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Sport in the City: Measuring Economic Significance at the Local Level¹

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In many cities throughout Europe, sport is increasingly being used as a tool for economic revitalisation. While there has been a growth in literature relating to the specific economic impacts of sports-led development, including professional sports facilities, teams and sports events, limited research has been undertaken on the contribution of the whole sports sector to output and employment. In the United Kingdom (UK), studies have focused on evaluating sport-related economic activity at the national level, yet despite the increasing use of sport for local economic development, little research has been undertaken at the city level. This article uses the National Income Accounting framework to measure the economic importance of sport in Sheffield, UK. It shows that value-added in 1996/97 was £165.61m or 4.11% of Gross Domestic Product (GDP), approximately twice the amount predicted from current national estimates. The article argues that this can primarily be explained by previous studies under-estimating the economic importance of sport, largely due to methodological reasons. It goes on to suggest that future research on the significance of sport should be undertaken at the local level to provide policymakers with information at the spatial level where regeneration programmes are being implemented.

In recent years, many countries within Europe have recognised that sport can potentially contribute to economic and social regeneration. As a result, there has been a proliferation of cities adopting sports-led urban regeneration strategies. In the UK, Sheffield, Birmingham and Glasgow are three examples of cities that have invested considerable resources in sporting infrastructure to revitalise declining economies, previously dominated by traditional manufacturing industries.

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While there has similarly been an increase in research on the economic importance of sport throughout the 1990s, little attention has focused on the economic role of sport at the city level. Although studies on the economic importance of sport in the UK have been carried out since the mid 1980s (Henley Centre for Forecasting, 1986), these have largely been undertaken at the national and regional level, with only one study carried out at the local level (Henley Centre for Forecasting, 1989). Moreover, this was undertaken in Bracknell and the Wirral and so not carried out within a city. Thus, while many local authorities and economic development agencies are advocating the use of sport for regeneration purposes, there is limited evidence to support this policy.

This article will focus on empirical research carried out to measure the economic importance of sport in Sheffield, UK. For most of the twentieth century the economy of Sheffield was dominated by steel and heavy engineering. However, following the recession of the 1980s and the subsequent widespread job loss within the city, there was a shift in the regeneration and renewal strategy of the city away from traditional manufacturing to a property led service orientated approach (Dabinett, 1991). Sport, leisure and tourism were adopted as part of the regeneration theme for the city in 1987 and investment in cultural industries was leveraged as part of the re-imaging and marketing strategy for the city. The successful bid to hold the 1991 World Student Games played an important role in this strategy and the subsequent investment of £139 million in sporting infrastructure, together with a further £600 million in associated leisure and cultural facilities by the early 1990s, contributed significantly to Sheffield's urban revitalisation. Despite this investment, no research has been carried out to evaluate the short or long term impact of sport on the city.

This article will present the first comprehensive economic evaluation of sport at the city level² in the UK. It will firstly give an overview of previous research carried out on the economic importance of sport, followed by an outline of the analytical framework used for

² The city is far from a monolithic entity. Rather, urban spaces reflect an ordered typology ranging from global cities through major to regional cities. The research presented in this article does not claim to represent a particular type of urban form. Moreover, it is a European case study of the total value of sport to a local economy.

measuring sport in Sheffield. It will then go on to demonstrate that the economic importance of sport in Sheffield is considerably larger than the contribution the sports industry makes to Gross Domestic Product (GDP) at the national level in the UK. The article will argue that the principal reason for this is that previous studies have under-estimated the economic importance of sport, largely due to methodological reasons. Finally, it will evaluate the merits of carrying out economic evaluations at the local level and argue that research at this spatial level is the most relevant for informing policy makers about sport and economic regeneration in the future.

Measuring the Economic Importance of Sport: Previous Research

Until the early 1980s, very little work existed on the economic impact and importance of sport, despite its increasing prominence in the international economy as a large growth area (Collins, 1991). However, since this time, a highly diverse body of international literature has developed in the area of sport and economics.

In terms of the European literature on the economic importance of sport, two dominant strands have developed. The first, on the contribution of the sports industry to output and employment and the second, on the economic impact of sports events. While the literature on events has relevance for this research as a component of sport-related economic activity, it is the former literature on the economic importance of sport as an industrial sector, which is essentially the most relevant to the context of the study.

In addition to the European literature, a considerable amount of research has been carried out on the economics of sport in North America. A large proportion this focuses on the economic impact of sports stadiums and professional sports teams at the city level (Baade, 1995, 1996; Danielson, 1997; Noll & Zimbalist, 1997; Rosentraub, 1997). Within the vast literature on professional sports in North America, there exists a considerable body of work on the economic benefits of major and minor league sports to communities (Colclough, Daellenback, & Sherony, 1994; Euchner, 1993; Johnson, 1991, 1993; Rosentraub & Swindell, 1991) and the relative merits of public development and subsidisation of sports stadiums (Baade & Dye, 1988a, 1988b, 1990; Chema, 1996; Shropshire, 1995; Rosentraub, 1996, 1997; Swindell & Rosentraub, 1998).

In comparison to the European literature, limited academic research in North America has been carried out on the contribution of the whole sports sector to economic activity. With the exception of studies such as Meek (1997), which focused on sport-related economic activity at the national level in the US and Rosentraub, Swindell, Przybylski, and Mullins (1994), which evaluated the sport-related economic development strategy pursued by Indianapolis in the 1980s, the economic activity generated by both professional and amateur sports has received relatively little attention. While comparisons can be made between Rosentraub *et al.* (1994) and the research undertaken in Sheffield, and these will be discussed later in the article, it is essentially the studies that have measured the economic importance of sport in various European countries that are most relevant to this research. Unlike much research in North America, with the exception of those aforementioned, the European literature tends to focus more holistically on measuring the contribution of all sporting activity to output and employment. Furthermore, as will be discussed later in the article, the methodology used in many of the European studies is broadly consistent with that used in the Sheffield research. However, in contrast to the North American literature, many of the European studies, including those carried out in the UK have been undertaken at the regional and national level rather than the city level, thus making the contribution of the empirical study detailed in this article a unique European case. The following review will now outline existing literature on the economic importance of sport in Europe and particularly the UK.

Research on the economic importance of sport as an industrial sector in Europe emanated in 1984, when the Council of Europe Committee for the Development of Sport commissioned a study to analyse the economics of sport in the member states (Jones, 1989). This report was based on current or existing work in a number of countries within Europe and its principal aim was to make international comparisons. Countries participating in the study included Belgium (French and Flemish communities) Denmark, Finland, France, Germany (formerly the Federal Republic of Germany), Iceland, Netherlands, Portugal and the UK. The aim of this pioneering study was to investigate the importance of the sports industry in the economies of the participating countries and then to compare these results. While cross-national comparisons proved problematic for a number of methodological reasons, the report did contribute to increased knowledge on the economic role of sport at the national level within the individual countries.

In 1992, the Council of Europe commissioned a follow up study to the Jones Report. The approach of this was entirely different to the previous study in that a standard questionnaire was produced to "...increase the homogeneity and comparability of the data between Council of Europe member countries" (Andreff, 1994, p. 8). This approach proved limited due to restrictions of available data in the participating countries to complete the questionnaire and although it increased the comparability of research between member states, it did not particularly lead to a greater understanding of the structure and importance of sport within those countries that took part.

Since the initial studies carried out in the member states that formed part of the Jones Report, subsequent national European studies have been undertaken in a number of countries. These include Belgium (Taks & Kesenne, 1999), Croatia (Bartoluci, 1997), Denmark (Riiskaer, 1992), Germany (Ahlert, 2000; Federal Institute of Sport Science and the Ministry of Culture of North Rhine-Westphalia, 1992), Italy (Brunnelli, 1992) and the Netherlands (Oldenbroom, Hopstaken, & van der Meer, 1996).

In the UK, following the initial study that formed part of the Jones Report (Henley Centre for Forecasting, 1986), various Sports Councils also commissioned a subsequent number of studies on the economic importance of sport. As shown in Table 1, nine studies of the economic importance of sport have been undertaken in the UK, the majority of which were carried out at the national or regional level.

Insert Table 1

In all of the UK studies, the principal aim was to provide a 'snapshot' of the role of sport in the economy. While they were successful in achieving this, the studies have since been criticised for the reliability and validity of data, together with omitting various aspects of sport-related final expenditure, such as sports tourism and sports events (Leisure Industries Research Centre (LIRC), 1997a). However, problems with data reliability and validity are not unique to the UK studies and these difficulties have also been experienced in other European studies, as illustrated by Jones (1989)

...the quality of the data is highly variable. Some figures are derived from statistically significant surveys; others are very rough guesstimates by the researchers....the data made available did not come in the form of 10 neat reports. Much of the information was

gathered from personal discussions and correspondence with policy makers. The result being a great deal of highly variable data of a partial nature. (p. 13)

Collecting data to satisfy the requirements of macro-economic approaches used in impact analysis is difficult. Nevertheless, many of the problems regarding data reliability and validity such as sampling, poor responses rates and deriving sport-related expenditure from larger expenditure categories in published data, can be improved at the local level through primary data collection. Despite this, in the only local study carried out in the UK, the Henley Centre for Forecasting (1989) essentially replicated the data collection procedures used at the national level. Aside from the voluntary sector, attempts to improve upon the weaknesses of data quality were limited. Although primary research was conducted, sample sizes and response rates were poor, particularly for the commercial sport and non-commercial sport sectors.

In summary, while a considerable body of research exists within Europe on the economic importance of sport, the scope of this is limited in two ways. Firstly, the majority of this has been undertaken at the national level and while this provides a broad overview of the economic activity generated by sport, it provides limited information to policy makers at the city level, where local economic development strategies incorporating sport are often implemented. Secondly, the quality of data that has been used in these studies is highly variable and despite numerous studies being undertaken at various spatial scales, this remains an area of weakness. The empirical research detailed in this article aims to contribute to the literature by firstly, providing a European case study on the economic importance of sport at the city level and secondly, improving the reliability and validity of existing data sources used in economic impact analysis studies.

A Methodology Applied to Sport

A variety of methods have been used to estimate the economic importance of the sports industry. All of the UK studies discussed earlier in the article, with the exception of Piedo (1994), have used the National Income Accounting (NIA) framework, as did Rissanen, Valtonen, and Pekurinen (1989) in the Finnish national study and Taks and Kesenne (1999) in the second Flanders report. Alternatively, most other European studies that have adopted a macro-economic

approach to measure the contribution of sport to GDP have used Input-Output analysis (Ahlert, 2000; Kesenne, Coulder, & De Maesschalck, 1987; Kops & Graff, 1986; Van Puffele, Reijen, & Velthuijsen, 1988).

While many studies in tourism and the arts have used various types of Multiplier Analysis, including Keynesian and Input-Output multipliers, for measuring the economic importance of these industries (Fletcher, 1989; Fletcher & Archer, 1991; Getz, 1991; Hall, 1992; Hughes, 1994; Jackson, 1986; Myerscough, 1988a, 1988b, 1988c, 1988d; Sinclair & Stabler, 1997; Sinclair & Sutcliffe, 1988), this method alone has not been used to measure the economic importance of the whole sports sector. Although Piedad (1994) used an employment multiplier to estimate indirect and induced employment for the Northern Regional economy, they also used Input-Output tables to calculate value-added of sport-related activity. Multiplier Analysis, in its various forms, is more commonly used for measuring particular components of the sports industry such as sports events, professional sports teams and sports stadiums (Burgan & Mules, 1992; Burns, Hatch, & Mules, 1986; Gratton, Dobson, & Shibli, 2000; Hefner, 1990; Johnson, 1993; LIRC, 1997b; Mules & Faulker, 1996; Noll & Zimbalist, 1997; Rosentraub & Swindell, 1993; Rosentraub, 1997).

Impact analysis at the local level: Justification of methodology

The methodology adopted to estimate the economic importance of sport in Sheffield was the National Income Accounting Framework. This approach was considered to be the most appropriate method for a number of reasons, which will be discussed in this section. While it is beyond the scope of the article to critically review the measurement tools that were not used in this research, this section will nevertheless indicate why those methods used to estimate the impact of sport in previous research were not appropriate for the Sheffield case study.

The aim of this research was to estimate the economic importance of sport in Sheffield and to achieve this it was necessary to choose a method that analysed the complete interaction of sport in the economy. A justification for using the NIA framework was that it provides a baseline calculation of the actual direct contribution of the sport sector to output in the local

economy and was therefore an appropriate method for satisfying the objectives of the research. Furthermore, it was the most conservative approach of those used in the literature, as it limits itself to measuring the direct impact of sport, rather than the wider impacts on other sectors.

A reason that the NIA framework has been used for measuring the economic importance of sport at the national level in the UK and other countries in Europe, is that a large proportion of the data can be obtained from published sources. While many of these sources are not available at the sub-regional level, the data requirements of the NIA framework are considerably less than for other methods such as Input-Output. Therefore as shown by the Henley Centre for Forecasting (1989), it is feasible to collect primary data at the local level. This was an important consideration when choosing a method, given the lack of published data sources at this spatial level.

The NIA framework is based on the derivation of GDP and one of the problems with using this measure is that double counting can often occur when compiling statistics (Harrison, Smith, & Davies, 1992). However, use of the NIA method involves the derivation of sectoral accounts. These show the income and expenditure profiles of each sector of the sports economy and the monetary flows between these. This transparency reduces the problem of counting the output of the economy twice as intermediate inputs are visible (LIRC, 1997a).

While LIRC (1997a) and Ahlert (2000) have shown that it is possible to measure the economic importance of sport at the national level using the Input-Output method, it was an unsatisfactory method for determining the economic importance of sport at the local level. There were no Input-Output tables available for the local or regional economy in Sheffield and South Yorkshire and creation of local Input-Output tables specifically for the research was not feasible. Although partial Input-Output tables can be derived, or assumptions can be made about the national tables, these adjustments would have significantly reduced the reliability and validity of the data used to estimate sport-related economic activity. Furthermore, existing UK Input-Output tables relate to 1990 so the data would again need to be adjusted for measuring the economic importance of sport in 1996/97. The Input-Output method was consequently not a suitable method for measuring the economic importance of sport in Sheffield.

Similarly, Multiplier Analysis was not considered to be an appropriate method for estimating sport-related economic activity in Sheffield. Gratton and Taylor (2000, p. 28) argue

that "...there is a fundamental issue of whether it is appropriate to use a multiplier approach to estimate the economic importance of a specific industry such as sport".

Multiplier Analysis is used to measure the effects of an additional injection of spending into the local economy. It shows the direct, indirect and induced effects of a specific change in expenditure. Therefore, while it is an appropriate method for the estimation of the economic impact of events and professional sports teams, as these generate additional income, expenditure and employment to the normal flow of expenditure in the local economy, it is not appropriate to treat all expenditure associated with sport, as additional in this way (Gratton & Taylor, 2000; LIRC, 1997a). Furthermore, while it is not the purpose of this article to engage in these controversies, it is relevant to note that Multiplier Analysis has been subject to a number of criticisms, largely on the basis of over-estimation (Baade & Dye 1988a; Crompton, 1995; 2001; Hughes, 1994; Johnson, 1993). As a consequence of these issues, Multiplier Analysis was not considered to be an appropriate method for the research.

This section has provided a justification for using the National Income Accounting framework and in doing so, outlined the main reasons for not using Input-Output and Multiplier Analysis at the local level. It is important to note that the NIA framework limits itself to measuring outputs, rather than hypothesising about the behavioural relationships between different sectors of the economy. Thus, by taking the NIA approach, this study limits itself to methodological issues surrounding the measurement of activity, rather than the issue of interdependence of different sectors. While this in some ways limits the scope of the study, it produces results which are usable by practitioners with different a wide range of views. The following section will now give details of how the NIA framework was applied to the sports sector in Sheffield

The National Income Accounting (NIA) Framework: Measuring the sports sector in Sheffield

The principles of the NIA method were established by Cambridge economist Richard Stone in the 1930s and are based around the derivation of GDP. The framework basically

measures the monetary flow of goods and services produced in an economy. GDP can be measured in the following three ways (Central Statistical Office, 1996, p. 2):

- as the total of all *incomes* earned from the production of goods and services;
- as the total of all *expenditures* made either in consuming the finished goods and services produced or in adding wealth less the cost of imports;
- as the sum of the *value-added* by all activities which produce goods and services, that is their net output.

The choice of precisely which method to use is essentially determined by the availability of data and the objectives of the research. Taks and Kessene (1999) used the expenditure approach, while the UK studies (Centre for Advanced Studies in the Social Sciences, 1995; Henley Centre for Forecasting, 1986, 1989, 1990, 1992a, 1992b; LIRC, 1997a; Pineda, 1991) and Finland (Rissanen *et al.*, 1989) adopted the output approach, whereby GDP was calculated by measuring and adding up the value-added of the various sport-related firms and enterprises in the country. Although Jones (1989) argues that the UK adopted the 'expenditure method', the Henley Centre for Forecasting and other studies have actually used Total Final Expenditure on sport to identify sport-related economic activity. They have then calculated the GDP of the sports sector by measuring the value-added of the various sport-related firms in the country or region. This research also adopted the 'output approach', primarily because most data was available in this form.

To analyse the economic importance of sport in Sheffield, sport-related economic activity in the city was divided into seven sectors based on the UK National Accounts. These were the:

- Consumer sector;
- Voluntary sector;
- Commercial Sport sector;
- Commercial Non-sport sector;
- Local Government sector;
- Central Government sector;
- Outside the area (Sheffield).

Income and expenditure profiles were derived for each of the seven sectors and sectoral accounts, such as those shown in Table 2 and Table 3 for the voluntary sector, were created to show the monetary flows between these.

Insert Table 2 & 3

The sectoral accounts not only showed the flow of funds between the sectors of the sports industry in Sheffield and the types of industries dependant upon spending in sport, but also the imports and exports outside the city economy. Each of the seven sectors were both exhaustive (i.e. in combination cover all sport-related activities within the economy) and mutually exclusive (i.e. each firm or consumer was located in only one sector).

The sectoral accounts are essentially a flow-of-funds framework and not a calculation for measuring sport-related economic activity. To determine this, value-added was estimated in each output-creating sector. Value-added is the difference between the value of the sport-related goods and services produced and the costs of the intermediate inputs used in producing them. It is calculated by:

$$\textit{Value-added} = \textit{wages and salaries} + \textit{factor surplus (profit)}$$

where

$$\textit{Factor surplus} = \textit{factor income} - \textit{factor expenditure}$$

Value-added was therefore calculated as wages and salaries plus any further excess of output value over production costs.

Data Collection

There were two stages to the process of determining the economic significance of sport in Sheffield, using the output approach of the NIA framework. The first was the identification of sport-related economic activity in the seven sectors highlighted previously and the second was the derivation of the sectoral accounts and the calculation of value-added. It was not possible to collect primary data in all seven sectors in Sheffield, therefore the voluntary, consumer and commercial sport sectors were targeted. These were chosen primarily due to the lack of

published data at the local level in these sectors. In addition to primary research, secondary data was also collected in the other sectors of the NIA framework using published data sources, including the Family Expenditure Survey (FES), local authority budget data, and company accounts.

Data was collected in the consumer sector using a postal survey, which was carried out in two stages. Part A was sent out to a sample of 5079 Sheffield residents randomly selected by computer from the electoral register. The focus of this survey was sports behaviour. Part B was sent to 437 respondents of Part A, who agreed to take part in a follow-up questionnaire and had taken part in sport over the last 12 months. The focus of Part B was consumer spending on sport. Both Part A and Part B were administered in two samples to account for seasonal variations in sports participation and expenditure. A response rate of 23% and 57% was obtained for Part A and Part B respectively. Part A was found to be slightly under representative of female residents and those aged 18-24, and was thus weighted accordingly at the aggregation stage.

The voluntary sector was also sampled using a postal survey. All 1046 voluntary sports clubs and associations in the city were sampled and 262 responses were obtained. The actual number of responses represented a significant improvement on those obtained in previous studies, both in terms of the number of clubs and the range of sports represented. Previous responses have ranged from 14 in Bracknell (Henley Centre for Forecasting, 1989) to 232 in the national study (Henley Centre for Forecasting, 1992a).

The commercial sport sector was sampled using a range of techniques. Professional sports clubs and commercial leisure facilities/clubs were sampled using a postal survey. However, due to the poor response rate obtained in previous studies, manufacturing companies were sampled by a postal survey or personal interview and retailing outlets were sampled by a telephone survey or personal interview. All the known population in the above categories were sampled with the exception of the sports retailing category, from which 50% of the population was sampled. A total of 135 surveys were distributed and 69 responses were obtained.

The Base Model

To compare the economic importance of sport in Sheffield with sport-related economic activity in the UK, a base model was derived. The base model for Sheffield was estimated using

the LIRC spreadsheet model for the economic importance of sport in England (Gratton & Kokolakis, 1997). This was calculated on a pro-rata basis using the population of Sheffield, the number of households in Sheffield and the percentage of England that Sheffield represents (based on total population).

The function of the base model was twofold. Firstly, it gave a benchmark estimate of sport-related economic activity in the city, if Sheffield was typical of the rest of England and thus enabled the findings of the research in Sheffield to be compared with research at the national level. Secondly, it provided a source of information to complete the income and expenditure profiles of the NIA framework, in those sectors where primary data was not collected and secondary published sources were not available for all sport-related items. Since the England model represented 1995, a price inflator based on the retail price index (RPI) was used to estimate the base model for 1996/97.

The Economic Importance of Sport in Sheffield: Results

Value-added of sport-related economic activity in Sheffield, 1996/97 was estimated to be approximately £165.61 million. In absolute terms, this was almost twice as large as the base model, which predicted that sport in Sheffield would contribute approximately £86.15 million to the economy in the city if it were typical of the rest of England. Table 4 shows a breakdown of the five sectors generating value-added in the Sheffield economy, together with the predicted value-added from the base model in these sectors.

Insert Table 4

In terms of the actual data collected for Sheffield, the commercial non-sport sector was the largest sector of sport-related economic activity, generating £89.91 million or 54.3% of all value-added from the sports economy. The second largest sector was the commercial sport sector, which contributed approximately £66.68 million. Together, the commercial sectors accounted for almost 95% of all value-added. This was considerably greater than the base model predicted and greater than recorded in previous studies, whereby value-added has varied between 53% in the Wirral (Henley Centre for Forecasting, 1989) and 74% in the most recent UK study (LIRC, 1997a).

In comparison to the base model, it can be seen from Table 4 that the actual measures of value-added were larger in the commercial sport and commercial non-sport sectors, but lower in the voluntary, local government and central government sectors. Furthermore, although not recorded in the table, consumer spending on sports goods and services in Sheffield was £236.74 million, which was 2.5 times greater than the base model predicted. Examination of these trends also showed that the largest difference between the actual and predicted data was in those sectors where primary research was undertaken, namely the commercial sport, voluntary and consumer sector.

Table 5 shows the GDP of Sheffield in 1996/97 and the total output of several industrial categories within the economy. The total GDP of Sheffield in 1996/97 was £4,030.48 million, thus sport-related activities accounted for approximately 4.11% of GDP. In relative terms, this was almost three times larger than the proportion of sport-related value-added to the UK economy in 1995, which was 1.61% of GDP (LIRC, 1997a).

Insert Table 5

While the purpose of Table 5 is to put the size of sport-related value-added into perspective, caution should be exercised when comparing the value of sport-related output with other industries, as these may also include an element of sport-related output in their total figures. Nevertheless, it can be seen from the table that sport has a similar output to other industries that have traditionally been the focal point of local economic policy in Sheffield. The value-added of sport-related economic activity at £165.61 million is greater than the industrial sectors of transport and food, drink and tobacco, but less than key consumer services such as retailing.

The South Yorkshire Region has been designated an Objective One area, which means the per capita GDP is less than 75% of the European Union (EU) average. Therefore, the relative importance of sport in Sheffield may appear to be greater than the contribution of sport at the national level, as a result of the economy in Sheffield being weaker in other industrial sectors. However, in absolute terms the value-added of sport-related economic activity in Sheffield was still twice the level predicted from the base model. The reasons for this will now be examined

Explaining the Significance of Sport in Sheffield

The previous discussion has revealed that the economic importance of sport in Sheffield was considerably different than anticipated by the base model. This section of the article will explore the reasons for this and will argue that sport-related economic activity was larger in Sheffield for three reasons. Firstly, existing research on the economic importance of sport in the UK has essentially underestimated the value of the sports industry. Secondly, the Sheffield research was the first to be carried out in a city, unlike previous studies in the UK, which have incorporated both urban and rural areas within the geographical boundaries of the research. Thirdly, sport-related economic activity in the commercial sectors was above the national average in Sheffield, largely as a consequence of above average consumer spending on sport in the city.

Re-evaluating the Economic Importance of Sport at the National Level

Although the overall significance of sport in Sheffield was greater than the base model predicted, the findings have shown that while some sectors were larger than anticipated, others such as the voluntary sector were less important. There is evidence to suggest that one of the main reasons for these findings is that previous studies on the economic importance of sport in the UK, such as that from which the base model was derived, are inaccurate. The following discussion will argue that this is largely due to the reliability and validity of data used in these studies, together with the omission of sport-related economic activity from aggregated estimates.

Data reliability and validity

Earlier in the article it was highlighted that one of the long-standing problems of studies on the economic importance of sport, both within the UK and throughout Europe, has been the quality of data used to estimate sport-related economic activity (Jones, 1989; LIRC, 1997a). Studies carried out at the national level in the UK have the advantage that most of the data is available from published sources. However, all have incorporated some primary research, much of which is highly questionable in terms of reliability and validity.

Most studies in the UK have carried out primary data collection in the voluntary sector and the difference between the actual and predicted data in this sector was considerable. The base model predicted that the voluntary sector would account for approximately £13.34 million or 15.5% of total value-added. In actual fact, the primary data revealed that it contributed just £2.90 million of value-added or 1.8%. The base model estimates of the voluntary sector were derived from the Henley Centre for Forecasting (1992a), which sampled 600 clubs and only six different sports. In comparison, this research sampled 1046 clubs, across 34 different sports and received responses from 27 of these sports activities. The six sports selected by the Henley Centre were chosen for their high level of expenditure and the popularity of the activity. In addition, they were sampled from governing body handbooks. These procedures for sampling at the national level do not reflect the diversity of the voluntary sector for example shown within this research, or the smaller clubs shown to constitute a large part of the overall sector in Sheffield.

Furthermore, the Henley Centre for Forecasting aggregated the voluntary sector by grossing up the 232 responses received and adding an extra 20% on for other sports. LIRC (1997a) argued that this estimate was little more than a guess. This research, in contrast to the base model, sampled all sporting activities which were represented in the city and aggregated up on a sport by sport basis to ensure that the sector was fully represented. As a result of the techniques used for aggregation, the voluntary sector in Sheffield was found to be significantly smaller than the base model suggested, providing evidence that previous estimates of the voluntary sector have been largely exaggerated.

In contrast to the voluntary sector, estimates of consumer spending on sport in Sheffield were found to be considerably greater than the base model. Although there were other factors that contributed to this, such as the omission of items of sport-related final expenditure, the methods used to collect the data were also a determinant.

Estimates of consumer spending on sport in the base model were largely derived from published sources, while this research used a consumer survey. Similar results were also found in other studies that have collected data on consumer expenditure, using survey methods. *Les Pratiques Sportives En Communauté Française* (1985), Pineda (1991) and Lamb, Asturias, Roberts, and Brodie (1992) are examples of research that has collected data on sport-related

consumer spending. Each of these studies used a consumer survey and each revealed that expenditure was considerably greater than other studies using published sources.

The evidence provided by the Sheffield consumer survey and the other literature suggests that when consumers are actually asked how much they spend on sport, it is found to be considerably more than when estimated using general household expenditure surveys in the form of published sources. Although many of the sources used to estimate consumer spending on sport in the UK, such as Family Expenditure Survey, are reliable data sources, as the following discussion reveals they are arguably not actually valid measures of consumer expenditure on sport.

The use of many published sources often requires assumptions to be made to derive the sport-related component from larger expenditure categories. For example, expenditure on sport-related travel for watching sports events was not directly available from the National Travel Survey in the national study (Henley Centre for Forecasting, 1992a). Therefore, it was assumed that consumer expenditure on this item, which was included in the 'entertainment/public activity' sub category, would have the same weighting as 'spectator sports admissions charges' in the FES spending category 'theatres, sports events and other entertainments. Clearly the validity of using such data is questionable and likely to yield quite different results to those obtained directly from a consumer survey. There are many examples in the base model of data derived from published sources in this way and it is likely that this has contributed to the differences shown between the actual and predicted data.

Excluding items of sport-related economic activity

Previous studies in the UK have excluded a number of items of sport-related economic activity, which are considered to be a component of the sports industry in other parts of Europe. The omission of such items from base model, that have otherwise been included in this research, has therefore contributed to the differences shown between the actual and predicted data for Sheffield. Sports events and consumer spending on food and drink while participating in and watching sport, are two items that were included in this research, but largely excluded from other studies in the UK.

With regard to sports events, the only aspect of economic activity recorded in the previous UK studies were from the FES estimates of expenditure on entrance charges at sports events. However, as various studies on the economic importance of sport have shown, admissions are only a small element of the actual income generated by a sports event (LIRC, 1996). Additional expenditure on items such as food and drink, accommodation and merchandise all together account for a much larger proportion of the economic activity generated. The Sheffield study actually found that events accounted for approximately £11.13 million of additional expenditure from outside the city, the majority of which flowed as income to the commercial non-sport sector. This represents a significant amount of economic activity that has been excluded from previous estimates. Furthermore, it represents an aspect of the UK studies that is clearly under-estimating the size of the sports industry

Several studies on the economic importance of sport in Europe have included food and drink within the boundaries of sport-related expenditure (*Les Pratique Sportives En Communauté Française*, 1985; Oldenbroom *et al.*, 1996; Taks & Kesenne, 1999). However, with the exception of the Scottish study (Pieda, 1991), which measured but did not include food and drink in the sectoral accounts, no study in the UK has incorporated this item, despite travel costs being included as a sport-related final expenditure. The consumer survey revealed that spending on food and drink while participating in or watching sport was considerable. It was found that Sheffield residents spent approximately £17.94 million and £6.21 million on food and drink while participating and watching sport respectively. This consequently represents a large difference between the data collected in Sheffield and the base model figures.

The commercial sport sector is a further example of how previous estimates have excluded sport-related activity. For example, in this research the commercial leisure sector covered several categories of sports services including health and fitness clubs, riding schools, snooker and pool centres and generic sporting facilities. The UK national study in contrast only included participation clubs, which contributed just a small proportion of the economic activity generated from the sports services listed. Furthermore, the national study recorded subscriptions and fees as the only item of income generated. This research showed that this item accounted for only 51% of all income to the commercial sport sector, with the remaining revenue generated from items such as food and drink, equipment hire and rental of facilities. Again, this represents an area where previous studies have underestimated the economic importance of the sport.

The Spatial Distribution of Sport-related Economic Activity

It has long been central to many of the social sciences that urban places are important not only in the distribution of population within countries, but also in the organisation of economic production, distribution and exchange, political power and in the structuring of social reproduction and cultural life (Johnston, Gregory, Pratt, & Watt, 2000). It was suggested by Marshall and Wood (1995) that the UK still presents a dominant pattern of spatial centralisation in the location of services, with a clear concentration of services in urban areas. This may partly explain why the research found that sport-related economic activity was greater in the city of Sheffield than the base model, which was derived from data across the whole of the UK.

This research was the first study of sport-related economic activity to be carried out in a city in the UK. The studies that have been undertaken at the national level (Henley Centre for Forecasting 1986, 1992a), regional level (Centre for Advanced Studies in the Social Sciences 1995; Henley Centre for Forecasting 1990, 1992b; Pidea 1991, 1994) and local level (Henley Centre for Forecasting, 1989) have all focused upon areas that have incorporated both urban and rural places within the geographical boundaries of the research. Furthermore, the local level study of Bracknell and the Wirral (Henley Centre for Forecasting, 1989) did not include a city within its research area.

Towns and cities differ from rural areas in many ways, not least in their industrial and economic composition. Consumer services like sport, as noted by Marshall and Wood (1995) are generally more important in cities and urban areas. Given that the base model data was derived from national estimates, which effectively averaged the contribution of sport in urban and rural areas, it is therefore inevitable that sport will account for a larger percentage of the urban economy. The base model, by simply scaling down national estimates to represent the population of the city, does not take account of the spatial distribution of associated service-related activity. It essentially ignores the fact that urban economies have a much larger service base.

Although no research has been carried out on the spatial distribution of sport in the UK, it is highly likely that sport-related economic activity is concentrated in urban areas. For example, every year the UK hosts an annual programme of major events, some of which such as Wimbledon, the London Marathon, the Embassy World Snooker championships and the British

Open golf championships are of international significance. The majority of these events are held in cities within the UK and thus generate significant economic benefits, particularly for the areas concerned. This is also the case for the economic activity generated by professional sport teams in the UK. The majority of top Premiership football clubs are based in cities and therefore generate more economic activity than would accrue to rural areas.

Although Williams (1997) argued that consumer services are playing an increasingly active and beneficial role in the development of rural economies, the majority share of consumer service industries and employment remain in urban areas. Therefore, the economic activity generated in Sheffield through sport would be expected to be greater than the base model estimates, which were derived by averaging all sport-related economic activity in the UK.

Is Sheffield Really Bigger? The Importance of the Commercial Sector

Several methodological reasons have so far been suggested for the differences shown between the base model and the actual data collected in Sheffield. However, one of the sectors where there was strong evidence to suggest that the sports industry was genuinely performing above the national average was the commercial sport sector.

The NIA framework revealed that the income and expenditure profile of professional sports clubs in Sheffield was approximately five times greater than anticipated by the base model. The main reason for this is that Sheffield is one of only several cities in the UK to have a representative team in each of the four professional sports in the UK, which are football, rugby league, basketball and ice hockey. In addition, at the time of the research, it had both a Premier League Club and a Division One side. Previous studies have shown that the monetary flows of income and expenditure generated by spectator clubs in the commercial sport sector have varied from as little as 3% of the total commercial sport sector in Scotland (Pieda, 1991), to 12% in the UK (LIRC, 1997a). The economic activity of professional clubs in Sheffield accounted for approximately 20% and 24% of income and expenditure accruing to this sector respectively and clearly represents an aspect of the sports industry that was considerably more important to Sheffield than to the rest of the UK and the base model.

There was also evidence to suggest that other sections of the commercial sport sector were generating above average economic activity. In the sports retailing sector, only the

economic activity generated by sports shops was measured in this research and this was still found to be almost two times greater than the predicted economic activity of this sector. This was despite the fact that sports shops only account for 50.7% of all sports retailing sales (Department of Trade and Industry, 1999), with the remaining channels of distribution for sports goods such as department, shoe and clothing stores, excluded from the Sheffield results. Similarly, the sports manufacturing sub-sector was found to be approximately three times larger than the base model predicted, even though only those companies producing solely sports products were included in this research.

While considerable investment in Sheffield's sports industry has been provided by the public sector, it is clear from the findings presented earlier in the article that much of the economic activity generated by sport has actually been created in the commercial sector. There was evidence to suggest that both the commercial sport and commercial non-sport sectors in the city were performing above the national average. The commercial non-sport sector, which represents those private organisations within Sheffield that supply goods and services to the sports sector was found to be larger than predicted from the base model, mainly as a consequence of the inter-linkages this sector had with the commercial sport sector. Increased flows of income and expenditure in the commercial sport sector produced related effects or 'knock on' effects in other sectors, particularly the commercial non-sport sector. The commercial non-sport sector was also found to be greater than predicted due to the inclusion of sports events and food and drink as sport-related economic activity, both of which were excluded from the base model.

One of the reasons for the strong performance of the commercial sectors in Sheffield was due to the high level of consumer spending on sport by Sheffield residents. It was discussed earlier that consumer expenditure was found to be larger than the base model, mainly as a result of the different methods used to collect the data. However, while previous studies using methods similar to this research have found that consumer expenditure was approximately double that estimated using published sources, this research found that spending on sport by Sheffield residents was more than 2.5 times greater than anticipated. Given that approximately 70% of all consumer expenditure flowed to either the commercial sport or commercial non-sport sectors, this partly explains why these sectors were larger than average.

This section of the article has focused on explaining the differences found between the base model and estimates of the economic activity generated by sport in Sheffield. As discussed earlier, little research has been carried out on the economic importance of sport in European cities therefore it is not possible to provide a comparative case study. However, a comparison can be made with Rosentraub *et al.* (1994), which estimated the economic activity generated from sport in Indianapolis, a city that has like Sheffield, invested considerable resources into developing a sports strategy in response to a declining economy. Rosentraub *et al.* (1994, p. 237) found that "...the entire impact of sports, under the best of circumstances, would amount to only 1.1% of the Indianapolis economy". Clearly, the contribution of sport-related economic activity in Sheffield, estimated to be 4.11% of GDP, is more significant in relative terms, than the economic activity generated by professional and amateur sports in Indianapolis.

While it is beyond the scope of this article to investigate the reasons for the different levels of economic activity generated by sport in Indianapolis and Sheffield, several points should be noted with regard to this comparison. Firstly, the methodology used in both cases was different. The economic importance of sport in Sheffield was estimated by measuring and adding up the value-added of the various sport-related firms in the city. However, to analyse the impact of Indianapolis's economic development strategy, a three level analysis based on employment indicators was conducted (Rosentraub *et al.*, 1994). As the measures of economic success in the two cases were based on very different methods, caution should be exercised when comparing the results, as this alone can yield quite different outcomes (LIRC, 1997a). Secondly, the estimates of sport-related economic activity in Sheffield represent a static 'snapshot' of the value of sport in the local economy. While it was estimated that sport contributed 4.11% to GDP in 1996/97, it was not possible from the research detailed in this article to determine how much of this impact was a result of investment in sport. Conversely, the research undertaken in Indianapolis evaluated the impact of the sports strategy on economic development, by comparing employment growth in the sports sector and throughout the local economy following the implementation of the sport and downtown development strategy. Thus, it was possible for Rosentraub *et al.* (1994) to measure the success of investment in sport. This was not an objective of the research carried out in Sheffield, but is an obvious limitation of the results produced. Thirdly, while the comparison revealed that sport-related economic activity in Sheffield was greater than in Indianapolis in relative terms, sport-related economic activity in

Sheffield remains a relatively small proportion of the overall economy in the city. This is an important consideration for policy makers and will be discussed in the final section of the article.

The Value of Measuring Sport at the Local Level: Providing Information for Policy Makers

Earlier in the article it was suggested that although many cities such as Sheffield are investing public and private resources in sport for regeneration purposes, very little research has been undertaken to justify this. While studies at the regional and national level have broader policy implications, it is at the local level where policies on urban regeneration are formulated and implemented. It is at this spatial level that policy makers require information on the economic importance of sport.

Undertaking research at the city level in Sheffield has proved to be an invaluable exercise in several ways. First and foremost, it has enabled baseline data for the economic activity generated by the sports industry in Sheffield to be established. This not only provides information for policy makers on the level of economic activity generated in 1996/97, but it provides a platform from which to develop further research on the economic importance of sport. By carrying out similar research at regular intervals in the future, it will be possible to evaluate the role of sport in local economic development and the impact of further investment in the sports industry. Secondly, it has provided valuable information on wealth and job creation and the strengths and weakness of the sports industry in Sheffield, which can be used by the Chamber of Commerce to bid for Objective One European Structural funding to develop further the sports economy in the city. This information could not have been provided by regional and national studies.

While this research has provided an assessment of the size and nature of the sports industry in Sheffield, it was highlighted in the previous section that the information presented is only a snapshot of the role of sport in the local economy. The NIA framework has provided a static stock evaluation of the economic activity generated by sport in Sheffield in 1996/97 and although it provides useful information for economic development agencies and the local authority, it currently has limited forecasting potential. For the model of economic activity generated by sport to be a useful tool for regeneration purposes, there is a need to develop a

policy driven dynamic or flow analysis model. The aim of this model should be to evaluate the marginal economic implications of an injection of investment in particular sectors of the sports industry, rather than just providing a static benchmark estimate of the economic importance of sport. In the case of Sheffield, this would require data on the economic importance of sport to be collected on a regular basis, for example every one or two years, using a spreadsheet model similar to the one used to produce the estimates presented in this article.

At present, the information provided in this research does not indicate to policy makers those sectors of the sports industry that would benefit from additional investment and which sectors would produce optimal output to the Sheffield economy. Therefore, for policy makers in the future, there is a need for a more effective system for monitoring and evaluating sport-related investment at the local level. There is a need for greater clarity about the nature of relationships between inputs and outputs of the sports industry. This will enable policy makers to identify those aspects of the sports industry in which they should invest. Such an approach would permit a more precise identification of the role of sport in economic development and possibly lead to a more coherent approach and integrated allocation of resources in the future.

The idea of treating sport as an industrial sector in its own right has never been seriously considered, as has happened in other cultural industries in the UK and throughout Europe (Lincoln & Stone, 1999). While the reasons for this are unclear, it is notable that in contrast to sport, economic impact analysis in tourism, the arts and other cultural industries has nearly always been undertaken at the local level. Therefore, a further advantage of carrying out research at the city level is that it allows the sports industry to be compared to other industries widely used for regeneration purposes. In addition, research at the city level provides the opportunity to study various aspects of the sports industry in depth, such as labour market dimensions. At present the sports industry is largely perceived to create low paid, part time work and an analysis of sport-related employment at the city level would provide an insight into whether this perception is correct and if so, where investment in job creation would be most valuable.

The empirical research detailed in this article has revealed that the economic importance of sport in Sheffield is considerably greater than at the national level in the UK. Nevertheless, as noted previously, sport in all its forms is still a small proportion of the overall local economy in the city. While the output of sport in Sheffield is similar to many other industries that have been

the focal point of local economic policy in the city, it remains a small part of total economy activity. Therefore, while policy makers should acknowledge that sport has the potential to generate greater economic activity than previously anticipated, strategies for local economic development should consider ways of integrating sport with other consumer services, for it to be effectively used for regeneration purposes in the future.

In summary, research at the national level has provided valuable findings on the economic importance of sport. In particular, it has resulted in an increased awareness of the benefits of sport to wealth and job creation. These findings have also provided a benchmark, with which to compare local and regional research. However, it is research at the grass roots level for example, in cities, which will essentially address the issues discussed in this section and provide the most valuable information in the future for planners and policy makers on the economic role of sport. This is especially so in the designated National Cities of Sport, such as Sheffield and in those cities where sport is key part of regeneration strategies.

Conclusion

The case study of Sheffield outlined in this article represents the first attempt to undertake a study on the economic importance of sport in a city in the UK. The findings have revealed that sport-related value-added in 1996/97 was £165.61 million, or 4.11% of GDP. This was approximately twice the amount predicted from the base model in absolute terms and almost three times the predicted contribution of sport to the local economy in relative terms. The reasons for these findings are complex and multi-dimensional, but can largely explained by methodological issues. Nevertheless, there was also evidence to suggest that the commercial sport sector in Sheffield was performing above the national average, perhaps reflecting the considerable investment in sporting infrastructure within the city over the last ten years.

One of the most significant findings of this research was the evidence that suggested the economic importance of sport at the national level has been under-estimated. The UK Sports Council produces annual estimates on the economic importance of sport based on these calculations. Therefore, for these to retain any credibility as a time series monitor of the sports industry in the future, it is necessary to review both the data and methods used to collect

information at the national level and the techniques for aggregating sport-related economic activity.

This research has essentially provided baseline data on the economic importance of sport in Sheffield, which can be used to evaluate the role of sport in economic regeneration in the future. However, for this information to be used to aid policy makers in Sheffield with the allocation of resources, it must be developed into a model that can be used for measuring and forecasting the implications of further investment in the sports industry. To do this, the economic importance of sport in Sheffield needs to be measured on a regular basis. This should similarly be carried out in any city that is investing considerable resources in sport and intends to use sport for regeneration.

Finally, this article has focused on measuring the narrower economic importance of sport in Sheffield. Nevertheless, the economic benefits of sport extend beyond the creation of value-added and employment, to include other intangible benefits such as productivity returns to individuals and organisations, quality of life returns to individuals and society, indirect health care savings and reductions in anti social behaviour such as crime and vandalism. These, in addition to the direct economic impacts discussed in this research, are important considerations and equally merit attention from any city considering using sport for urban regeneration. However, in an economic climate whereby accountability is paramount, the need to measure the narrower economic impacts outlined within this research will continue to be important in the future.

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TABLE 1. ECONOMIC IMPORTANCE STUDIES: UK

Author	<i>Year</i>	Study area	Level
Henley Centre for Forecasting	1986	UK	National
Henley Centre for Forecasting	1989	Bracknell & Wirral	Local
Henley Centre for Forecasting	1990	Wales	Regional
Pieda	1991	Scotland	Regional
Henley Centre for Forecasting	1992	Northern Ireland	Regional
Henley Centre for Forecasting	1992	UK	National
Pieda	1994	Northern region	Regional
Centre for Advanced Studies in the Social Sciences	1995	Wales	Regional
LIRC	1997	UK	National

