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THE ECONOMIC IMPACT OF REGULAR SEASON SPORTING COMPETITIONS: THE GLASGOW OLD FIRM FOOTBALL SPECTATORS AS SPORTS TOURISTS

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The Economic Impact of Regular Season Sporting Competitions: The Glasgow Old Firm Football Spectators as Sports Tourists

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Abstract:

This paper considers the economic impact of the sports tourism expenditures associated with regular season sports competition. In particular the sports tourism characteristics of the supporters of two largest football clubs in Scotland – Celtic FC and Rangers FC – are investigated. Both of these clubs are based in Glasgow, but play matches (and draw supporters from) across and outside Scotland. The paper quantifies the direct, indirect and induced effects of this expenditure using a novel extension of a two-region Input Output (IO) table for Glasgow and the rest of Scotland. The IO system is used to calculate net additional economic activity, in terms of GDP and employment, from gross and displaced activity at different regional levels.

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Section 1: Introduction

There is a growing interest in the economic impacts of small-scale sports tourism (Gibson *et al*., 2002; Daniels and Norman, 2003; Matheson, 2004, Wilson, 2006). Small-scale sports events include "regular season sporting competitions (ice hockey, basketball, soccer, rugby leagues), international sporting fixtures, domestic competitions, Master or disabled sports, and the like" (Higham, 1999, p. 87). These differ from mega-events through their use of existing infrastructure; their need for less public support to host; their avoidance of tourism seasonality (by running a league over the autumn to spring months of a year); and their more easily managed scale (Higham, 1999). Further, small-scale sports events avoid the costs and burdens of bidding for and hosting mega-events, such as the Olympic Games or the World Cup football tournament (Baade and Matheson, 2002).

This paper examines a particular example of the impact of regular season sporting competition through identifying the extent of sports tourism, and sports tourism expenditures, generated by the Glasgow-based "Old Firm" football clubs, Rangers and Celtic, and the economic impact of that sports tourism expenditure on the Glasgow and Scottish economies[1]. The Old Firm are a symbol of Glasgow and Scotland, with supporters clubs in many cities across the world. The geography of season ticket ownership reflects this spatial dispersion with the majority of the season ticket holders of both clubs living outwith Glasgow and over 8 per cent living outwith Scotland. This paper quantifies the net local economic impact of the sports tourism related to all matches involving either of the two Old Firm clubs played during the 2003-4 season.

The study addresses a number of gaps in our current understanding of regular-season sports tourism. The first concerns the direct expenditures generated by the sports tourism associated with supporting British football clubs. In this respect, the study is unique. The second relates to the indirect and induced (knock-on) effects of these sports tourist expenditures. This requires quantifying local expenditure displacement effects and identifying the geographical and sectoral breakdown of net changes in associated economic activity. The geographically dispersed nature of the support for the Old Firm teams makes this particularly important. Finally, there is a lack of information over the relative importance, for sports tourism impacts, of a football club's participation in domestic and European competitions.

The study benefited from two important informational advantages. The first is privileged access to the Old Firm's databases of season ticket holders. These provided a source for a stratified survey of two thousand supporters per club. This survey provided information on the direct sports tourism expenditures: that is the travel, accommodation and other related expenditures of supporters at different types of matches involving the Old Firm clubs. Second, this paper quantifies not only the direct, but also the additional indirect and induced effects produced by sports tourism expenditures (Gibson *et al*. 2005). This is facilitated by the availability of official Input-Output (IO) tables for Scotland produced by the Scottish Executive. Also in order to quantify the spatial impacts, these tables are disaggregated into Glasgow and the rest of Scotland. This analysis extends the method adopted in UK Sport (2004). The key differences are detailed in Section 6.

The paper progresses as follows. Section 2 discusses the concept of sports tourism and how this can be applied to spectators following the Old Firm football clubs, and reviews some previous work on football supporters as sports tourists.

Section 3 then identifies the number of sports tourist attendances, as well as the regional flows of spectators, for matches involving the Old Firm football clubs in the season 2003/4. In Section 4, results from the survey of the supporters for both Old Firm clubs are presented, outlining the expenditure profiles for these spectators. Section 5 gives estimates of the aggregate spending associated with Old Firm sports tourism and the regional pattern of this spending. Section 6 uses these expenditure data together with the regionally disaggregated IO table to estimate the net economic impact on Glasgow and the rest of Scotland (and across Scotland as a whole) of Old Firm related sports tourism. Section 7 presents the conclusions

Section 2: Football supporters as sports tourists

There is considerable discussion over how to define both "sport" and "tourism" (Ritchie and Adair, 2004)Further separate definitions of "sport tourism" (Gibson, 2002) and "sports tourism" (Weed and Bull, 2004) have been the subject of much conceptual debate in the literature (Hinch and Higham, 2001; Downward, 2005; Weed, 2005).

"Sport" can be considered a social construct (Weed and Bull, 2004) with different meanings through history and in different societies. Such a definition covers activities ranging from those with a physically or skill demanding component, competitive and with codified rules (Haywood *et al*. 1995) and also those not organised with competition in mind or where there are no formal rules (e.g. hillwalking or jogging) but which are still considered to be sporting activity. "Tourism" on the other hand is more difficult to define, with travel away from home at the core (Weed and Bull, 2004), but with the purpose, and duration, of that travel

less easily definable. In its broadest, and perhaps most easily agreeable, sense the British Tourist Authority's (1981) definition of tourism will be accepted in this paper – "the temporary short-term movement of people to destinations outside the places where they normally live and work, and their activities during the stay at these destinations; it includes movement for all purposes as well as day visits and excursions".

In this paper, Weed and Bull's (2004) definition of sports tourism is used. This defines sports tourism as "a unique area of study derived from the interaction of activity, people and place", and so is placed to acknowledge the heterogeneous nature of the sports tourist behaviour – formal/informal, competitive/recreational or active/passive participation (see Weed, 2005).

Much research on sports tourism concerns event sports tourism (Deery *et al*., 2004; Ritchie and Adair, 2004). There is a considerable literature on "mega-events" such as the Olympic games, the Football and Rugby World Cups and other sporting tournaments with worldwide interest and exposure (Jones, 2001; Baade and Matheson, 2004; Preuss, 2005; PriceWaterhouseCoopers, 2005; Matheson, 2006). Ritchie (2004) identifies a gap in the literature at the small-level sports tourism product. There is little empirical research into small-scale sports event tourism and its implications for destinations, and few studies examining or profiling sports tourists who attend small-scale sporting events.

A limited number of studies have examined small-scale tourism flows resulting from passive sports tourism generated through regular season sporting competitions. Gibson *et al*. (2002) examine tourism associated with the matches played by the University of Florida football team, whilst Greig and McQuaid (2003) quantify the tourism flows, and resulting expenditure implications in Edinburgh and

Scotland, for spectators at the Six Nations Rugby (Union) Tournament. Johnstone *et al* (2000) study the local economic activity produced by two English Premiership football clubs, Liverpool and Everton.

There are also a small number of recent papers looking at football supporters as sports tourists (Weed, 2001; Weed, 2002). The first two of these papers focus on the negative impacts of sports tourism, notably what is termed "sports spectator disorder, specifically football hooliganism" (Weed, 2002) and the identification of the behaviour of these "undesirable sports tourists" and the recognition of the problems caused by this behaviour.

Two papers perform similar analysis of the positive economic impacts of sport. Johnstone *et al*. (2000) focus on the local (Merseyside) economic linkages of the Liverpool and Everton (English Premiership) football clubs. However, they do not consider specifically the sports tourism expenditures of supporters attending matches.[2] Grieg and McQuaid (2003) , in their examination of the impact on Edinburgh and Scotland of the Six Nations Rugby Union Championship, do concentrate on sports tourist expenditure. Further, they do calculate indirect and induced effects. However, this is a tournament involving a small number of international matches, so that each match more closely resembles a large-scale event. Also Grieg and McQuaid (2003) only consider matches played in Edinburgh. Finally , they you very crude estimates for the indirect and induced effects, with no sectoral disaggregation and limited spatial disaggregation.

Among the "passive" sports tourism flows measured and profiled in these studies, the focus in this paper is those towards the "avid" end where team affiliation is the primary purpose for attendance at these games (Ritchie, 2004). In this application this is especially relevant, given the high number of spectators who

purchase season tickets for each of the Old Firm clubs – i.e. spectators who pay in advance for a seat at all their club's home (generally, league) matches in the season. Purchasing a season ticket also entitles its owner to buy tickets for a number of away matches for the club over the season (currently four for Rangers FC).

Section 3: Inter-regional flows of supporters over a season for matches involving the Old Firm clubs

Matches involving the Old Firm draw a significant number of spectators, far in excess of that enjoyed by any other professional sports club in Scotland: the Old Firm clubs dominate Scottish football. The all-seated capacity of Ibrox Stadium (Rangers) is 50,444 and that of Celtic Park is 60,355 (Rollin and Rollin, 2004).[3] In the 2003-4 season – the season that is the focus of this paper - Rangers played their home games in front of an average of 47,130 spectators, whilst home Celtic matches attracted an average of 49,790 spectators.[4] In the final league positions for each season from 1994-5 to 2004-5, the Old Firm clubs held the top two positions in the Scottish Premier League (SPL).

3.1 Matches involving the Old Firm clubs in the season 2003-4

Over the course of the 2003-4 SPL season, which ran from 8th August 2003 to 16th May 2004, both clubs played 19 home matches and 19 away matches[5]. Celtic's competitive season, which followed an appearance in the UEFA Cup final in Lisbon in June 2003, actually began on the 6th August when they played the first leg of the second qualifying round for the UEFA Champions League. Celtic played a total of 16,

and Rangers 8, games in European competition for the season 2003-4. Both Rangers and Celtic played one half of these European games at their home grounds in Glasgow.

Both Old Firm clubs also participated in the two Scottish knockout cup tournaments. These are the CIS Scottish League Cup played in the earlier part of the season, with the final in March, and the Tennents Scottish Cup, which had its first round in November with the clubs in the SPL joining in the third round in January. These cup competitions in total provided Rangers with a further six matches and Celtic seven. Two of Celtic's matches, the semi-final and final of the Scottish Cup, were played at Hampden Park in Glasgow, while Rangers' semi-final in the CIS League Cup was played at Easter Road in Edinburgh. The numbers of home and away matches, and the regional location of away matches, are given in Table 3.1.

[Table 3.1 here]

When the Old Firm play at the grounds around Scotland in the SPL and cup tournaments, attendances are generally significantly higher than when other teams visit these grounds. In part this is attributable to the travelling support taken by the Old Firm clubs themselves, which averages 4,000 for a typical SPL match but can be as high as 8,000. The number of spectators supporting the home club might also increase when the visitors are the Old Firm clubs, in part due to the status of the Old Firm (Allan and Roy, 2007). As can be seen in Table 3.2, the average home attendance for non-Old Firm clubs is significantly increased when the Old Firm are the visitors.

[Table 3.2 here]

3.2 Spectator flows between Glasgow, rest of Scotland and rest of the World

How does the presence of the Old Firm generate inter-regional sports tourism flows? Both clubs have their home stadium in Glasgow but mobilise support drawn from across Scotland and beyond. For both clubs, individuals with Glasgow postcodes account for just over a quarter of all season ticket holders: 66% came from the rest of Scotland and 8% from outwith Scotland.[6] The large number of games each club plays in Glasgow, together with the substantial support that exists outwith Glasgow (both in the rest of Scotland and outwith Scotland), produces a considerable number of in-bound tourist trips to Glasgow.

The first stage is thus to calculate the sports tourist attendances at all football matches involving the Old Firm clubs over the course of the 2003-4 season. This comprises a number of different groups of spectators, which are also disaggregated by place of residence, to establish the region of origin and region of destination (Perdue and Gustke, 1985). The following groups were separately identified:

- Old Firm supporters attending matches at Celtic Park or Ibrox (Rangers)
- Non-Old Firm supporters visiting Celtic Park or Ibrox
- Old Firm supporters attending away matches, both in and outwith Scotland
- Non-Old Firm supporters attending their club's home stadium to watch a visiting Old Firm team, both in and outwith Scotland.

The Old Firm clubs provided information on the total attendances at their home matches in the SPL and European competitions, together with the number of tickets sold to the visiting teams' spectators. The Old Firm also supplied the data for the total number of supporters that they took to away matches. Rollin and Rollin (2004) is the source for the attendance figures for home Old Firm domestic (League and Scottish) cup matches and for Old Firm away matches in all domestic and European competitions.

Some plausible assumptions concerning the residence of Old Firm and non-Old Firm supporters were necessary given the prohibitive cost of sampling each crowd for the two Old Firm clubs and the opposing team at every match played involving either of the Old Firm clubs over the season. In the absence of better data, these could be revised, although given the relative size of support of the non-Old Firm clubs this is likely to have a negligible overall effect upon the results.

These assumption are:

- The distribution of the regional residence of Old Firm supporters at either home or away matches corresponds to the regional distribution of season ticket holders for each club.
- The non-Old Firm supporters at either home or away matches are geographically distributed for each club as follows:
    - Hearts FC and Hibernian FC: 5% Glasgow residents, 95% rest of Scotland
    - Kilmarnock: 10% Glasgow residents, 90% rest of Scotland
    - Motherwell: 15% Glasgow residents, 85% rest of Scotland
    - Partick Thistle: 40% Glasgow residents, 60% rest of Scotland
    - All other Scottish clubs: 100% rest of Scotland

- Non-Scottish clubss: 100% resident outside Scotland.

Table 3.3 shows the total attendances at matches involving the Old Firm clubs during 2003-4, by region of residence and region of destination for the spectators.[7] In total, there were 2,758,217 spectator attendances in Glasgow during season 2003-4 for matches involving the Old Firm. Of these, the vast majority are spectator attendances at Ibrox Stadium (43%) or Celtic Park (53%). The difference between these figures can be explained by four more (high attendance) European matches were played at Celtic Park than Ibrox Stadium during this season.[8]

[Table 3.3 here]

There were a total of 389,761 spectator attendances in the rest of Scotland for matches involving the Old Firm clubs. A slight majority of these attendances (51%) were for games involving Rangers. The 12 matches outwith Scotland involving the Old Firm clubs had a total attendance of 403,690. This high average attendance (over 33,000 per game) can be explained by the large capacities of the stadia that the Old Firm played in during this season. These included Manchester United (attendance: 66,707), Stuttgart (50,348), Bayern Munich (48,500) and Barcelona (80,000). However, note that using the assumptions detailed above, these away matches are estimated as generating only 33,768 spectator attendances from Scottish residents. In terms of the residential location of supporters at all games involving at least one Old Firm team, 83% come from Scotland, with 61% travelling from the rest of Scotland, that is, outwith Glasgow.

Following Perdue and Gustke (1985), net inter-regional spectator flows – i.e. movements requiring travel across a regional boundary – can be calculated to identify the regions that are net recipients of spectator attendances and those which are net losers. These are shown in Table 3.4.

[Table 3.4 here]

Consider the first column of figures in Table 3.4. This shows that in the season 2003-4, as a result of the games played involving either of the Old Firm clubs, there was a net flow of 2,002,501 spectator attendances into Glasgow. Of these, 1,780,507, almost 90%, come from the rest of Scotland and 221,994 from the rest of the world. Column two indicates for the rest of Scotland that the net outflow of spectator attendances to Glasgow plus 10,858 to the rest of the world implies a total net outflow of 1,791,365. Finally, column three shows that the net outflow of spectator attendances from the rest of the world (mainly Ireland and the rest of the UK) is 211,136. The net travel to Glasgow reflects the large attendances at Old Firm matches held in Glasgow combined with a relatively small season ticket holder base living within the Glasgow City area.

Section 4: Spectator expenditure profiles by residence and match location

A key step in measuring the economic impact of this football tourism is to identify the aggregate expenditures made by these spectators in order to attend matches both in and outwith Scotland. These total expenditures are estimated as the aggregated values of the individual expenditures for each spectator attendance, by

residence and match location, over the season at matches involving either of the Old Firm clubs. These data were collected using a postal survey carried out during Autumn 2004.

For each club, two thousand questionnaires were sent to a sample of season ticket holders in order to collect information on expenditure across different consumption categories for various types of sports tourist. The questionnaire sent to the supporters is replicated in Appendix 1. Season ticket holders were used as these comprise the vast majority of Old Firm supporters attending matches and each club holds a database of their names and addresses. Supporters living outside Scotland were over represented in the survey, as this is the smallest group but the group that has the highest *per capita* sports tourism expenditure. However, of course the weight that these responses were given in the reported results was determined by their assumed weight in the match attendance figures, not their weight in the survey.

Each respondent was identified by postcode. This was used to allocate him or her into one of the three impact regions for this study – Glasgow, the rest of Scotland or the rest of the world. The same questions were then asked on method of transport (and expenditure on each type of travel), accommodation and other expenditures before, at and after the most recent match across three categories attended by the respondent. The specific questions are given in Appendix 1. The three match categories covered were: home matches (at Celtic Park or Ibrox); away matches in Scotland; and away matches outwith Scotland.[9] In all, 1034 survey replies were received, a 26% response rate. Results are reported from these surveys for respondents from one of the Old Firm clubs for transport methods and costs, and then for supporters of the other Old Firm club for accommodation costs and other

expenditures.[10] The size and pattern of expenditure is similar across clubs but differs considerably by the supporter's place of residence and the match location.

4.1 Transport methods and expenditures

For each club, the survey replies were sorted by region of residence and match type to establish average expenditure profiles for each spectator attendance. Away matches in Scotland were additionally divided into four geographic zones. These are identified in Table 4.1, together with the SPL teams whose home ground is in each area. Tables 4.2 and 4.3 report figures relating to travel types and expenditures. These are given for supporters of one of the Old Firm teams. Tables 4.4 and 4.5 give data for accommodation and other expenditures. These are for supporters of the other Old Firm team.

[Table 4.1 here]

Table 4.2 gives the distribution of transport methods used by Old Firm supporters.[11] These are reported for home and away matches, broken down by the residence of supporter. Away matches are further subdivided by location of ground. Table 4.3 gives the corresponding average expenditure per Old Firm supporter on transport, broken down in the same way. Thus, for example, the first column of Table 4.2 shows that of Glasgow residents attending a home match, 33% used public transport. The first column of Table 4.3 reports that for those using public transport for these journeys, the average cost was £2.96.

[Table 4.2 here]

For home games, the private car was the most common method of transport for Old Firm supporters in each of the three residential categories (Glasgow, rest of Scotland and rest of the world). For supporters living in Glasgow, public transport was the second most popular transport type, whilst for supporters in the rest of Scotland and the rest of the world, the supporters' bus was placed second. Supporters attending from outside Scotland used the most diverse methods of transport, with plane and ferry taking large shares of the total journeys (22% and 15% respectively). Not surprisingly, average transport expenditure made for attending home games increases with distance from the ground.

For away matches within Scotland played in Glasgow, the pattern of transport methods and expenditures is similar to home matches, except that a bigger proportion of journeys is by supporters' bus. For games played in Edinburgh travel by supporters' bus becomes the dominant transport mode, with over 50% of supporters residing in Glasgow and the rest of Scotland travelling in this way. For those supporters living outwith Scotland, 45% travel by car. Whilst for Glasgow residents travel costs to matches in Edinburgh are higher than for home games, for those supporters residing outwith Glasgow, the average travel expenditure can be lower for some transport types.

[Table 4.3 here]

When the away games are in Lanarkshire, the private car becomes the principal means of transport, with over 50% of supporters in each residential location

making this transport choice, rising to 71% for Glasgow based supporters. Again, compared to home matches, the transport costs are higher for Glasgow residents but are lower for other Old Firm supporters for some transport types and locations. Finally for matches played in North Scotland, the proportion travelling via car or supporters' bus is 100% for Glasgow residents, 91% for residents in the rest of Scotland and 79% from supporters from the rest of the world. When compared to home matches, the transport costs are higher for supporters living in Scotland but are at about the same level for those from the rest of the world.

For away games played outwith Scotland, the situation is clearly quite different. In these cases, over 60% of the trips are made by plane and the average cost lies between £203.64 (for Glasgow residents) and £144.57 (for supporters living outwith Scotland). It might be expected that Glasgow and Scottish supporters would pay slightly more for flights given the usually higher cost of flying from Scottish airports.

4.2 Accommodation and other expenditures

The spectator survey returns identify the number of supporters, broken down by residential location, who stayed overnight when attending a match and the amount spent on accommodation (where this stay was not with friends or relatives). The figures for those who stayed in paid accommodation are given in Table 4.4. The survey also provides information about other expenditures that were made before and after the attendance at the match – such as food, drink and merchandise. These results are presented in Table 4.5.[12] The figures given in Table 4.4 for the cost of accommodation are the average amounts that supporters in each category spent who

included a paid overnight stay as part of their attendance at the specific match. The values in Table 4.5 for the other expenditures show the average amount paid by a typical (average) supporter from each area on each expenditure category.

[Table 4.4 here]

Table 4.4 reveals the following information concerning accommodation expenditure in Scotland generated by Old Firm matches. First, Old Firm supporters resident in Scotland very rarely stay in paid accommodation overnight when attending either home or away Scottish Old Firm games. Second, for either home or away matches in Glasgow, just over one half of Old Firm supporters travelling from outwith Scotland stay overnight, almost invariably in Glasgow. For Scottish Old Firm away games outwith Glasgow, the proportion is lower. Third, the average amount paid per night for accommodation is much higher in Edinburgh and North Scotland than in Glasgow or Lanarkshire.

For Old Firm games played outwith Scotland, the proportion of supporters staying in paid accommodation overnight is 69% for Glasgow residents, 76% for supporters from the rest of Scotland and 88% for those living outwith Scotland. The accommodation expenditure per night is also high, again with Glasgow residents the lowest, at £114.94, and rest of the world residents highest at £135.29.

Table 4.5 reports the other tourism expenditures associated with attending Old Firm games. The surveys asked for the amount spent by each supporter before, and after, the match. The sports tourism expenditures made in the ground have been excluded. The focus in this paper is solely the impact of the expenditure that is not paid to the clubs themselves. This is because dealing with expenditures to the clubs

requires treatment of the extent to which the clubs' income remains within the local economy. This is outside the scope of this paper. First, consider matches involving the Old Firm played in Glasgow. Old Firm supporters from all residential categories spend over double when attending a home game than an away game. For these matches, expenditure by Glasgow and rest of Scotland residents are similar, but the average expenditure made by a resident from outwith Scotland is over twice the amount. All expenditures are heavily concentrated in Glasgow.

[Table 4.5 here]

For expenditures on Scottish away games outwith Glasgow, the expenditures tend to be lower but not invariably so. Also most of these expenditures occur outwith Glasgow. For away games outwith Scotland expenditures are much higher, with about 90% occurring outwith Scotland.

Section 5: Calculation of aggregate spending and allocation to regions

The information presented in Sections 3 and 4 can be used to calculate the total sports tourism expenditures made by supporters of the Old Firm clubs over the course of the 2003-4 season. The distribution of these expenditures across Glasgow, the rest of Scotland and the rest of the world can also be identified, together with the composition between goods and services. Similar estimates can be made of the size, commodity composition and location of expenditures made by the supporters of teams involved in matches against the Old Firm clubs. In calculating the aggregate expenditures of non-Old Firm supporters, it is assumed that these supporters have the

same average expenditures as the Old Firm supporters do when the Old Firm supporters travel to visit them. That is to say, Barcelona supporters visiting Scotland have the same average propensity to stay overnight in Glasgow and the same average expenditure per person on food and drink as Old Firm fans visiting Barcelona. This assumption is necessarily rather crude. See Grieg and McQuaid (2003) for the differences in the expenditures made by supporters from different national teams visiting Edinburgh for matches in the Six Nations Rugby Union championship. The allocation of expenditures to regions used the information in Tables 4.4 and 4.5 for other expenditures and accommodation. The allocation of transport expenditures required more careful treatment, and this is detailed in Appendix 2.

Having made these aggregations from the original survey data, the total expenditures can be identified by the region of residence of the sports tourists and by the region where their expenditures were made. These data are shown in Table 5.1.

[Table 5.1 here]

Table 5.1 gives key characteristics of the sports tourism expenditures associated with matches involving one or both of the Old Firm teams in the season 2003-4. First, the sports tourism expenditures made in attending such matches in this one season are large – over £130 million in total. Second, almost 80% of these expenditures are made in Scotland, and around 50% in Glasgow.

Looking along the rows, spectators from Scotland spend just over £89 million attending matches; with residents from outwith Glasgow making up almost 80% of this expenditure. Identifying some of the key cells in Table 5.1, note from the first column that over 75% of the spending in Glasgow is made by non-Glasgow residents.

Also, figures in the second row indicate that residents from the rest of Scotland spend more in total in Glasgow than in the rest of Scotland itself. The third row shows that expenditures in Scotland made by supporters resident outwith Scotland are strongly weighted towards Glasgow.

To get some kind of metric on the level and nature of this sports tourism expenditure, Blake (2005) estimates that the total visitor spending linked to the 2012 London Olympic Games at £309 million for domestic visitor and £447 million for foreign visitors. That is to say, in terms of sports tourism, for Glasgow having the Old Firm has a similar direct expenditure impact as hosting the Olympic Games every 12 years.

The net balance of spectator sports tourism expenditures can be calculated and are shown in Table 5.2. This table shows the net flow of expenditures between regions.

[Table 5.2 here]

Table 5.2 reveals that in the 2003-4 season, the sports tourism expenditure associated with attending Old Firm matches involved a clear net shift in direct expenditure to Glasgow. The biggest individual entry is for the net balance between Glasgow and the rest of Scotland. This implies that supporters resident in the rest of Scotland attending Old Firm matches made expenditures over the season in Glasgow that exceeded expenditures made by Glasgow residents in the rest of Scotland by over £31 million. A similar net expenditure injection to the Glasgow economy from supporters resident in the rest of the world equals £14.7 million.

6. Economic impacts of sports tourism and displaced expenditures

Table 5.2 shows the net direct expenditure flows across space associated with Old Firm sports tourism. However, measuring the total net impact on economic activity is a little more complex. The direct expenditure has subsequent knock-on (multiplier) impacts. For example, sports tourism expenditure on the output of sectors such as restaurants and hotels leads to further local expenditure on the intermediate goods and services used in production in these sectors. Sectors producing these intermediate goods themselves make local intermediate purchases and so on. These effects are known as the indirect impacts. Similarly, workers in sectors that are directly supplying sports tourism undertake consumption expenditures, which also supports local economic activity. These are induced effects.

To measure the full impact of the sports tourism associated with attending Old Firm matches the direct, indirect and induced effects need to be incorporated. These indirect and induced effects spread the impact of Old Firm sports tourism not only to other sectors not directly affected but also across other regions, through the purchase of the exports of these regions. That is to say, for example, a sports tourist from the rest of the world who spends money only in Glasgow will generate indirect and induced effects on economic activity not only in Glasgow but also the rest of Scotland.

However, note that where Scottish residents are the sports-tourists, the impact of the displaced household expenditure that otherwise would have been made locally needs to be accounted for. That is to say, where local supporters of the Old Firm were not attending games there would be alternative local expenditures. From a Scottish perspective, for these individuals, sports tourism involves expenditure switching. It is

important that both the positive sports tourism impacts and the negative displacement effects are both separately identified so as correctly to measure the net indirect and induced effects of this switch in expenditure.

Preuss (2005, p287) identifies ten categories of "event-affected persons" and their movements before, during and after the hosting of a major sporting event. Many of these categories occur because the nature and scale of such events trigger avoidance and time switching behaviour amongst some groups which has a corresponding impact on direct expenditures. This sort of behaviour is not relevant, or at least much reduced, for regular season sporting competitions. Essentially, as argued above we have two groups – Scottish residents who are expenditure shifting between sports tourism and other household expenditures (and sometimes across regions), and sports tourists resident outwith Scotland who bring new expenditure.

The economic impacts that these sport tourist expenditures have on Glasgow and the rest of Scotland (ROS) can be quantified through the use of Input-Output (IO) analysis (Miller and Blair, 1985). The method employed in this paper uses the official Scottish IO table for 2002 (Scottish Executive, 2005), updating it to 2003-4 prices and then disaggregating it for Glasgow and the rest of Scotland.[13]

The methodology suggested by UK Sport (2004) focuses on the quantification of the direct expenditures attributable to the sporting event. It does not estimate the indirect and induced effects, nor quantify the impacts on key measures of economic activity: GDP, income or employment. The Input-Output method used here is able incorporate these wider effects and connect with these important variables. UK Sport (2004) acknowledge that multiplier analysis based on the IO technique can be used to derive the total economic impacts. However, in their report these are not presented for a number of reasons which are as follows

First, multipliers for the specific economy in question might not be available, leading to the "borrowing" of multipliers from other studies. Such "borrowed" multipliers may be wrong, and cannot be considered anything other than a "poor approximation" for the specific economy in question. Second, these multiplier would vary across regions and time. UK Sport (2004) argue that their method is about comparing events and not economies, and as such focus on estimating the additional expenditure, rather than the impact of these expenditures. However, this paper has access to official timely IO data information. Multiplier values are therefore not borrowed from other economies or other sectors. Moreover the full geographical impact is of importance for this study. As will be shown, incorporating indirect and induced effects can generate impacts that differ both quantitatively and qualitatively to the direct expenditures.

In Input-Output analysis the next step is to separately identify the sports tourist expenditures as exogenous elements of final demand. This is explained in greater detail in Appendix 3. Accepting a number of assumptions, economic activity can be attributed further to these elements of final demand. That is to say, the additional and induced economic activity associated with those exogenous demands can be quantified. The most straightforward case is where supporters' resident outwith Scotland make this expenditure: here both the initial sports tourism expenditure and the indirect and induced effects are treated as additional. However, as argued earlier, where sports tourism expenditure is made by local residents, there is a need to consider the "displaced" economic impact.

6.1 Economic impact of sports tourism expenditure

Table 6.1 shows the net sports tourism impact produced over the course of the season 2003-4 through matches involving the Old Firm clubs. Reading along the bottom row, this generated GDP valued at £45.35 million and 2,580 full time equivalent (FTE) jobs in Scotland. Table 6.1 also disaggregates these effects by region and sector. Still focusing on the net changes, there is a relatively neutral impact on activity in the rest of Scotland: GDP is lower by £0.33 million but employment increases by 157. This is accompanied by a large positive impact on Glasgow, with GDP increasing by £45.68 million and employment by 2,423.

It is instructive to contrast the results in Table 6.1 with those in Table 5.2 (which are broadly consistent with the UK Sport (2004) method), where large net outflows of direct expenditure from the rest of Scotland might suggest a significant negative effect on ROS economic activity. It is clear that incorporating geographically disaggregated indirect and induced effects is important to identify the true spatial impacts. In Glasgow, all sectors benefit, but those receiving the biggest impact are Wholesale and Retailing and Hotels and Restaurants. In ROS many sectors show small increases in activity, with impacts largest in Transport, Wholesale and Retailing and Hotels and Restaurants. However, note that in ROS, the Private Business Services, Public Services and Utilities and Construction are negatively affected.

Again it is useful to compare the size of these tourism effects with those generated by other, more large-scale, events. Within Scotland, the Edinburgh Festival is a set of arts and culture related festivals that take place annually in August and early September.[14] A study of the impacts of this festival for the year 2004, using the same basic methodology as our own, identifies the net Scottish GDP and employment effects as £28.80 million and 2,123 respectively (The City of Edinburgh Council *et al*, 2005, p. 30). The Old Firm and Edinburgh Festival studies' methodologies differ in

detail, so that only a general comparison of the results is appropriate. However, clearly the tourism impacts of the Old Firm clubs are of the same order of magnitude as those for "… the world's biggest arts Festival" (The City of Edinburgh Council *et al*, 2005, p.1).[15]

Table 6.1 also breaks down the net impacts into the two separate gross components: the positive impact of the sports tourism spending and the negative impact of the displaced household consumption. The gross sports tourism expenditure generate a positive change in activity in both Glasgow and the rest of Scotland (ROS). Whilst all sectors experience some increase, the impact is highest in Wholesale and Retail, Hotels and Restaurants, Transport, and Private Business Services. Again although both Glasgow and ROS benefit, just less than 60% of the increase in activity occurs in Glasgow, just over 40% in ROS.

[Table 6.1 here]

The displaced expenditure produces uniformly negative employment and GDP effects. There are three key facts about the displacement effects. First, the impact on Scottish activity is much smaller, in aggregate, than the expansion produced by the sports tourism expenditure. This is because expenditure made by Old Firm supporters residing outwith Scotland has no corresponding negative displacement effect[16] and the expenditure on sports tourism has a much smaller import intensity than the displaced average household consumption. Second, the negative displacement impacts are strongly skewed towards ROS. This is because typically, most of those attending Old Firm matches, both supporters of the Old Firm and their opponents, are ROS residents. The displacement expenditure therefore falls especially heavily on the ROS.

Third, the sector that is most strongly affected by the displaced household expenditure is the Private Business Services, then Wholesale and Retail, with Public Services third.

Table 6.2 focuses solely on net GDP and employment impacts but classifies these in a more disaggregated way. First, these effects are assigned to domestic or European competitions. Second, the supporter's place of residence is considered, and for games in European competitions those living outwith Scotland are further disaggregated into Old Firm and non-Old Firm supporters. Third, the effect on Scotland is again broken down into impact on the Glasgow and ROS economies.

[Table 6.2 here]

The first point to note is that the total impact of the European games is much lower than the games played in the domestic competition. That is to say, the domestic competition accounts for over three quarters of the net Scottish GDP and employment supported by sports tourism associated with the Old Firm games. Of course the number of games that the Old Firm play in domestic competition is much greater than in European competitions. Moreover, whereas a home and away match in the domestic competition are both played in Scotland, one of the games will be played outwith Scotland in the European competitions.

Second, when the supporters' expenditures are broken down by their location of residence, rest of the world (ROW) resident supporters generate the largest net impact. Combining the Scottish effects of sports expenditures made by ROW residents across both the domestic and European competitions identifies GDP and employment impacts of £22.22 million and 1,146 FTEs respectively. This is very

nearly 50% of the total GDP net impact of Old Firm sports tourism, (around 45% for employment). Further by far the biggest impact is from Old Firm supporters living outwith Scotland, who attend games in both the domestic and European competitions, rather than the supporters of visiting clubs in the European competitions.

This leads to the third key observation which is that the expenditure switching from domestic (Glasgow and ROS) supporters also has a major part to play in the Scottish economic activity supported by Old Firm sports tourism. The point here is that sports tourist expenditure is more concentrated on the purchase of local goods and services, than is average household consumption expenditure. Of particular importance are the ROS supporters who are more numerous and typically have higher *per capita* expenditures than Glasgow supporters.

Finally, Table 6.2 identifies the geographical distribution of activity supported by Old Firm sports tourism expenditure. Reiterating the result from Table 6.1, the net impact is heavily concentrated on the Glasgow economy, with the effect on the ROS broadly neutral. Note that the impact of the domestic competition is positive for ROS but the European competition is negative. Further expenditure by Glasgow and ROW based supporters has a positive impact on the ROS economy, but this is offset by the negative impact of displaced expenditure by supporters resident in ROS.

It is useful finally to clarify how these results should be interpreted. The figures identify, as accurately as is presently possible, the activity that was supported in Scotland by the sports tourism generated by the games played by the Old Firm. This is a typical year in terms of the performance of the Old Firm teams, so that the economy would be expected to be appropriately adjusted to this expenditure stimulus. This means that this calculation should be a good estimate of the year on year net impacts of this tourism expenditure.

However, if the Old Firm were to somehow be removed, would this be the economic loss to Scotland as far as sports tourist effects are concerned? Two caveats have to be made. First, the IO model is solely demand driven: it has a passive supply side. If there were a drop in demand for sports tourism, some supply-side adjustment would be expected so that some of the resources freed in the relevant sectors would be reabsorbed into the local economy. However, over a longer time frame, in an open economy such as Scotland, falling local demand would be anticipated to lead to disinvestment and outmigration so that the IO results are reinstated (McGregor *et al*., 1996).

The second caveat relates to the reaction in Scottish professional football itself. To interpret these results as indicating the impact of removing the Old Firm sports tourism requires a number of assumptions to be made. The SPL needs to be reduced from twelve to ten teams, none of these remaining teams can play in European competitions and there is no adjustment in the support for other Scottish teams. None of these is wholly plausible. However, the wide geographic distribution of the Old Firm support, together with the Old Firm dominance of the Scottish game in terms of playing success, means that any replacement sports tourism demand would be much reduced.

7. Conclusions

The tourism industry is seen as an important driver of economic growth and development for the Glasgow economy (Glasgow City Council *et al*., 2007). This paper, rather than focussing on mega events, has attempted to quantify the impact of the tourism expenditure associated with regular season sporting competitions. Over a

full season, estimates have been made for the effect of the week to week attendances at matches played by Scotland's two largest football clubs, Glasgow Celtic and Rangers. The direct expenditures associated with this sports tourism and the indirect and induced effects have been identified, as well as the spatial impact of these expenditure and activity flows.

The main findings are that the expenditures are large and the net economic activity supported by this form of sports tourism is, in this particular case, extensive. As a broad indication, the activity generated in Scotland is comparable to that produced by the Edinburgh Festival and, for Glasgow, the level of sports tourist expenditure is similar to that which would be expected from hosting the Olympic Games every 12 years. Clearly the attraction of successful teams involved in regular season sporting competitions where support is large and drawn from a wide geographical area confers substantial sports tourism benefits for the host location.

Notes

[1] The term "Old Firm" dates back to April 1904 when, according to Ross (2005, p.27), "Supporters of both clubs were highly suspicious of the number of draws when these clubs met in cup ties which resulted in replays which were lucrative for the clubs but costly for the fans. On the day of the final the Scottish Referee published a cartoon depicting a man with a sandwich board upon which was written the legend 'Patronise the Old Firm – Rangers Celtic FC'". The term Old Firm has developed from this original meaning to describe, collectively, Rangers FC and Celtic FC.

[2] In subsequent work it is intended to extend this analysis to incorporate the impact of both expenditures made by spectators and the activities of the clubs themselves.

[3] The next largest Scottish Premier League (SPL) ground is at Pittodrie, home of Aberdeen FC, which has a capacity of 21,487.

[4] 2003/4 average attendances for their home matches in the SPL were 48,992 (Rangers) and 49,496 (Celtic).

[5] The number of home and away matches is not necessarily the same in the SPL. The twelve team league is split into a top-six group and a bottom-six group once all teams have played each other three times. The SPL arranges the final five matches for each club in a season against the other clubs in the same half of the league, attempting to ensure that all clubs play an even number of home and away matches.

[6] The Glasgow City Council boundary area comprises postcodes G1-G5, G11-G15, G20-G23, G31-G34, G40-G45, G51-G53 and G69.

[7] Some assumptions about the residential location of the Old Firm and non-Old Firm football support were necessary in order to quantify the regional composition of each crowd. These assumptions are detailed in the text.

[8] Just over 1% of total attendances in Glasgow for matches involving the Old Firm involved league and cup games against Partick Thistle at their ground at Firhill in Glasgow. The remainder comprised the two matches that Celtic played against Livingston and Dunfermline at Hampden Stadium in the semi-final and final of the Scottish Cup.

[9] Respondents were given an incentive to complete and return the surveys in the form of entry into a draw where the prize was a VIP package for two to a home match of their choosing. The Old Firm clubs provided these prizes.

[10] The data supplied by the supporters of each club were analysed independently before being aggregated. At the beginning of the project it was agreed that information for either of the Old Firm clubs would not be released separately.

[11] If a supporter used two modes of transport, ferry then public transport, for example, these would be counted as two entries.

[12] The data in both Tables 4.4 and 4.5 are taken from the survey returns from supporters of the other Old Firm club, that is to say not the one for which supporters' journeys and expenditure on transport are reported in Tables 4.2 and 4.3.

[13] When this research was begun, the 2002 Scottish IO tables were the most up to date available. The disaggregation method used follows that outlined in Allan and Swales (2007).

[14] These comprise the Edinburgh International Film Festival, the Edinburgh Festival Fringe, the Edinburgh International Book Festival, the Edinburgh International Festival and the Edinburgh Festival Cavalcade.

[15] The Edinburgh Festival gives no impact to displaced expenditure but includes expenditures by the festival organisers, performers and journalists. It also uses a different tourism multiplier value.

[16] The position of supporters of visiting clubs in European competitions is slightly different. Although their expenditure has no direct displacement effect, when the Old Firm team plays away from home in these competitions, there is a roughly matching displaced expenditure.

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Table 3.1: The number of home and away matches and the location of away matches involving Old Firm teams in all competitions during the 2003/4 season

	Home Matches	Away matches			Total
		Glasgow	Rest of Scotland	Rest of world	
Celtic	29	7	17	8	61
Rangers	25	5	16	4	50

Table 3.2: Average SPL home attendances for non-Old Firm clubs against non-Old-Firm and Old Firm opposition

Home Team	Opposition		Percentage difference
	Non-Old Firm	Old Firm	
Heart of Midlothian	11,472	13,798	20.3%
Aberdeen	9,294	16,205	74.4%
Hibernian	8,883	10,868	22.3%
Dundee United	7,325	10,187	39.1%
Dundee	6,574	10,063	53.1%
Kilmarnock	5,816	13,060	124.6%
Motherwell	5,348	9,513	77.9%
Dunfermline	5,376	8,778	63.3%
Partick Thistle	4,041	8,465	109.5%
Livingston	4,039	7,282	80.3%

Source: Rollin and Rollin (2004) and authors' calculations.

Table 3.3: Spectator attendances by region of origin (residence) and destination (match location)

Region of Origin (Residence)	**Region of Destination (Match Location)**			**Total**
	Glasgow	Rest of Scotland	Rest of the World	
Glasgow	695,012	50,970	9,734	755,716
Rest of Scotland	1,831,476	325,615	24,034	2,181,126
Rest of the World	231,729	13,177	369,921	614,826
Total	2,758,217	389,761	403,690	3,551,668

Table 3.4: Net inter-regional spectator attendances by region of residence and destination

Region of Origin (Residence)	**Region of Destination (Match Location)**		
	Glasgow	Rest of Scotland	Rest of the World
Glasgow	-	-1,780,507	-221,994
Rest of Scotland	1,780,507	-	10,858
Rest of the World	221,994	-10,858	-
Total Net Inflows	2,002,501	-1,791,365	-211,136

Table 4.1: Geographical zones and associated SPL teams for identifying away game expenditures

Geographical Zone	**SPL teams**
Edinburgh	Hearts Hibernian Dunfermline Livingston
Glasgow	Celtic Partick Thistle Rangers
North	Aberdeen Dundee Dundee United
Lanarkshire	Motherwell Kilmarnock

Table 4.2: Percentage breakdown of journeys by transport methods: Figures given by type and location of match, and supporter residence

Transport Method	**Home games**			**Away games in Edinburgh**			**Away games in Glasgow**			**Away games in North Scotland**			**Away games in Lanarkshire**			**Away games outside Scotland**		
	G	**ROS**	**ROW**	**G**	**ROS**	**ROW**	**G**	**ROS**	**ROW**	**G**	**ROS**	**ROW**	**G**	**ROS**	**ROW**	**G**	**ROS**	**ROW**
Car	39	51	27	24	33	45	36	43	26	65	44	53	71	59	50	11	10	14
Supporters bus	14	33	24	57	55	8	26	43	27	35	47	26	7	21	21	11	10	7
Public transport	33	14	12	20	12	8	33	11	6	0	8	0	14	18	6	11	18	13
Plane	-	1	22	-	-	20	-	3	27	-	-	11	-	3	3	66	62	65
Ferry	-	-	15	-	-	19	-	-	15	-	-	11	-	-	21	-	-	-
Taxi	4	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
On foot	9	-	-	-	-	-	5	-	-	-	-	-	7	-	-	-	-	-
Motorbike	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

Table 4.3: Average expenditure per supporter journey: Figures given by type and location of match, and supporter residence

Transport method	Home games			Away games in Edinburgh			Away games in Glasgow			Away games in North Scotland			Away games in Lanarkshire			Away games outside Scotland		
	G	**ROS**	**OS**	**G**	**ROS**	**OS**	**G**	**ROS**	**OS**	**G**	**ROS**	**OS**	**G**	**ROS**	**OS**	**G**	**ROS**	**OS**
Car	3.94	9.06	45.35	9.96	10.62	34.55	4.37	7.43	36.50	15.12	14.06	41.78	10.43	7.08	27.82	24.00	22.50	47.92
Supporters bus	4.66	7.44	20.98	6.05	6.30	35.00	6.00	6.50	17.70	5.51	7.53	21.00	6.00	7.29	17.29	90.00	61.33	65.00
Public transport	2.96	8.04	21.00	6.93	4.58	38.00	3.87	6.51	14.80	-	12.00	-	3.60	9.90	25.00	24.00	27.09	22.73
Plane	-	71.67	83.60	-	-	89.00	-	65.00	86.30	-	-	80.00	-	80.00	60.00	203.64	178.05	144.57
Ferry	-	-	41.61	-	-	50.67	-	-	42.85	-	-	72.50	-	-	35.14	-	-	-
Taxi	8.00	6.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
On foot	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Motorbike	2.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 4.4: The proportion of supporters staying overnight and their average accommodation costs; Figures given by type and location of match, and supporter residence

% staying overnight in paid accommodation	**Home games in Glasgow**			**Away games in Edinburgh**			**Away games in Glasgow**			**Away games in North Scotland**			**Away games in Lanarkshire**			**Away games outside Scotland**		
	G	**ROS**	**OS**	**G**	**ROS**	**OS**	**G**	**ROS**	**OS**	**G**	**ROS**	**OS**	**G**	**ROS**	**OS**	**G**	**ROS**	**OS**
Glasgow	-	4	48	-	-	-	-	4	48	-	-	-	-	-	-	-	-	-
Rest of Scotland	-	-	4	-	-	33	-	-	4	-	8	14	-	-	29	-	-	-
Total Scotland	0	4	52	0	0	33	0	4	52	0	8	14	0	0	29	69	76	88
Average overnight cost*	-	53.71	58.69	-	-	118.33	-	53.71	58.69	-	68.33	125.00	-	-	35.50	114.94	119.64	135.29

Notes: * = £s per person per night.

Table 4.5: Average other match related tourism expenditures: Figures given by type and location of match, and supporter residence

	Home games in Glasgow			Away games in Edinburgh			Away games in Glasgow			Away games in North Scotland			Away games in Lanarkshire			Away games outside Scotland		
	G	**ROS**	**OS**	**G**	**ROS**	**OS**	**G**	**ROS**	**OS**	**G**	**ROS**	**OS**	**G**	**ROS**	**OS**	**G**	**ROS**	**OS**
Pre-match in Glasgow																		
Food and drink	6.62	7.48	14.43	7.08	3.06	6.67	1.77	2.49	7.72	3.08	0.75	4.00	7.50	1.00	20.36	8.79	7.60	4.71
Merchandise	2.50	3.04	-	-	0.57	0.22	2.50	1.46	1.40	1.08	-	-	-	-	-	4.38	0.42	-
Other	-	0.26	0.13	-	-	-	-	0.05	0.28	-	-	-	-	-	-	-	-	-
Post-match in Glasgow																		
Food and drink	9.08	4.03	19.88	-	-	-	2.01	1.42	6.32	-	-	-	-	-	-	-	-	-
Merchandise	0.32	0.52	0.37	-	-	-	-	0.46	0.37	-	-	-	-	-	-	-	-	-
In the rest of Scotland																		
Food and drink	-	2.46	3.53	5.47	3.49	29.44	0.14	0.23	2.09	11.44	24.24	33.29	9.24	9.97	11.86	0.69	2.70	1.79
Merchandise	-	-	-	0.18	0.40	1.11	-	-	-	0.16	1.55	1.00	2.06	1.09	0.89	-	-	-
Outside Scotland																		
Food and drink	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	96.21	92.50	102.21
Merchandise	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.62	9.10	30.76
Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.70	-
Total	**18.52**	**17.79**	**38.34**	**12.73**	**7.52**	**37.44**	**6.42**	**6.11**	**18.18**	**15.76**	**26.54**	**38.29**	**18.80**	**12.06**	**33.11**	**118.69**	**113.02**	**139.47**

Table 5.1: Gross sports tourism expenditures, disaggregated by spectator region of residence and region of expenditure, £, 000s.

Region of residence	**Region of expenditure**			**Total**
	Glasgow	Rest of Scotland	Rest of the world	
Glasgow	16,149.3	1,278.2	2,789.6	20,217.1
Rest of Scotland	32,447.8	30,065.6	6,661.5	69,175.0
Rest of the world	17,453.8	7,703.3	18,422.8	43,579.9
Total	66,051.0	39,047.1	27,873.9	132,972.0

Table 5.2: Net flows of expenditures by spectator residence and region of expenditure, £,000s

	Region of Destination		
Region of Origin	Glasgow	Rest of Scotland	Rest of the World
Glasgow	-	-31,169.6	-14,664.2
Rest of Scotland	31,169.6	-	-1,041.7
Rest of the World	14,664.2	1,041.7	-
Total Net Inflows	45,833.8	-30,127.9	-15,705.9

Table 6.1: Sectoral GDP and employment impacts of sports tourism expenditures and displaced expenditures on Glasgow, the rest of Scotland and Scotland, £millions and FTE jobs

		GDP			Employment		
		Sports tourism expenditure	Displaced expenditure	Net impact	Sports tourism expenditure	Displaced expenditure	Net impact
Glasgow	Primary and manufacturing	0.63	-0.19	0.44	15	-5	11
	Utilities and construction	1.30	-0.65	0.65	32	-16	16
	Food and drink	2.20	-0.14	2.07	59	-4	55
	Wholesale and retail	17.84	-2.19	15.65	796	-98	699
	Hotels and restaurants	20.11	-0.77	19.34	1543	-59	1484
	Transport	4.13	-0.27	3.86	83	-5	78
	Private business services	6.61	-3.36	3.25	132	-67	65
	Public services	1.75	-1.31	0.44	64	-48	16
Total Glasgow		*54.57*	*-8.89*	*45.68*	*2725*	*-302*	*2423*
Rest of Scotland	Primary and manufacturing	2.31	-1.75	0.56	61	-46	15
	Utilities and construction	0.90	-1.83	-0.93	34	-68	-35
	Food and drink	0.96	-0.69	0.27	33	-24	9
	Wholesale and retail	13.01	-10.28	2.72	761	-601	159
	Hotels and restaurants	5.13	-2.17	2.96	523	-221	302
	Transport	7.13	-1.60	5.53	197	-44	153
	Private business services	7.06	-14.48	-7.42	224	-460	-236
	Public services	2.12	-6.14	-4.02	111	-321	-241
Total Rest of Scotland		*38.61*	*-38.94*	*-0.33*	*1944*	*-1787*	*157*
Total Scotland		**93.18**	**-47.83**	**45.35**	**4669**	**-2089**	**2580**

Note: Some of the totals may not sum due to rounding.

Table 6.2: Net GDP and employment impacts of sports tourism expenditures on Glasgow, the rest of Scotland and Scotland, £millions and jobs

		Domestic competition				European competition					Total all competitions
		Glasgow residents	ROS residents	ROW residents	Total domestic competition	Glasgow residents	ROS residents	ROW resident OF fans*	ROW resident Non-OF fans	Total European competition	
Glasgow	GDP	4.68	19.75	9.03	33.46	0.62	5.88	3.65	2.08	12.22	45.68
	Employment	280	984	498	1761	50	296	201	115	661	2423
Rest of Scotland	GDP	0.63	-3.99	4.57	1.21	0.00	-4.42	1.85	1.04	-1.54	-0.33
	Employment	35	-38	211	208	2	-174	85	36	-51	157
Total Scotland	GDP	5.30	15.76	13.61	34.67	0.61	1.46	5.49	3.12	10.68	45.35
	Employment	314	946	709	1969	52	122	286	151	611	2580

*Notes: * represents Old Firm*

Appendix 1: Spectator survey for season ticket holders

IMPACT OF CELTIC ON THE SCOTTISH AND GLASGOW ECONOMIES

Please provide your postcode _____

Are you : Male □ Female □

How old are you?

Below 15 □ 15-20 □ 21-30 □ 31-40 □ 41-50 □ 51-60 □

Over 60 □

1 Home games at Celtic Park

1.1 Travelling Expenditure

How much money do you typically spend on each of the following types of transport in order to attend a Celtic home match at Celtic Park?

Car	Supporters bus	Public Transport	Plane	Ferry	Other (please specify) _____

1.2 Accommodation

1.2a Do you ever stay overnight in hotel or B&B accommodation when you attend Celtic matches at Celtic Park? Yes □ No □

1.2b Do you ever stay overnight with friends or relatives when you attend a Celtic match at Celtic Park?

Yes □ No □

If you answered "Yes" to question 1.2a or 1.2b, how many nights do you stay for?

1 □ 2 □ 3 □ Over 3 □

1.2c If you answered "Yes" to question 1.2a, how much do you typically spend ***in total*** on hotel or B&B accommodation?

1.2d If you answered "Yes" to question 1.2a, do you typically stay at hotel or B&B accommodation in Glasgow? Yes □ No □

1.3 Other Spending

When you attend home Celtic matches, how much do you typically spend on the following categories?

	In Glasgow			Elsewhere in Scotland
	Before match	In the stadium	After match	
Food				
Drink				
Merchandising				
Other- Please specify _____ _____	_____ _____	_____ _____	_____ _____	_____ _____

2 Away games in Scotland

2.1 What was the last Celtic ***away*** league match ***in Scotland*** you attended that was ***not in Glasgow***? If you have not attended a Celtic away league match outside Glasgow, please go to question 3.

Name of team

2.2 Travelling expenditure and accommodation

2.2a How much money did you spend on each of the following modes of transport in order to attend the above match?

Car	Supporters bus	Public Transport	Plane	Ferry

2.2b Did this trip involve an overnight stay in hotel or B&B accommodation?

Yes □ No □

2.2c If you answered "Yes" to question 2.2b, how many nights did you stay for? Please tick one of the boxes below.

1□ 2□3 □4 □5 □ More than five □

2.2d If you answered "Yes" to question 2.2b, how much did you spend on accommodation in total?

2.3 Other Spending

At the last Celtic away league match in Scotland, how much did you spend on each of the following categories?

	In Glasgow	Outside Glasgow
Food & Drink		
Merchandising		
Other- Please specify _____ _____ _____	_____ _____ _____	_____ _____ _____

3 Away games in Europe

3.1 What was the last ***away*** Celtic European game you attended (that was ***not in England*** – and ***excluding the UEFA Cup Final of 2003 in Seville***)? If you have not attended a Celtic away European game that was not in England or the 2003 UEFA Cup Final in Seville, please go to question 4.

Name of team

3.2 Travelling expenditure and accommodation

3.2a Could you indicate the amount you spent on each of the following types of transport in order to attend the above match?

Car	Supporters bus	Public Transport	Plane	Ferry

3.2b Did this trip involve an overnight stay? Yes □ No □

3.2c If you answered "Yes" to question 3.2b, how many nights did you stay for? Please tick one of the boxes below.

1□ 2□3 □4 □5 □ More than five □

3.2d If you answered "Yes" to question 3.2b, how much did you spend on accommodation in total?

3.3 Other Spending

At the last away European game you attended, how much did you spend on the following categories?

	In Glasgow	Rest of Scotland	In Europe
Food & Drink			
Merchandising			
Ticket			
Other- Please specify _____ _____	_____ _____	_____ _____	_____ _____

4. Celtic Games in England

4.1a Have you ever attended a match ***in England*** to watch Celtic play against a Premiership team?

Yes □ No □

4.1b If you answered "Yes" to question 4.1a, what match did you attend?

4.2 **Travelling expenditure and accommodation**

4.2a If you answered "Yes" to question 4.1a could you indicate the amount you spent on each of the following modes of transport in order to attend the above match?

Car	Supporters bus	Public Transport	Plane	Ferry

4.2b Did this trip involve an overnight stay? Yes □ No □

4.2c If you answered "Yes" to question 4.2b, how many nights did you stay for? Please tick one of the boxes below.

1□ 2□3 □4 □5 □ More than five □

4.2d If you answered "Yes" to question 4.2b, how much did you spend on accommodation in total?

4.3 **Other Spending**

At this Celtic away game in England you attended, how much did you spend on the following categories?

	In Glasgow	In the Rest of Scotland	In England
Food & Drink			
Merchandising			
Other- Please specify _____ _____ _____	_____ _____ _____	_____ _____ _____	_____ _____ _____

5. Prize Draw entry

If you would like to be entered in the prize draw, please write your telephone number below. Note that we will only use this information to contact the prize draw winner.

Telephone number _____

THANK YOU VERY MUCH FOR YOUR ASSISTANCE

Appendix 2: Geographical allocation of transport costs

All the transport expenditures of Glasgow-resident supporters attending matches in Glasgow were assigned as being made in Glasgow. For residents from the rest of Scotland visiting Glasgow, one half of their non-car travel expenditures were allocated to Glasgow, while the rest were treated as being made in the rest of Scotland. For residents from outwith Scotland visiting Glasgow, one half of non-car travel expenditures were allocated to the rest of Scotland, whilst one-half of all car travel expenditures were treated as being made in Scotland (split equally between Glasgow and the rest of Scotland). Thus, one half of all transportation expenditures by residents from outwith Scotland were made outwith Scotland.

A similar procedure was followed in allocating transport expenditures for away matches in Scotland. For Glasgow residents, all transport expenditures were divided equally between Glasgow and Scotland. For spectators from the rest of Scotland, one quarter of car travel expenditures were treated as being made in Glasgow (refuelling at petrol stations in the city on route to matches), and all other transport expenditures were allocated to the rest of Scotland. For spectators from outwith Scotland, we treated one half of non-car transport costs as being made in Scotland, as were one half of car transport costs, split equally between Glasgow and the rest of Scotland.

For away matches outwith Scotland, all of the car transport expenditures were treated as being made in the region of residence of the supporter, along with one half of the non-car expenditures. The remaining transport element was treated as being

made outwith Scotland. All transport expenditures by residents outwith Scotland were allocated to the rest of the world region.

Appendix 3: The regionally-disaggregated I-O accounts and modelling

A schematic representation of the regionally disaggregated I-O set of accounts is presented in Table A3.1. The multi-regional disaggregation is standard (Miller and Blair, 1985). The non-standard aspect is the disaggregation in the final demand sectors to appropriately identify the sports tourism expenditures that are associated with the matches in which the Old Firm participate.

Table A3.1: A schematic representation of the regionally-disaggregated I-O accounts

X_{GG}	X_{GR}	H^*_{GG}	H^*_{GR}	T_{GG}	$-D_{GG}$	T_{GR}	$-D_{GR}$	F^*_{G}	T_{GROW}	Q_G
X_{RG}	X_{RR}	H^*_{RG}	H^*_{RR}	T_{RG}	$-D_{RG}$	T_{RR}	$-D_{RR}$	F^*_{R}	T_{RROW}	Q_R
W_G										W_G
	W_R									W_R
O_G	O_R									O_S
M_{XG}	M_{XR}	M^*_{HG}	M^*_{XR}	M_{TG}	$-M_{DG}$	M_{TR}	$-M_{DR}$	M^*_{FS}		M_S
Q_G	Q_R	H_G	H_R	T_G	$-T_G$	T_R	$-T_R$	F_S	T_{ROW}	

D are the nx1 column vectors of displaced household expenditure

F are nx1 column vectors of other final demands and the corresponding scalar

H are nx1 column vectors of household expenditures and the corresponding scalars.

M 1xn row vectors representing import demand from outwith Scotland and the corresponding scalars

O are 1xn row vectors of other value added and the corresponding scalars

Q are 1xn row or nx1 column output vectors

T are nx1 column vectors of sports tourism expenditures and the corresponding scalars

W are 1xn row vectors of wage payments and the corresponding scalars

X are nxn matrices of intermediate demands

Superscript

* indicates a sports-tourism-lite value (one in which the Old Firm sports tourism data have been removed

Subscripts

D represents displaced expenditure; F, final demand; G, Glasgow; R, the rest of Scotland; ROW, the rest of the world; S, Scotland; T, sports tourism; and X intermediate demand.

The most straightforward adjustment is to separately identify the vectors of sports tourism expenditure, T_{GROW} and T_{RROW}, from those supporters who live outwith Scotland. This expenditure is conventionally treated as exogenous and would be included in the tourism final demand vector in the Scottish IO tables. The adjustment that is made in this case is simply to extract these vectors sports tourism vectors from the corresponding total final demand vectors. Therefore:

(A3.1)
$$\begin{bmatrix} F_G^* \\ F_R^* \end{bmatrix} + \begin{bmatrix} T_{GROW} \\ T_{RROW} \end{bmatrix} = \begin{bmatrix} F_G \\ T_R \end{bmatrix}$$

where F represents an nx1 column vector of other final demands, which is the total final demand vector excluding household consumption demand..

Adjusting for the sports-tourism expenditures, T_{GG}, T_{RG}, M_{TG}, $T_{GR,}$ T_{RR} and M_{TR}, made by supporters residing in Scotland (which we will refer to as domestic sports tourism expenditures) is a little more complex. These are included in the corresponding household consumption vectors for Glasgow and rest of Scotland households, H_G and H_R. We therefore need to separately identify these expenditures by subtracting them from the corresponding household consumption vectors.

There are two complications here. First, in the analysis we regard this domestic sports-tourism expenditure as exogenous but other elements of household expenditure as endogenous. Second, we want to treat this domestic sports tourism expenditure as displacing other household expenditure. We therefore need to construct vectors of displaced consumption, D_{GG}, D_{RG}, M_{DG}, $D_{GR,}$ D_{RR} and M_{DR}, that correspond to the sports-tourism expenditures.

We assume that the sports tourism expenditure displaces household expenditure that has the average composition once the sports tourism expenditure has been deducted. The level of the displaced expenditure is equal to the level of the corresponding sports tourism expenditure. Therefore the displaced consumption expenditure vector for residents of region Z (Z=G or R) is given as:

(A3.2)
$$\begin{bmatrix} D_{GZ} \\ D_{RZ} \\ M_{DZ} \end{bmatrix} = [K_Z] \begin{bmatrix} H_{GZ} - T_{GZ} \\ H_{RZ} - T_{RZ} \\ M_{HZ} - M_{TZ} \end{bmatrix}$$

where K_Z is a (2n+1)x(2n+1) diagonal matrix where each diagonal element takes the value $T_Z/(H_Z-T_Z)$ and each off-diagonal element takes the value zero.

The sport-tourism-lite household expenditures for each of the two Scottish regions have the following interpretation. They are the household consumption vectors that would occur if the present expenditure on Old Firm related sports tourism expenditure were replaced by an equal level of expenditure with the same sectoral composition as the non sport-tourism household expenditure.

These vectors are calculated in the following way:

(A3.3)
$$\begin{bmatrix} H^*_{GZ} \\ H^*_{GZ} \\ M^*_{HZ} \end{bmatrix} = \begin{bmatrix} H_{GZ} \\ H_{RZ} \\ M_{HZ} \end{bmatrix} - \begin{bmatrix} T_{GZ} \\ T_{RZ} \\ M_{TZ} \end{bmatrix} + \begin{bmatrix} D_{GZ} \\ D_{RZ} \\ M_{DZ} \end{bmatrix}$$

An alternative way of calculating the sport-tourism-lite household expenditures for region Z is as

(A3.4)
$$\begin{bmatrix} H^*_{GZ} \\ H^*_{GZ} \\ M^*_{HZ} \end{bmatrix} = [L_Z] \begin{bmatrix} D_{GZ} \\ D_{RZ} \\ M_{DZ} \end{bmatrix}$$

where L_Z is a (2n+1)x(2n+1) diagonal matrix where all the diagonal elements have the value H_Z/T_Z..

Where we have attributed economic activity to individual elements of final demand we have used a Type II multiplier. This means that household consumption by residents in each region is endogenised and driven by their wage income. The household consumption vectors used for region Z are the sports-tourism lite variants $H^*_{GZ,}$ H^*_{RZ} and M^*_{HZ} (Z = G,R). Generating the direct coefficients matrix, A, in the conventional way (Miller and Blair, 1985), the accounting identities embedded in table A4.1 can be expressed as:

(A3.5)
$$\begin{bmatrix} A_{GG} & A_{GG} & A_{GG}^{H*} & A_{GG}^{H*} \\ A_{RG} & A_{RR} & A_{RG}^{H*} & A_{RG}^{H*} \\ A_{WG} & 0 & 0 & 0 \\ 0 & A_{WR} & 0 & 0 \end{bmatrix} \begin{bmatrix} Q_G \\ Q_R \\ W_G \\ W_R \end{bmatrix} + \begin{bmatrix} F_G \\ F_R \\ 0 \\ 0 \end{bmatrix} = \begin{bmatrix} Q_G \\ Q_R \\ W_G \\ W_R \end{bmatrix}$$

where:

(A3.6)
$$\begin{bmatrix} F_G \\ F_R \\ 0 \\ 0 \end{bmatrix} = \begin{bmatrix} T_{GG} \\ T_{RG} \\ 0 \\ 0 \end{bmatrix} - \begin{bmatrix} D_{GG} \\ D_{RG} \\ 0 \\ 0 \end{bmatrix} + \begin{bmatrix} T_{GR} \\ T_{RR} \\ 0 \\ 0 \end{bmatrix} - \begin{bmatrix} D_{GR} \\ D_{RR} \\ 0 \\ 0 \end{bmatrix} + \begin{bmatrix} T_{GROW} \\ T_{RROW} \\ 0 \\ 0 \end{bmatrix} + \begin{bmatrix} F_G^* \\ F_R^* \\ 0 \\ 0 \end{bmatrix}$$

Creating the Leontief inverse, using the conventional matrix inversion techniques produces the result:

(A3.7)
$$\begin{bmatrix} (I-A_{GG}) & -A_{GG} & -A_{GG}^{H*} & -A_{GG}^{H*} \\ -A_{RG} & (I-A_{RR}) & -A_{RG}^{H*} & -A_{RG}^{H*} \\ -A_{WG} & 0 & I & 0 \\ 0 & -A_{WR} & 0 & I \end{bmatrix}^{-1} \begin{bmatrix} F_G \\ F_R \\ 0 \\ 0 \end{bmatrix} = \begin{bmatrix} Q_G \\ Q_R \\ W_G \\ W_R \end{bmatrix}$$

where $\begin{bmatrix} (I-A_{GG}) & -A_{GG} & -A_{GG}^{H*} & -A_{GG}^{H*} \\ -A_{RG} & (I-A_{RR}) & -A_{RG}^{H*} & -A_{RG}^{H*} \\ -A_{WG} & 0 & I & 0 \\ 0 & -A_{WR} & 0 & I \end{bmatrix}^{-1}$ is the Leontief inverse.

Equation (A3.7) is an accounting identity. It shows that all the final output and wage payments can be attributed to final demand through the Leontief inverse. Similarly if the output vector is multiplied by the appropriate average sector specific employment output and GDP-output coefficients, the total employment and GDP of the region can similarly be attributed to final demand in the same way.

The Leontief inverse is a means of incorporating all the domestically produced intermediate inputs and domestic household consumption to elements of the vector of final demands. This also means that if the final demand vector is subdivided, as in equation (A3.6), then the outputs attributed to those individual subdivisions of final demand can be identified separately. We report such a subdivision in the text. This is where we separately identify the impact of sports-tourism expenditure and the displaced household expenditure. For example, the output and wage income attributable to sports tourism expenditure, indicated here with T superscripts, is calculated as:

(A3.8)
$$\begin{bmatrix} (I-A_{GG}) & -A_{GG} & -A_{GG}^{H*} & -A_{GG}^{H*} \\ -A_{RG} & (I-A_{RR}) & -A_{RG}^{H*} & -A_{RG}^{H*} \\ -A_{WG} & 0 & I & 0 \\ 0 & -A_{WR} & 0 & I \end{bmatrix}^{-1} \begin{bmatrix} T_{GG}+T_{GR}+T_{GROW} \\ T_{RG}+T_{RR}+T_{RROW} \\ 0 \\ 0 \end{bmatrix} = \begin{bmatrix} Q_G^T \\ Q_R^T \\ W_G^T \\ W_R^T \end{bmatrix}$$

The corresponding attributed employment (E) and GDP (V) are given as:

(A3.9)
$$\begin{bmatrix} E_G^T \\ E_R^T \end{bmatrix} = \begin{bmatrix} \mathrm{E}_G & 0 \\ 0 & \mathrm{E}_R \end{bmatrix} \begin{bmatrix} Q_G^T \\ Q_R^T \end{bmatrix}, \quad \begin{bmatrix} V_G^T \\ V_R^T \end{bmatrix} = \begin{bmatrix} \Omega_G & 0 \\ 0 & \Omega_R \end{bmatrix} \begin{bmatrix} Q_G^T \\ Q_R^T \end{bmatrix}$$

where E and Ω represent diagonal matrices in which the i-th diagonal element is the i-th sector's employment-output and GDP-output ratio respectively. The off diagonal elements are zero.

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