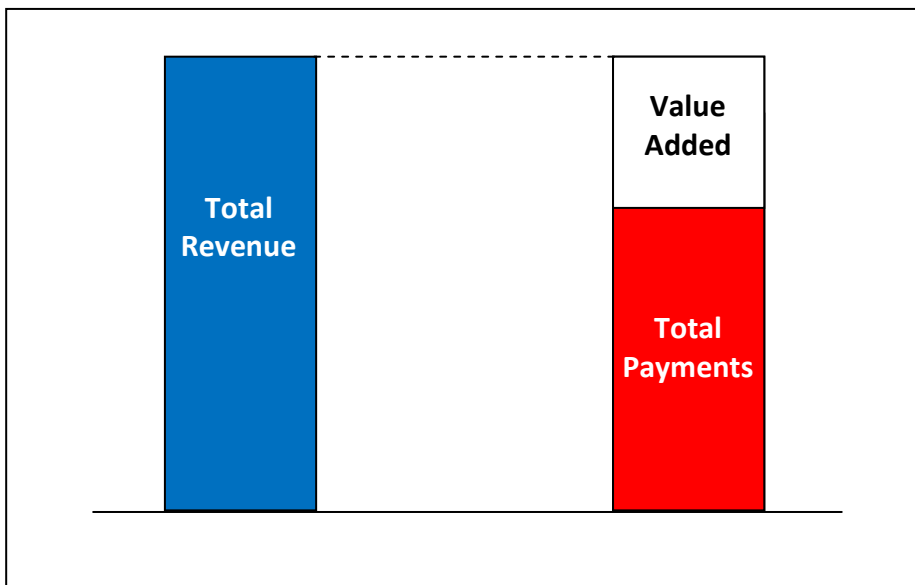
2. Value of Sport and Recreation in Otago

How is economic activity valued?

When national statisticians estimate the value of an economic activity, they use a technique known as *value added*. Consider a single enterprise, such as a farm. During a year, the farm might earn revenue from sales of livestock of \$1,000,000 but might make payments totalling \$600,000 to suppliers of goods and services used by the farm, such as feed, fencing posts, veterinary services and financial advice. These “inputs” are provided by other enterprises, and so the farm’s “value added” is \$400,000. It is the difference between total revenue and total payments, and is the source of the wages and salaries paid to the farm’s employees, as well as the profits earned by the farm’s owners.

This same approach can be applied to an industry or sector of the economy (see Figure 1). The value added by the farming sector is calculated by adding up the total revenues of all the farms in the country and then subtracting all the total payments made by the farms. If we add up the *value added* in all the economy’s sectors, this produces the statistic called gross domestic product (better known as GDP). The most common measure of a sector’s size is the amount of its *value added* expressed as a percentage of GDP, since this is the sector’s share of the total *value added* in the national economy. The same method is used here to estimate the regional GDP for Otago and the sport and recreation sector’s contribution to regional GDP.

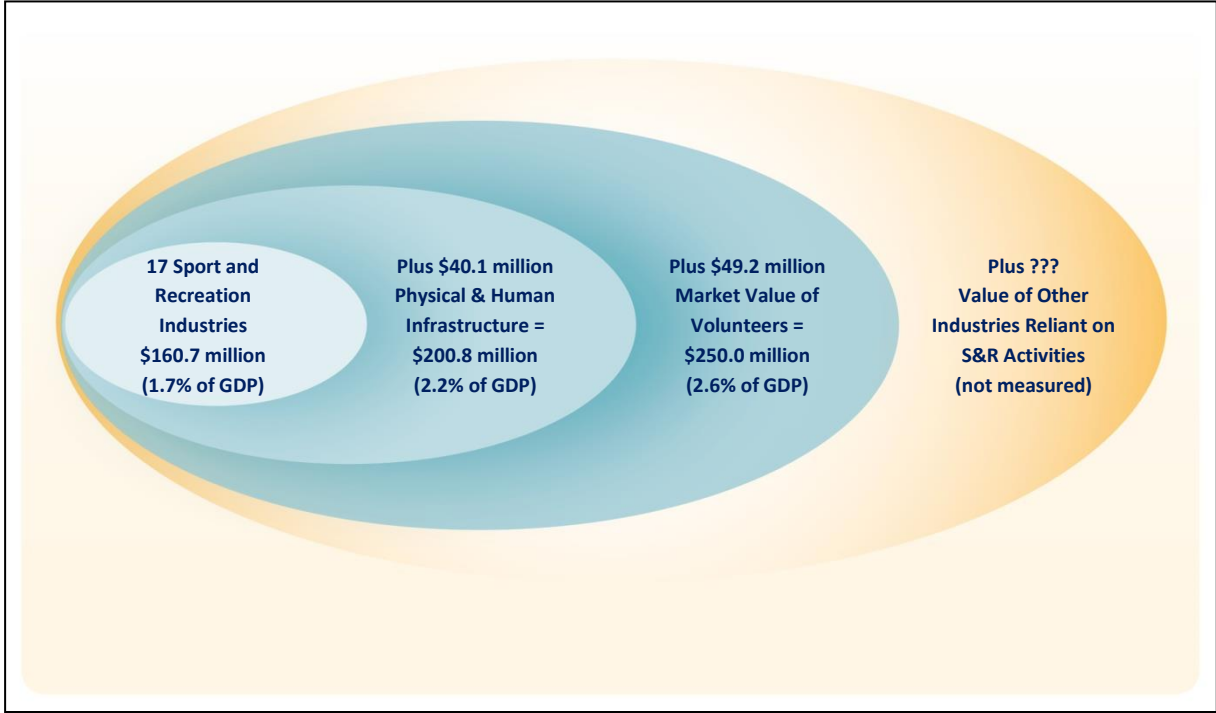
Figure 1: Calculating a Sector’s Value Added



The market value of sport and recreation to the regional economy

The sport and recreation sector accounts for **\$250.0 million or 2.6% of the region’s GDP** (including an estimate of the market value of volunteers). How this estimate is calculated is explained below and illustrated in Figure 2.

Figure 2: Estimated Value of Sport and Recreation, Otago, 2012/13



Note: The value of regional GDP in the third oval has been expanded to include an estimate of the market value of all volunteered services (that is, inside and outside the sport and recreation sector) in the region.

The inner oval in Figure 2 shows the value added by 17 industries that produce goods and services necessary for sport and recreation (see Table 2 in Section 3). This is the narrowest definition of the sport and recreation sector. In 2012/13, these industries contributed **\$160.7 million or 1.7 per cent to the Otago regional GDP**.

The second oval includes an additional \$40.1 million from:

- (i) incomes of people working in sport and recreation occupations outside of the 17 industries (for example, a recreation guide employed by a hotel (hospitality industry);
- (ii) investment by central government in sport and recreation education in schools; and
- (iii) local councils’ expenditure on new sport and recreation facilities.

This begins to broaden the definition of the sector and takes the contribution to **\$200.8 million or 2.2 per cent of regional GDP**.

The third oval takes into account volunteered services, which are particularly important in the sport and recreation sector. The additional \$49.2 million comes from assigning a volunteer wage rate of \$15.23 per hour to the 3.2 million hours volunteers in the region spend supporting sport and recreation over a year. This takes the contribution of the sport and recreation sector to **\$250.0 million or 2.6 per cent of regional GDP (including volunteered services)**.

These are conservative estimates because the study was not able to find data to measure everything that the sport and recreation sector contributes to the economy (for example, from economic activities such as: sports broadcasting; merchandising to sports spectators and supporters; and sport and recreation activities associated with international tourism). This feature of the study is reflected in the figure’s final oval, for which there are no measured values at present.

The contribution of Dunedin

Table 1 repeats the analysis for the major urban territory of Dunedin City, although the final element is missing because data are not available at the District or City Council level to estimate the contribution of volunteers. The total of \$93.2 million represented 46.4 per cent of the region’s sport and recreation contribution to national GDP (excluding the estimated market value of volunteers) in 2012/13.

Table 1: Contribution of Sport and Recreation Sector, Dunedin City, 2012/13

Industry	Contribution to GDP (\$ millions)
Contribution of the sport and recreation sector – narrowly defined	71.8
Sport and recreation incomes outside the sport and recreation industries	15.9
Central government investment in sport and recreation education	4.4
Local government construction of new sport and recreation facilities	1.1
TOTAL (\$ millions)	93.2

Source: See Table 3 in Section 3 and Table 8 in Section 4.

Sections 3 and 4 explain in more detail how the estimates for Otago and Dunedin City have been calculated.

3. The Sport and Recreation Sector – Narrowly Defined

Viewed in economic terms, businesses producing goods and services directly for sport and recreation are at the heart of the sector. These businesses include manufacturers and retailers of sports and recreation equipment, as well as individuals involved in sports coaching, recreation guiding and related activities. Taking this economic view of the sector, we have identified 17 industries that cater in some way for sport and recreation. This is a narrow definition of the sector and we begin by estimating the *value added* by these 17 industries.

The contribution to regional GDP of the narrowly defined sector

The national study estimated that the 17 sport and recreation industries contributed \$3.2 billion to New Zealand's GDP in 2012/13, or 1.5 per cent.

Using the same method as the national study, the contribution of these 17 industries to the economy of Otago has been estimated (Table 2).

Table 2 shows the contribution to GDP in 2012/13 was **\$160.7 million**, or **1.7 per cent** of regional GDP. This is higher than the national figure for the narrowly defined sector (1.5 per cent), reflecting the relative importance of sport and recreation in the Otago region compared with other sectors of the economy.

The national study estimates that the contribution to GDP of the country's narrowly defined sport and recreation sector in 2012/13 was \$3,166.3 million. Thus the Otago region's share of the sector (\$160.7 million) is 5.1 per cent.

The figures for Dunedin City are shown in Table 3. Table A6 in Appendix 3 shows how these estimates are calculated.

Table 2: Contribution to GDP of Sport and Recreation Industries, Otago, 2012/13

Industry	Contribution to GDP (\$ millions)
Amusement and Other Recreation Activities (not elsewhere classified)	29.6
Amusement Parks and Centres Operation	2.9
Boatbuilding and Repair Services	5.1
Health and Fitness Centres and Gymnasias Operation	12.3
Horse and Dog Racing Administration and Track Operation	2.9
Horse Farming	2.0
Nature Reserves and Conservation Parks Operation	16.7
Other Horse and Dog Racing Activities	2.6
Physiotherapy Services	11.0
Sport and Camping Equipment Retailing	11.1
Sport and Physical Recreation Administrative Service	7.9
Sport and Physical Recreation Clubs and Sports Professionals	14.7
Sports and Physical Recreation Instruction	7.6
Sports and Physical Recreation Venues, Grounds and Facilities Operation	30.5
Toy and Sporting Goods Wholesaling	2.9
Toy, Sporting and Recreational Product Manufacturing	1.0
Turf Growing	0.0
TOTAL	160.7
Share of the National Sport and Recreation Sector (per cent)	5.1%
Contribution to Regional GDP (per cent)	1.7%

Source: Statistics New Zealand, National Accounts (Industry Benchmarks) data and Census 2013 data.

Table 3: Contribution to GDP of Sport and Recreation Industries, Dunedin City, 2012/13

	Contribution to GDP
Estimated Total Contribution (\$ millions)	\$71.8m
Share of the Regional Sport and Recreation Sector (per cent)	44.7%
Contribution to Regional GDP (per cent)	0.8%

Source: Statistics New Zealand, National Accounts (Industry Benchmarks) data and Census 2013 data.

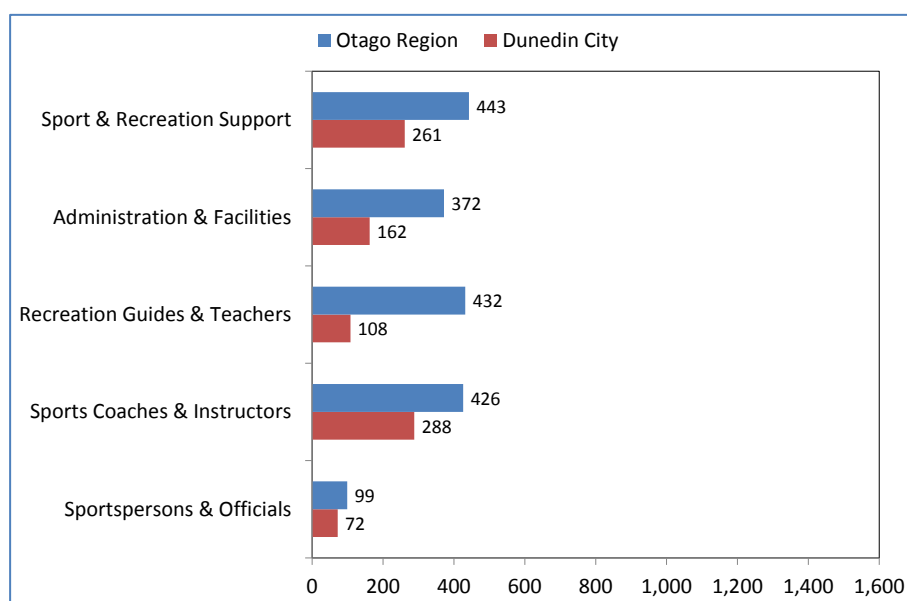
4. The Sport and Recreation Sector – Broadly Defined

The sport and recreation sector can be defined more broadly than the 17 industries considered in the previous section. First, the 2013 Census recorded that, for the Otago region, 47.3 per cent of people employed in sport and recreation *occupations* were employed outside the 17 sport and recreation *industries* considered in the previous section. Second, previous studies have emphasised the importance of central government spending on sport and recreation education in schools. Third, local councils spend millions of dollars constructing new sport and recreation facilities. Fourth, consideration must also be given to the market value of the substantial contributions made by volunteers in the sport and recreation sector. This section explains how these four contributions were valued.

Employment in sport and recreation

Data on sport and recreation employment can be obtained from the New Zealand Census of Population and Dwellings. Normally held every five years, the Census includes questions asking New Zealand adults about their occupation in the job where they worked the most hours. For this study, 42 occupations were identified that depend *significantly* on sport and recreation activities in New Zealand. Figure 3 shows the number of people in Otago recorded in the 2013 Census as employed in these 42 occupations, classified into five groups (see Table A5 in Appendix 3 for the underlying data). The overall number of people in Otago engaged in sport and recreation occupations is significant. The total of 1,799 represents 1.8 per cent of all people employed in the region.

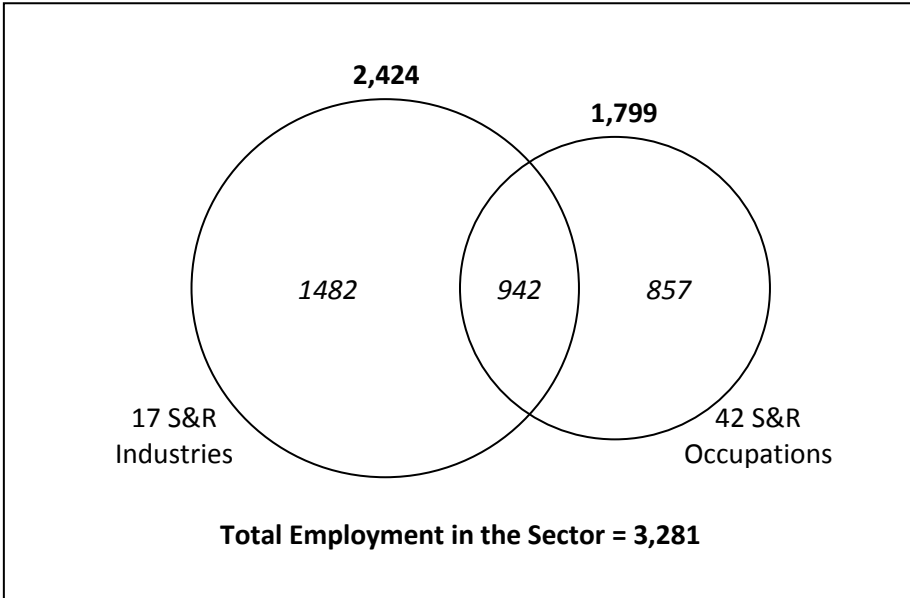
Figure 3: Employment in Sport and Recreation Occupations, Otago, 2013



Source: Table A5 in Appendix 3.

The people employed in sport and recreation occupations were not necessarily employed in one of the 17 sport and recreation industries identified in the study. This is shown in Figure 4 (for the Otago region) and in Figure 5 (for Dunedin City). As well as the 1,799 people employed in sport and recreation *occupations*, the 2013 Census analysis counted 2,424 people employed in sport and recreation *industries* in the Otago region. This number of 2,424 represents 2.4 per cent of all people employed in the region.

Figure 4: Employment in the Sport and Recreation Sector, Otago, 2013

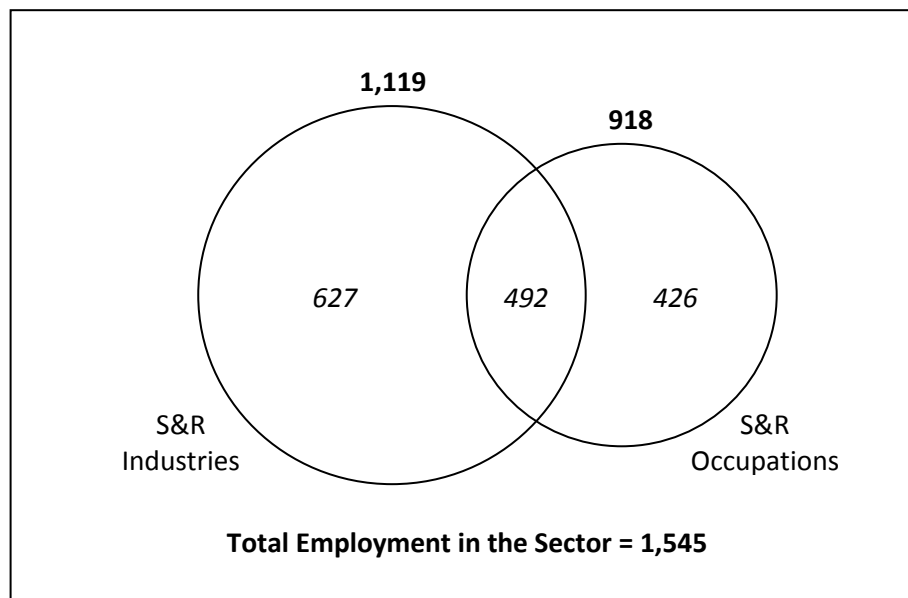


Source: Statistics New Zealand, Census 2013 data.

Statistics New Zealand advises that 942 people in Otago in these sport and recreation occupations were employed in sport and recreation industries. As shown in Figure 4, this means that 1,482 people were employed in sport and recreation industries but not in sport and recreation occupations and 857 people were employed in sport and recreation occupations outside the sport and recreation industries. Summing the three italicised statistics in Figure 4, the total count of employment in the sport and recreation sector in 2013 in Otago was 3,281. This represents 3.3 per cent of all people employed in the region.

Figure 5 presents a similar analysis for Dunedin City. The city’s total employment in the sport and recreation sector recorded in the 2013 Census was 1,545, which was 2.8 per cent of the city’s total employment. Table A4 in Appendix 3 shows the distribution of the industry employment data for the region and the major urban area. This suggests that Dunedin has a significant number of people employed in sports and physical recreation venues, grounds and facilities operation, and sport and camping equipment retailing. These three categories accounted for 315 people, which is nearly 30 per cent of the 1,119 Dunedin people employed in sport and recreation industries.

Figure 5: Employment in the Sport and Recreation Sector, Dunedin City, 2013



Source: Statistics New Zealand, Census 2013 data.

The contribution of the wider employment sector

Census data record the personal income earned by people employed in sport and recreation occupations. Using these data, the study estimated that the total annual personal income for people in the sport and recreation occupations in Otago was \$65.9 million, which is 6.2 per cent of the income earned nationally in the 42 occupations (2013 values). For those employed in sport and recreation industries, these incomes are already counted in section 3. However, 47.6 per cent of people were employed outside the 17 industries, and so their income share, **\$31.4 million**, must be added in a broader definition of the sector. This calculation is shown in Table 4.

Table 4: Income Earned Outside the Sport and Recreation Industries, Otago and Dunedin City, 2013

	Otago (\$000s)	Dunedin City (\$000s)
Estimated Incomes from Census 2013	65,941.0	34,257.8
LESS Incomes earned in S&R Industries	34,537.9	18,360.4
Incomes earned outside S&R Industries (2013)	31,403.1	15,897.4

Source: Explained in Appendix 2.

The contribution of spending on sport and recreation education

The New Zealand Government makes a substantial investment in sport and recreation education in schools. *The National Curriculum* specifies eight learning areas: English, the arts, health and physical education, learning languages, mathematics and statistics, science, social sciences, and technology. The third of these areas, 'health and physical education', includes seven items of which the last three are physical activity, sport studies and outdoor education. Hence, based on a count of these items, just over five per cent (i.e., three-sevenths of one-eighth) of *The National Curriculum* is related to sport and recreation.

Using Ministry of Education roll returns it is possible to estimate the share of this investment that occurs within the Otago region, shown in Table 5. In 2013, 4.0 per cent of the country's students below Year 9 were in the region and 4.1 per cent of the country's students in Year 9 and above. Based on these ratios, the 2012/13 share of salaries for the sport and recreation components of *The National Curriculum* in Otago was **\$7.6 million**. Similarly, the share in Dunedin City was \$4.4 million.

Table 5: Investment in School Sport and Recreation Investment, Otago, 2012/13

	Otago	Dunedin City
Year 8 and below students (number)	18,909	10,526
Year 9 and above students (number)	11,578	7,088
Year 8 and below students (per cent of national)	4.0%	2.2%
Year 9 and above students (per cent of national)	4.1%	2.5%
Year 8 and below students (investment, \$000)	\$4,362	\$2,428
Year 9 and above students (investment, \$000)	\$3,229	\$1,977
Total investment (\$000)	\$7,591	\$4,405

Source: Ministry of Education roll returns and authors' calculations.

The contribution of local government

Statistics New Zealand undertakes an annual Local Authority Census to collect financial information on the activities of all New Zealand’s regional councils and territorial authorities (see the national report for more details). Its tables include an analysis of total operating income and expenditure by sixteen activities, one of which is ‘recreation and sport’. Figure 6 shows total local government operating expenditure on recreation and sport within the Otago region (including Waitaki District) for the financial years 2004 to 2013. These data have not been adjusted for inflation. Table A9 in Appendix 3 shows that the spending on recreation and sport within the region in 2012/13 was 9.9 per cent of total operating spending by the local authorities. This was slightly above the national average that year of 9.6 per cent.

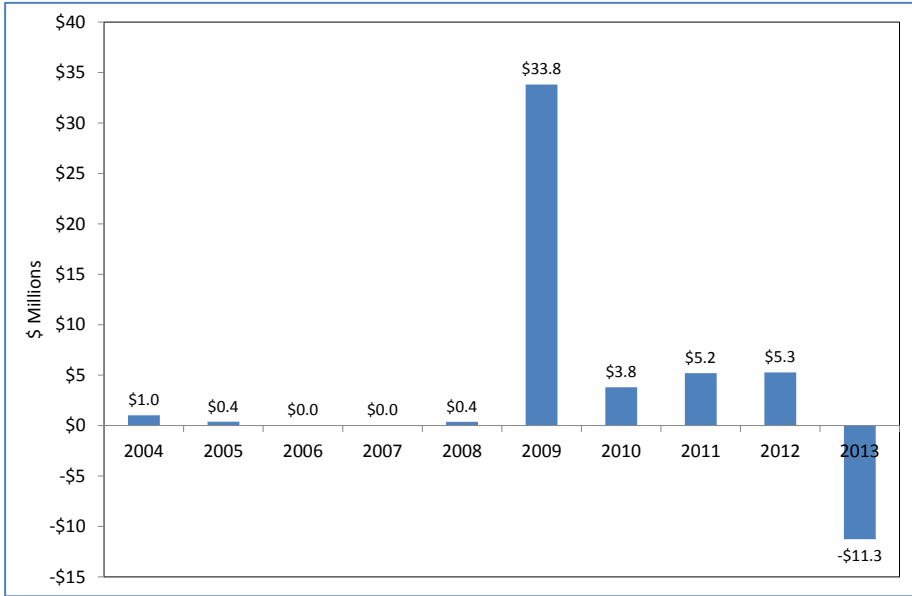
Figure 6: Local Government Operating Expenditure on Recreation and Sport, Otago, 2003/04-2012/13



Source: Statistics New Zealand Local Authority Census.

The Local Authority Census also collects information on net additions to local government fixed assets for recreation and sport. In the 2012/13 financial year for the country as a whole, this net investment was \$133.8 million. It should be noted that the figures between 2008/09 and 2010/11 were considerably higher at the national level than before or since, driven in part by facility upgrades for the Rugby World Cup. A similar effect can be seen for the Otago region in 2009; see Figure 7. The value was negative in 2012/13, due to the Waitaki District recording disposal of recreation and sport fixed assets to the value of \$14.3 million. Table A10 in Appendix 3 shows that the Dunedin City Council spent \$3.2 million on net additions to recreation and sport fixed assets.

Figure 7: Local Authority Net Additions to Recreation and Sport Fixed Assets, Otago, 2003/04-2012/13



Source: Statistics New Zealand Local Authority Census.

This level of spending has implications for the construction sector. The net investment of \$3.2 million by the Dunedin City Council on new facilities implies value added in the construction sector of **\$1.1 million**. Table 6 records the value-added in the construction sector by this activity for Dunedin City. This figure is taken to be the relevant figure for the impact on the construction sector in the wider Otago region (that is, the analysis leaves aside the disposal of fixed assets by the Central Otago District Council and the Waitaki District Council).

Table 6: Value Added in the Construction Sector from Local Authority Net Additions to Recreation and Sport Fixed Assets, Otago, 2012/13

	Dunedin City (\$000s)
Net Expenditure on New Facilities	\$3,207
Value Added in the Construction Sector	\$1,122

Source: Explained in the text.

The contribution to regional GDP from the sport and recreation sector – broadly defined

Table 7 shows that including these three additional amounts increases the contribution to GDP in 2012/13 of the sport and recreation sector (broadly defined) in the Otago region to **\$200.8 million**. Thus, the share of the sector broadly defined is **2.2 per cent of GDP**, as shown in the bottom half of Table 7.

Table 7: Contribution to the Otago Economy of the Sport and Recreation Sector – Broadly Defined, 2012/13

Industry	Contribution to GDP (\$ millions)
Contribution of the sport and recreation sector – narrowly defined (see section 3)	160.7
Sport and recreation incomes outside the sport and recreation industries	31.4
Central government investment in sport and recreation education	7.6
Local government construction of new sport and recreation facilities	1.1
TOTAL (\$ millions)	200.8
Regional Gross Domestic Product (2012/13)	9,230.0
TOTAL (percentage of regional GDP)	2.2%

Source: Previous tables and figures as explained in the text.

Table 8 repeats the analysis for Dunedin City, producing an estimate of \$93.2 million. This provides a major share of the region's contribution to GDP from sport and recreation (46.4 per cent).

Table 8: Contribution of the Broad Sport and Recreation Sector – Broadly Defined, Dunedin City, 2012/13

Industry	Contribution to GDP (\$ millions)
Contribution of the narrow sport and recreation sector	71.8
Sport and recreation incomes outside the sport and recreation industries	15.9
Central government investment in sport and recreation education	4.4
Local government construction of new sport and recreation facilities	1.1
TOTAL (\$ millions)	93.2

Source: Previous tables and figures as explained in the text.

The contribution of volunteers

Analysis of Sport New Zealand's 2013/14 *Active New Zealand* Survey estimates that at the national level volunteers contributed 67.7 million hours to sport and recreation that year. The services produced by these volunteers are valuable to participants in sport and recreation and so it is possible to estimate the market cost if these services had been provided by employees instead of volunteers (see the national report for more details).

Estimates of volunteers in regions are also available from this source, *but readers are advised that small sample numbers mean that these figures must be used with caution*. They are reproduced here as indicative only.

The survey data suggest that the total amount of volunteered time contributed to sport and recreation in 2013/14 in the Otago region was 3.2 million hours, or 4.8 per cent of the national total. Based on the same methodology used in the national report, the estimated market value of these regional services in 2013 values was **\$49.2 million**.

Including the market value of volunteer services in the calculations increases sport and recreation's contribution to GDP to **\$250.0 million**. If it is assumed that the region's amount of time spent on *all* volunteered activities was the same percentage share of the national level, then Table 9 shows that the sport and recreation sector's share of regional GDP (including volunteered services) was **2.6 per cent**.

Table 9: GDP Including the Value of Volunteered Services, Otago, 2012/13

	Regional Gross Domestic Product	Volunteered Services	Extended Regional GDP
Sport and recreation (\$m)	200.8	49.2	250.0
Totals (\$m)	9,230.0	235.2	9,465.2
Per cent	2.2%	20.9%	2.6%

Source: Statistics New Zealand and Sport New Zealand data.

5. Conclusion

This report has estimated the contribution of the sport and recreation sector to the regional economy of Otago. Three major results have been estimated:

- The contribution of the sport and recreation sector (narrowly defined) to regional GDP in 2012/13 is estimated to have been **\$160.7 million, or 1.7 per cent.**
- The contribution of the sport and recreation sector (broadly defined) to regional GDP in 2012/13 is estimated to have been **\$200.8 million, or 2.2 per cent.**
- The contribution of sport and recreation to GDP including volunteered services in 2012/13 is estimated to have been **\$250.0 million, or 2.6 per cent.**

Estimates also are provided for Dunedin City and show that:

- The contribution of the sport and recreation sector (broadly defined) in Dunedin City to the Otago economy in 2012/13 is estimated to have been **\$93.2 million.**
- Nearly half of the sport and recreation sector (excluding volunteers) in the region is located in Dunedin City (**46.4 per cent**).

All of these estimates are **conservative** because information is not available for all the industries that provide products and services for sport and recreation and regional information is not available to allow the direct personal and social benefits (such as increased work productivity and health benefits that result from active lifestyles) from participation in sport and recreation to be estimated. In addition, at the district/city level, it is not possible to estimate the value of volunteer services.

Future work to allow more comprehensive estimates will require more detailed survey information on participation and volunteer rates at the regional level, as well as information linking sport and recreation participation with labour productivity and improved health outcomes.

Given the conservative approach taken to produce the estimates in this report, and given the significant items that have not been included in the analysis, future work is likely to show that the value of sport and recreation to the Otago region is considerably higher than estimated here.

Appendix 1:

Regions in the Sport New Zealand Study

The reports commissioned by Sport New Zealand for this study cover the 13 regions listed in Table A1. Where appropriate, each regional report includes an analysis of the main urban territorial authority within its boundaries. The exceptions are Auckland (which has been one unitary council since 1 November 2010; in this case estimates are provided for the four areas that approximate to the boundaries of the four regional sports trusts), Gisborne (one unitary council) and the Bay of Plenty (which includes two urban territorial authorities in its analysis).

Table A1: Regions and Urban Areas Analysed in the Sport New Zealand Reports

	Regions	Smaller Urban Areas
1	Northland	Whangarei District
2	Auckland	Harbour Sport, Sport Waitakere, Sport Auckland and Counties Manukau Sport
3	Waikato	Hamilton City
4	Bay of Plenty	Tauranga City
		Rotorua District
5	Gisborne	
6	Hawke's Bay	Napier City plus Hastings District
7	Taranaki	New Plymouth District
8	Manawatu-Wanganui	Palmerston North City
9	Wellington	Wellington City
10	Tasman/Nelson/Marlborough	Nelson City
11	Canterbury/West Coast	Christchurch City
12	Otago	Dunedin City
13	Southland	Invercargill City

The New Zealand Census of Population and Dwellings collects information on the primary occupation of New Zealand adults, as well as the industry of that primary occupation. For the purposes of this study, 42 occupations and 17 industries were identified as part of the sport and recreation sector. Table A2 shows the number of people employed in the sport and recreation sector in the thirteen regions used in the study, drawn from the 2013 Census. Figure A1 shows the distribution of employment in Auckland, other urban areas (defined as the smaller urban areas in Table A1 excluding the Auckland region) and the rest of New Zealand.

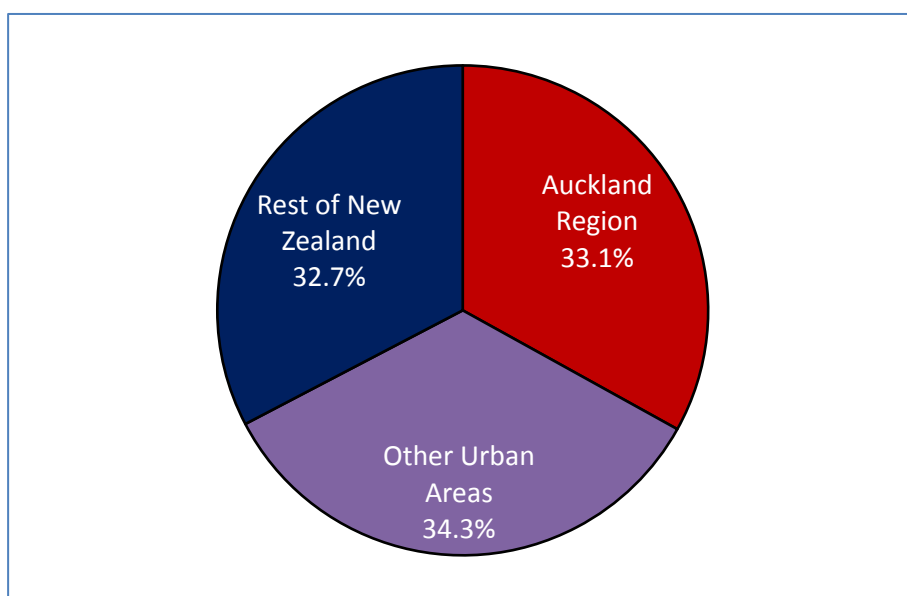
Table A2: Distribution of Employment in the Sport and Recreation Sector, 2013

Region	Number	Per Cent
Northland	1,767	3.3%
Auckland	17,822	33.1%
Waikato	5,697	10.6%
Bay of Plenty	3,438	6.4%
Gisborne	416	0.8%
Hawke's Bay	1,593	3.0%
Taranaki	1,206	2.2%
Manawatu-Wanganui	2,342	4.3%
Wellington	5,748	10.7%
Tasman/Nelson/Marlborough	2,028	3.8%
Canterbury/West Coast	7,314	13.6%
Otago	3,281	6.1%
Southland	1,256	2.3%
TOTAL	53,906	100%

Note: Data based on 42 occupations (including three occupations give a weighting of 0.5 – see note on Table A5) and 17 industries after allowing for the overlap between the two counts.

Source: Statistics New Zealand, Census 2013 data.

Figure A1: Distribution of Employment in the Sport and Recreation Sector, 2013



Source: Statistics New Zealand, Census 2013 data.

Appendix 2: Details of the Report's Calculations

Calculating share of regional GDP

Statistics New Zealand publishes estimates of GDP on a quarterly basis, but it takes time to complete an analysis of contributions to gross domestic product by industry. Thus, the latest available analysis at the time of writing the national report was for the year ending March 2012. The published data are at a reasonably aggregated level, so that the lowest level for the main sport and recreation industries is termed 'Arts and Recreation Services'. Only some of this category belongs in an analysis of sport and recreation, and so the standard approach (which was used for the national report) is to use Census employment data to estimate the share of smaller segments. This is best illustrated by a worked example.

The contribution to gross domestic product (GDP) in 2011/12 of the entire 'Arts and Recreation Services' sector is estimated to have been \$3,030 million. In the 2013 Census, total employment in this sector was recorded at 36,279. Within the sector, the number of people employed in the 'Sport and Physical Recreation Clubs and Sports Professionals' industry was 2,055. Hence the employment ratio for this industry is $2,055/32,691 = 0.0629$. Based on this ratio, the contribution to GDP by the 'Sport and Physical Recreation Clubs and Sports Professionals' industry is estimated as 0.0629 times \$3,030 million = \$190.5 million.

Similarly, it is possible to produce regional estimates by calculating the region's employment ratio for each industry included in a sector. The number of people employed in the 'Sport and Physical Recreation Clubs and Sports Professionals' industry in Auckland in 2013, for example, was 1,521. Hence the Auckland employment ratio for this industry is $1,521/32,691 = 0.0419$ and an initial estimate of its contribution to GDP in 2012/13 is 0.0419 times \$3,030 million equals \$125.5 million. Adjustments can then be made for regional variations in average productivity and to update the value for 2012 values to 2013 values. Thus the estimated regional contribution to the Auckland economy of this industry in 2012/13 is \$143.4 million. Similar calculations have been made for every industry in each region for this study.

This figure estimates the 'value added' by the industry; that is, it estimates the income (gross of taxes) generated within the industry, excluding the value of goods and services provided by other industries as inputs. The delay in producing the sector analysis of GDP, and the need to use 2013 Census employment figures, mean that these data are not as up-to-date as some analyses in this report. Nevertheless, the contribution to GDP is typically taken as the most important indicator of a sector's size in the national economy.

New Zealand now has official regional GDP data estimated by Statistics New Zealand. Table A3 shows the share of each region's contribution to national GDP for 2012/13, measured in that year's prices.

Table A3: Distribution of Regional GDP at 2012/03 Prices, 2012/03

Region	\$millions	Per Cent
Northland	5,346	2.5%
Auckland	77,214	35.9%
Waikato	18,686	8.7%
Bay of Plenty	11,249	5.2%
Gisborne	1,536	0.7%
Hawke's Bay	5,973	2.8%
Taranaki	8,558	4.0%
Manawatu-Wanganui	8,662	4.0%
Wellington	29,045	13.5%
Tasman/Nelson/Marlborough	5,945	2.8%
Canterbury/West Coast	28,917	13.4%
Otago	9,230	4.3%
Southland	4,955	2.3%
TOTAL	215,315	100%

Source: Statistics New Zealand, Regional Gross Domestic Product data.

Calculating occupation incomes

The New Zealand census form asks people to state their total personal income from all sources, before tax, for the 12 months ending 31 March 2013. This study used the average salary for each occupation estimated in the national study to estimate the income earned by people in sport and recreation occupations in each region. Regional income data could not be used because of confidentiality concerns (the number of people earning within a certain income band in a certain occupation in a certain region can be very small). It is likely that this will tend to understate the incomes earned in Auckland and overstate the incomes earned in other parts of the country.

Table A7 in Appendix 3 shows how the income reported in the 2013 Census was distributed among the 42 occupations in Otago. The largest contributing occupation was physiotherapist (\$11.0 million), followed by greenkeepers (\$7.5 million) and other sports coach or instructor (\$5.1 million). The total income earned in the 42 occupations is estimated to have been \$65.9 million, which is 6.2 per cent of the income earned nationally in these occupations.

Table A7 repeats the analysis for Dunedin City. The total income in the 42 occupations for the city is estimated to have been \$34.3 million, which was 52.0 per cent of the estimated income in these occupations in the Otago region.

It is important to note that there is some overlap between the incomes recorded in Table A7 and the contributions to GDP recorded in Table 2 of Section 3. In particular, the incomes earned in the sport and recreation industries of Table 2 by people employed in the sport and recreation occupations of Table A7 are included in both tables. Thus to provide an estimate of the contribution of the sport and recreation sector broadly defined that includes the incomes of people in sport and recreation occupations outside the sport and recreation industries (narrowly defined), the proportion of income earned by people in the sport and recreation occupations within the sport and recreation industries must be removed to avoid double-counting. This is achieved using the data in Figures 4 and 5.

Appendix 3: Sport and Recreation Data Tables

Table A4: Employment in Sport and Recreation Industries, Otago, 2013

Industry	Otago	Dunedin City
Amusement and Other Recreation Activities (n.e.c.)	405	18
Amusement Parks and Centres Operation	39	12
Boatbuilding and Repair Services	54	24
Health and Fitness Centres and Gymnasias Operation	168	117
Horse and Dog Racing Administration and Track Operation	39	33
Horse Farming	57	42
Nature Reserves and Conservation Parks Operation	228	114
Other Horse and Dog Racing Activities	36	21
Physiotherapy Services	195	111
Sport and Camping Equipment Retailing	288	153
Sport and Physical Recreation Administrative Service	108	84
Sport and Physical Recreation Clubs and Sports Professionals	201	96
Sports and Physical Recreation Instruction	141	93
Sports and Physical Recreation Venues, Grounds and Facilities Operation	417	162
Toy and Sporting Goods Wholesaling	30	24
Toy, Sporting and Recreational Product Manufacturing	18	9
Turf Growing	..C	..C
TOTAL	2,424	1,119

Notes: (1) “..C” is confidential; n.e.c. is not elsewhere classified. (2) The list in Table A4 is conservative. Although some industries include activities that are not within the scope of this study (for example, some people employed in some amusement parks), this is balanced by the exclusion of other industries that have a large sport and recreation component (such as sports journalists or people employed in the broadcasting industry that broadcast and present sport events and commentary on free-to-air or subscription television). (3) The confidential data cells mean that the TOTAL figures are greater than the sum of each column.

Source: Statistics New Zealand, Census 2013 data, ANZSIC06 V1.0.

Table A5: Employment in Sport and Recreation Occupations, Otago, 2013

Category	Occupation	Otago	Dunedin City
Sportspersons and Officials	Golfer	18	6
	Footballer	24	21
	Jockey	..C	..C
	Other Sportspersons	30	27
	Sports Umpire	21	18
	Dog or Horse Racing Official	6	..C
	Other Sports Official	..C	..C
Sports Coaches and Instructors	Fitness Instructor	162	114
	Swimming Coach or Instructor	87	60
	Horse Trainer	30	15
	Tennis Coach	12	9
	Gymnastics Coach or Instructor	..C	..C
	Horse Riding Coach or Instructor	9	..C
	Snowsport Instructor	..C	..C
	Other Sports Coach or Instructor	126	90
Recreation Guides and Teachers	Lifeguard	102	57
	Dance Teacher (Private Tuition)	36	21
	Outdoor Adventure Instructor	42	12
	Fishing Guide	21	..C
	Whitewater Rafting Guide	21	..C
	Diving Instructor (Open Water)	12	6
	Mountain or Glacier Guide	21	..C
	Trekking Guide	30	..C
	Bungy Jump Master	24	..C
	Hunting Guide	9	..C
	Other Outdoor Adventure Guides	114	12
Administration and Facilities	Greenkeeper	204	78
	Sports Administrator	75	51
	Park Ranger	66	27
	Sports Centre Manager	18	6
	Fitness Centre Manager	9	..C
	Turf Grower	..C	..C
	Sports Development Officer	..C	..C
Sport and Recreation Support	Physiotherapist	216	150
	Boat Builder and Repairer	30	12
	Conference and Event Organiser (1)	87	37.5
	Stablehand	27	24
	Massage Therapist (1)	54	25.5
	Horse Breeder	..C	..C
	Bicycle Mechanic	21	6
	Recreation Coordinator (1)	8	6
	Sail Maker	..C	..C
TOTAL		1,799	918

Notes: (1) Only half the number in this occupation is included as sports and recreation because some of this employment is not sport and recreation related and/or is linked to inactive leisure pursuits. (2) “..C” is confidential. (3) The confidential data cells mean that the TOTAL figures are greater than the sum of each column.

Source: Statistics New Zealand, Census 2013 data, ANZSCO V1.0.

Table A6: Contribution to GDP of Sport and Recreation Industries, Dunedin City, 2012/13

Industry	Contribution to GDP (\$ millions)
Amusement and Other Recreation Activities (not elsewhere classified)	1.3
Amusement Parks and Centres Operation	0.9
Boatbuilding and Repair Services	2.3
Health and Fitness Centres and Gymnasias Operation	8.6
Horse and Dog Racing Administration and Track Operation	2.4
Horse Farming	1.5
Nature Reserves and Conservation Parks Operation	8.3
Other Horse and Dog Racing Activities	1.5
Physiotherapy Services	6.3
Sport and Camping Equipment Retailing	5.9
Sport and Physical Recreation Administrative Service	6.1
Sport and Physical Recreation Clubs and Sports Professionals	7.0
Sports and Physical Recreation Instruction	5.0
Sports and Physical Recreation Venues, Grounds and Facilities Operation	11.8
Toy and Sporting Goods Wholesaling	2.3
Toy, Sporting and Recreational Product Manufacturing	0.5
Turf Growing	0.0
TOTAL	71.8
Share of the Regional Sport and Recreation Sector (per cent)	44.7%
Contribution to Regional GDP (per cent)	0.8%

Source: Statistics New Zealand, National Accounts (Industry Benchmarks) data and Census 2013 data.

Table A7: Estimated Incomes in Sport and Recreation Occupations, Otago, 2013

Category	Occupation	Otago (\$000)	Dunedin City (\$000)
Sportspersons and Officials	Golfer	840.0	280.0
	Footballer	1,733.4	1,516.7
	Jockey	..C	..C
	Other Sportspersons	1,868.3	1,681.5
	Sports Umpire	268.3	229.9
	Dog or Horse Racing Official	268.1	..C
	Other Sports Official	..C	..C
Sports Coaches and Instructors	Fitness Instructor	4,726.2	3,325.9
	Swimming Coach or Instructor	1,529.0	1,054.5
	Horse Trainer	1,039.0	519.5
	Tennis Coach	312.9	234.7
	Gymnastics Coach or Instructor	..C	..C
	Horse Riding Coach or Instructor	225.9	..C
	Snowsport Instructor	..C	..C
	Other Sports Coach or Instructor	5,062.6	3,616.2
Recreation Guides and Teachers	Lifeguard	1,830.2	1,022.8
	Dance Teacher (Private Tuition)	815.4	475.7
	Outdoor Adventure Instructor	1,265.7	361.6
	Fishing Guide	765.4	..C
	Whitewater Rafting Guide	611.3	..C
	Diving Instructor (Open Water)	402.3	201.2
	Mountain or Glacier Guide	718.7	..C
	Trekking Guide	876.6	..C
	Bungy Jump Master	745.7	..C
	Hunting Guide	346.3	..C
	Other Outdoor Adventure Guides	3,853.2	405.6
Administration and Facilities	Greenkeeper	7,547.5	2,885.8
	Sports Administrator	3,262.4	2,218.4
	Park Ranger	3,089.1	1,263.7
	Sports Centre Manager	1,005.3	335.1
	Fitness Centre Manager	430.8	..C
	Turf Grower	..C	..C
	Sports Development Officer	..C	..C
Sport and Recreation Support	Physiotherapist	10,978.3	7,623.8
	Boat Builder and Repairer	1,494.7	597.9
	Conference and Event Organiser (1)	4,143.5	1,786.0
	Stablehand	722.7	642.4
	Massage Therapist (1)	1,296.2	612.1
	Horse Breeder	..C	..C
	Bicycle Mechanic	620.0	177.1
	Recreation Coordinator (1)	281.3	225.0
	Sail Maker	..C	..C
TOTAL		65,941.0	34,257.8

Notes: (1) Only half the number in this occupation is included as sports and recreation. (2) The confidential data cells mean that the TOTAL figures are greater than the sum of each column.

Source: Statistics New Zealand, Census 2013 data, ANZSCO V1.0.

Table A8: Sport Participation by Male and Female Students and by Teachers at Secondary Schools, 2013

Region	Roll	Per Cent Participating in Sport			
		Males	Females	Total	Teachers
Northland	10,441	45.1%	42.7%	43.9%	26.7%
Auckland	96,388	52.9%	44.3%	48.6%	32.3%
Harbour Sport	22,344	51.0%	46.3%	48.7%	28.7%
Sport Waitakere	12,951	46.3%	39.3%	42.9%	37.8%
Sport Auckland	26,923	59.9%	49.0%	54.4%	33.6%
Counties Manukau Sport	34,170	51.2%	40.8%	46.3%	31.9%
Waikato	24,019	58.7%	51.5%	55.1%	35.1%
Bay of Plenty	20,006	52.5%	43.3%	48.0%	28.0%
Eastland	3,022	58.8%	53.5%	56.2%	46.9%
Hawkes Bay	10,686	63.4%	57.2%	60.3%	46.1%
Taranaki	7,074	70.1%	59.2%	64.6%	34.4%
Manawatu	10,056	57.8%	48.7%	53.4%	39.4%
Wanganui	4,166	56.2%	60.6%	58.5%	39.3%
Wellington	26,453	61.9%	55.6%	58.8%	28.9%
Wairarapa	2,773	71.8%	70.4%	71.1%	32.9%
Tasman	8,699	48.9%	48.1%	48.5%	23.0%
Canterbury	29,075	56.1%	50.1%	53.1%	35.7%
Aoraki	6,527	67.2%	66.3%	66.7%	37.6%
Otago	9,550	65.3%	67.7%	66.5%	40.1%
Southland	6,377	62.9%	60.0%	61.4%	35.8%
NATIONAL TOTAL	275,312	56.5%	50.0%	53.3%	33.5%

Source: NZSSSC census data, downloaded 19 February 2015 at www.nzsssc.org.nz/.

Table A9: Local Authority Spending on Recreation and Sport, Otago, 2012/13

	Recreation and Sport (\$000s)	Total Operating Expenditure (\$000s)	Ratio of Column 1 to Column 2 (Per Cent)
Otago Regional Council	489	29,621	1.7%
Central Otago District Council	2,168	32,332	6.7%
Clutha District Council	1,379	32,978	4.2%
Dunedin City Council	23,232	197,024	11.8%
Queenstown Lakes District Council	9,747	82,805	11.8%
Waitaki District Council	4,015	41,365	9.7%
Otago Total	41,030	416,125	9.9%
<i>New Zealand Total</i>	<i>704,774</i>	<i>7,326,997</i>	<i>9.6%</i>

Source: Statistics New Zealand Local Authority Census.

Table A10: Local Authority Net Additions to Recreation and Sport Fixed Assets, Otago, 2012/13

	Net Additions to Recreation and Sport Fixed Assets (\$000s)
Otago Regional Council	0
Central Otago District Council	-250
Clutha District Council	0
Dunedin City Council	3,207
Queenstown Lakes District Council	0
Waitaki District Council	-14,217
Otago Total	-11,260

Note: The Councils recording negative net additions were not included in the calculations of the local authority expenditure impact on the construction sector.

Source: Statistics New Zealand Local Authority Census.

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