Travelling to and Attending Major Sporting Events:

Determinants of Total Spend and Trip Duration Decisions

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Abstract

The global growth of sport and major sporting events as tourism and mass entertainment in both single and multi sport formats has prompted the desire for a greater understanding of event attendees and the implications of their motivations and decisions to travel and attend major sporting events. However, research into major sporting events has generally focused on the Olympic Games and/or attendance of a single major sporting event. Currently, the major sporting event community sees the value of measuring the economic impact of major sporting events but do not understand the decisions taken by individuals that travel to and attend major sporting events due to the lack of research in the area. Thus, more robust and comprehensive research needs to be carried out to improve the understanding of individuals that travel to and attend a range of major sporting events.

The purpose of this research was to develop a better understanding of the total spend and trip duration decisions of individuals that travel to and attend major sporting events with commercial companies. The research used a positivist quantitative strategy to empirically assess research questions surrounding repeat major sporting event attendance, motivations for major sporting event attendance, variables affecting total spending and trip duration decisions and relationships the between motivations, trip duration and total spending, and to econometrically model findings. Independent variables for analysis were identified through a review of literature, which informed the construction of both a conceptual model and online survey focusing on demographics, event related motivations, major sporting event profile and sporting involvement. Variable-based data collected from individual respondents on nine different major sporting events then underwent a two stage descriptive and statistical analysis. The descriptive analysis consisted of a quantitative breakdown of survey results and the statistical analysis allowed the data to be econometrically modeled and assessed through regression analysis.

The research provided significant findings towards understanding the decisions taken by individuals that travel to and attend major sporting events and in doing so led to a greater understanding of total spend and trip duration decisions. Findings indicated that the demographic variables and event related motivations determined total spend decisions whilst demographic variables, event related motivations and major sporting event profile

variables determined trip duration decisions. Directly implicated in these findings were relevant key variables for commercial companies to consider in the packaging and sale of major event sport travel to an existing and committed customer base. Furthermore, the results can be extended and applied to populations within a broader sport event community such as managers, planners and evaluators to enhance the economic impact of major sporting events through a better understanding of event attendees.

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1 Chapter One: Thesis Introduction

1.1 Introduction

This thesis contributes to the sport tourism and major sporting event literature by investigating a segment of individuals that travel to and attend major sporting events with the aim of determining their total spend and trip duration decisions. The segment that is considered within this research are the 'Event Visitors' segment highlighted by Preuss (2005) and Preuss, Seguin and O'Reilly (2007), who are considered to be those individuals that travel to a host city/destination with the intention of attending the sporting event[1].

This research has been conducted in partnership with a commercial sporting events company that packages and sells tickets for domestic and international sporting events, such as the Beijing Olympic Games, Vancouver Winter Olympics, FIFA World Cup in South Africa, International Test Cricket, International Tennis tournaments and other sporting events. Partnering with this company enabled the researcher access to the commercial company's client list as well as individuals that accessed the company's website. Subjects are therefore, individuals that are interested in and have previously travelled to and attended major sporting events with a commercial sports event company. This research therefore seeks to further the understanding of this segment of the market by investigating the total spend and trip duration decisions involved in travelling to and attending sporting events with this commercial company.

Sport events are a phenomena that are now organised across the world in both single and multi sport formats and have developed into forms of mass entertainment (Masterman 2009). The definition of events is however, not settled. Masterman (2009:12) cites several examples that illustrate that different authors such as Getz (1997); Allen, O'Toole, McDonnell and Harris (2002); Goldblatt (1997) and Hall (1992) who all use different terminology to refer to sporting events with terms such as hallmark, mega, major and minor events all being used with no common consensus as to which terminology should be used to denoted which specific event. To avoid this confusion and to provide a

[1] A full discussion of the categories is provided in Chapter Two, section 2.3.3.

definition of sporting events for this research the classification and definition of sporting events by UK Sport is utilised. UK Sport distinguishes between A, B, C, D, E type major sporting events. They are termed to be major sporting events in terms of their sporting outcomes (UK Sport, 1999). This research therefore uses this typology to classify the nine major sporting events sampled within this research: Olympic Games; Winter Olympics; Commonwealth Games; Football World Cup; Rugby World Cup; Test Match Cricket; International Tennis; World Championships - Any Sport and any Other Most Recent Event. A full discussion of the UK Sport typology is provided in section 2.3.1 of the literature review, with section 3.3.1 of the methodology illustrating the way in which this research utilised the UK Sport typology to classify the events sampled within this research.

It is acknowledged, within this research, that a significant proportion of the literature focuses on individual major sporting events from either the perspective of evaluating the economic impact of the event or the reporting of the demographics and characteristics of the events attendees. Within this body of literature there is little work regarding individuals that travel to and attend major sporting events generally. Armstrong (2002) and Gibson (1998), both call for the development of research in this area to be mindful of, and build upon the existing literature base. This research does this by collecting data relating to total spend and trip duration for more than one major sporting event and provides a statistical analysis of this data. Econometrics is used to model the data to illustrate the total spend and trip duration decisions of individuals that travel to and attend major sporting events. This extends the literature beyond that of a descriptive account of individuals that travel to and attend major sporting events. The act of travelling to a major sporting event is a key concept within this research, to enable this research to build on the work of others in this field of study, therefore the definition of sport tourism proposed by Gibson (1998) has been utilised within the context of this research. Gibson (1998) sees sport tourism as leisure-based travel that involves an individual temporarily leaving their home community to play, watch or visit attractions related to sport. This may involve leisure based travel for a day, or where nights are spent way from home.

In investigating the total spend and trip duration decisions, consideration has been given to profiling major sport attendees and to the motivational aspects of decisions to travel to and attend major sporting events, to examine whether previous behaviour and

motivations impact the total spend and trip duration decisions. This research therefore seeks to address the following research questions within Chapters Two to Five,

Do individuals repeatedly attend major sporting events?

- If so can a profile be established of repeat major event attendees?

What motivations are important for total spend and trip duration decisions when travelling to and attending major sporting events?

Which variables affect total spending decisions?

Is there any relationship between motivations, trip duration and total spending (expenditure)?

- Do motivations impact an individual's total spending decisions when attending major sporting events?
- Do motivations impact an individual's trip duration decisions when attending major sporting events?
- Does trip duration affect spending decisions when attending major sporting events?
- Does spending affect trip duration decisions when attending major sporting events?

In order to answer these research questions, the research objectives for this research are therefore to,

1. Review the current literature on major sporting events, with particular respect to travel, tourism, motivations and the economic importance of major sporting events.
2. Synthesise the insights from the travel motivation and event expenditure literatures to develop an econometric model in which the relationships between motivations, trip durations and expenditures will be tested.
3. Collect data from individual respondents on nine different major sporting events relating to major sporting event motivations, trip durations and expenditures, as well as demographic profiling information.
4. Provide a detailed discussion of the motivations for major sporting event attendance.
5. Provide a micro level evaluation of total spending and trip duration for major sporting events.

6. Provide an extension of the analysis of those that travel to and attend major sporting events beyond that of a basic quantitative descriptive account to one in which statistical testing is undertaken.
7. Provide recommendations and conclusions that can be used by those that manage and market major sporting events in order to enhance the economic impact of hosting a major sporting event.

In fulfilling these research questions and objectives this research will develop and test an econometric model that has sampled nine different major sporting events to enable the total spend and trip duration decisions to be illustrated for a specific segment of individuals that travel to and attend major sporting events. The literature review will illustrate that this has not previously been achieved.

1.2 Thesis Structure

This chapter has introduced the area of study and the research objectives and research questions. The literature review takes the structure of initially addressing the scale and size of the industry, defines major sporting events and illustrates how major sporting events have become used as a policy tool. The economic impacts of major sporting events are discussed in section 2.3. Section 2.3.4 introduces the individual level analysis of Preuss's (2005); Preuss, *et al* (2007) and Gratton, Shibli and Coleman (2006) of a direct impact approach to event evaluation. These studies are singled out in order to consider how to model an individual's expenditure at major sporting events. Economic theory regarding spending is discussed within section 2.4 as the chapter illustrates the spending functions that are applicable for use in this research. Section 2.5 then synthesises the literature on motivations and illustrates how the motivations to travel to and attend major sporting events are reported within the literature.

Section 2.6 brings the findings of the chapter together to produce the conceptual model for this research. This conceptual model forms the basis for the data collection of this research and highlights the areas of the sports tourism market that is under investigation. The conceptual model is further discussed within Chapter Three. Overall the literature review concludes that there is current lack of research regarding travelling to and

attending major sporting events. In addition to this the literature tends to focus on one specific event and ignores the concepts of travel to the major event and or the motivations involved in travelling to and attending a major sporting event. This therefore develops the understanding and knowledge base that relates to those individuals that travel to and attend major sporting events. This is to be achieved through exploring their decisions regarding total spending and trip duration whilst aiming to build upon comments from Armstrong (2002) that motivations and profiling information need to be established for more than one specific event.

Chapter Three, section 3.2 outlines the positivist methodology adopted for this research. A positivist approach is adopted as this research seeks to identify empirical generalisations in order to achieve and satisfy the research objectives. By utilising this approach this research is seen to be building on and extending on what the literature review has determined to be a primarily descriptive area of work. Section 3.3 discusses the research strategy in terms of the conceptual model that was proposed within the literature review. The model is discussed in detail and illustrates the proposed relationships between the dependent variables trip duration and total spending and the independent variables represented by the components of demographics, event related motivations, major sporting event profile and sporting involvement. Within sections 3.3.2 and section 3.3.3 of the chapter the method of data collection, its formulation and administration is discussed along with the reasoning behind this and the technicalities involved in employing an online survey. The online survey utilises the client list of the commercial partner and the limitations and benefits of working within this research environment as well as the characteristics of the commercial partner's business are discussed. Question selection and testing are justified and illustrated before the chapter discusses, in section 3.4, the methods of analysis that are employed for both the descriptive statistical analysis and the econometric analysis of the results. Initially the results were analysed using SPSS (Statistical Package for Social Scientists) with the analysis consisting of a descriptive and crosstabulation analysis. It is this analysis that is the subject of the discussion in Chapter Four. However, the majority of the analysis discussion focuses on the application and technicalities of a variety of regression analyses and their assumptions and limitations. Section 3.5 finally discusses how this chapter has been translated into practice and applied to this research.

Chapter Four of this thesis presents the descriptive statistics of this research. Here the initial findings of this research are linked to the existing literature base, allowing for comparisons and contrasts to be drawn. Contrasts and comparisons are specifically drawn with six studies that were identified as being related to travel and attendance at major sporting events. By doing this the results of this research are placed within the wider context of the existing literature which highlights the need for a more sophisticated analysis of the data as the relationships that seem to exist need to be more rigorously understood and tested. The descriptive results are firstly presented in section 4.2 with respect to the independent variables and then in section 4.3 with regard to the dependent variables. A descriptive summary of the conceptual model is then presented.

In Chapter Five, the results of an econometric test of the conceptual model are presented. This model demonstrates the variables that that can be observed to impact the total spending and trip duration decisions of those individuals that travel to and attend major sporting events. The econometric model, presented in section 5.5 is the product of this research, which demonstrates that five of the variables within the model influence total spending decisions, and that there are twelve variables involved in the trip duration decision when travelling to and attending major sporting events. The econometric model illustrates that there is only one variable, the availability of tickets, that impacts both total spend and trip duration decisions.

Chapter Six outlines the contributions to knowledge of this research. The contributions of this research are discussed and the chapter illustrates how the research conducted satisfies the research questions that were established in Chapter One. Section 6.2 summaries the main research findings with the implications and future research developments being discussed within section 6.3 of the chapter. Section 6.4 identifies the limitations of this research and addresses any concerns that were raised in the methodology with regard to the research. The research objectives are also reviewed in section 6.5 of the chapter. The research is then finally concluded in section 6.6.

2 Chapter Two: Literature Review

2.1 Introduction

This chapter provides a detailed review of the literature that underpins this research. The literature is reviewed in distinct sections. Section 2.2 addresses the scale and size of the event industry, provides definitions of what constitutes an event, and examines how events have been used in a policy context, from both, a tourism and sporting perspective. Section 2.3 then identifies and explores models for determining the economic impacts from investments in events, discusses the measurement of these impacts and the range of issues that are identified in the literature as being problematic with this area of enquiry. The arguments for focusing solely on the individual and the direct economic impact that individuals can have are discussed along with the relevance of this approach. The economic theory of spending as applied to this research is then outlined in Section 2.4. In section 2.5 the chapter examines the motivations associated with travelling to travel to and attending major sporting events. This is achieved by firstly looking at the motivations for tourism, sport and sports spectatorship and then examining the limited information that relates to the motivations for travelling to and the length of trip taken to attend major sporting events. Following the discussion of each of these sections the chapter in section 2.6 pulls all the information together to enable the development of the research's conceptual model of the total spend, and trip duration decision for major sporting events. The chapter is then concluded.

2.2 Events

This section discusses the literature on tourism and events and sport and events and illustrates the environment in which major sporting events and those that travel to and attend major sporting events operate. Specifically it focuses on the concepts of major sporting events, their classifications and the sports tourism market.

2.2.1 Tourism and Events

In 1999 the World Travel and Tourism Council (WTTC) cited in Holden (2000:5) published figures showing the direct and indirect contributions of travel and tourism to the global economy. These are that travel and tourism account for,

- 11% of GDP
- 200 million jobs which accounts for 8% of global employment
- It is also argued that it will generate 5.5 million new jobs per annum until 2010

More recent figures from the WTTC have shown that in 2007, the travel and tourism industry was responsible for 10.4% of global Gross Domestic Product (GDP) (US$ 5.4 Trillion) (Baumgarten, 2008a; 2008b). Specifically in the UK, 8.4% of all UK employment is tourism related (Oxford Economics cited in Baumgarten, 2007), and in 2006 tourism in the UK totalled 9% of the UK's GDP (Oxford Economics cited in Baumgarten, 2007). Although it must be noted that the WTTC is a private sector forum for travel and tourism business leaders, the information produced and published by the forum provides valuable quantitative information as to the size, scale and impact of the worldwide travel and tourism industry that is unobtainable from other sources. The figures illustrated here indicate that the tourism industry is a significant area of economic activity; however there are difficulties in defining tourism. The World Tourism Organisation in 1991 defined tourism as the activities of people that travel to and stay in places for more than 24 hours, but less than one consecutive year, for the purpose of leisure, business or other activities.

Tourism is made up of many component parts, such as natural and developed resources, transportation, accommodation, other services and attractions, government policy and regulatory frameworks in addition to the human element of feeling, tastes and preferences, emotions and motivations (Leiper, 1979; Gandhi-Arora and Shaw, 2002). Consequently, tourism is now considered to have major economic, social and cultural importance in most developed and developing countries, and this has created a great deal of competition between different destinations and countries for tourists (Gandhi-Arora and Shaw, 2002). Because of this, outside the West and primarily in developing nations, tourism is increasingly been seen as a method for wealth creation (Holden, 2000). The tourism industry has therefore experienced a growth in the availability and differentiation of tourism products and this has led to specific niche markets (Gandhi-Arora and Shaw,

2002; LeBlanc, 2004). One of these niche markets is event related tourism. Getz (1991: xi) defines an event as:

> "…an opportunity for a leisure, social or cultural experience, outside the normal range of choices beyond everyday experience",

This suggests that, from a tourism perspective, events have a fixed and short duration and occur infrequently. The growth in event tourism and its associated academic literature has been accompanied by the development of academic literature on those people that attend these events (Getz, 1991; Hall, 1992 cited in Nicholson and Pearce, 2001). Increasingly, there have been attempts to try and further understand the motivations that cause individuals to attend events in order to cater for their needs and wants better. Work has also been done on establishing whether there are differing motivations experienced by people attending different events. This includes examining the broader motivational characteristics associated with attending events (Nicholson and Pearce, 2001). These motivational aspects of event attendance are discussed in section 2.4 of this chapter. The chapter now discusses events specifically associated with sport.

2.2.2 Sport and Events

Since the 1800s, elite sport has become a major form of popular entertainment and in today's society sport has become a social phenomenon that is followed by millions, if not billions, of people worldwide (Whannel, 1992; Zauhar, 2004). The economic, social and cultural significance of events has led to many cities across Europe and the West developing and implementing policies geared towards the hosting of major sporting events (Noll and Zimbalist, 1997; Van den Berg, Braun and Otgaar, 2000; Gratton and Henry, 2001). This has been further advanced by many of these cities having additional tourism policies complementing public policy, showing that the cities are positioning themselves as major sporting event hosts. Within many of these countries there are agencies and infrastructure that exist to develop sport and tourism. It is illustrated by Weed (2008) that very often these infrastructures and organisations have been developed as separate entities, whereas their development as a partnership or collaboration may well have been more appropriate and beneficial in both a sporting and tourism context. However, this development and formation of apparently separate entities has traditionally

occurred as the sports sectors of western countries have been developed as public sector organisations, whereas tourism development has been a private sector concern (Weed, 2008). Only recently, especially in the UK and parts of Europe, has sport and tourism been used in a synergistic manner to re-generate geographical areas deemed by the political process to be 'deprived'. This can be seen with the development of the Lower Lea Valley in South London for the 2012 Olympic Park site, which is seen as one of the most challenging urban regeneration projects in Britain (Greater London Authority, 2007). Roche (1994:4) comments that major events now have a context of, and are on, '*the macro and micro political agenda'* as tourism and event research acknowledges that both events and tourism are a political phenomenon.

Specifically in the UK context, the political agenda has evolved to cover and add its support for tourism and the hosting of major sporting events. For example, the UK Government seeks to use tourism and the staging of events as a tool for economic development. Along with this political support, the Government has provided levels of financial support (at national and local levels) through grants, sponsorship and sport and culture campaigns (Hall, 1989). Hosting sporting events and their related tourism activities are thus seen as a way of attracting inward investment into the UK, by using the sport, event and the related tourism activity to showcase the UK and its potential opportunities for investors. For this relationship between sport and tourism to work, the hosting of major sporting events requires the interaction of both sport and tourism policy agendas, not only at a local level, but also a national government level (Weed, 2003). However, as Weed (2003) has shown, tourism and sport agencies perceive there to be potential benefits from hosting sporting events, but there has been a reluctance to work together. The political agenda and accompanying power to bring together sports and tourism agencies needs to be capable of creating a conducive working environment, but also be able to create a learning environment enabling policy partners to learn from each other, ensuring that the event is a success from both a sports and tourism perspective (Weed, 2008). Similarly Gibson (1998) has also shown that the areas of sport and tourism have been researched separately and that joined-up working between sport and tourism has to also translate into the academic and research communities. Therefore for this relationship to work and to develop, it is not only on the policy setting level where sport and tourism have to cooperate and work together, but also on a research level in order to evaluate the outcomes and outputs of policy and interactions. An exemplar of this policy setting agenda can be seen by the British Government's Game Plan document. Although primarily a strategy for delivering Government objectives for sport and physical

activity, Game Plan showed how hosting major sporting events could enhance the reputation and image of the UK as well by illustrating the part that sport could play in generating economic gains for the economy (DCMS/Strategy Unit, 2002). This policy signalled a movement away from hosting sports events for the sake of sport to a policy agenda that illustrated the benefits of hosting major events in conjunction with central government support in order to fully enhance the economic outcomes and potential of hosting major sporting events. In order to host major sporting events in the UK it is now common policy to have a fully comprehensive assessment of all costs, benefits and risks of hosting an event as well as effective control and monitoring processes in place (DCMS/Strategy Unit, 2002)[2]. These processes of monitoring and impact evaluation methods will be discussed in more detail in section 2.3.2 and 2.3.3 of this chapter.

The importance of hosting sports events is implied in the fact that they have become to be seen, and valued, as commodities that are 'won' by cities after a long and hard fought bidding process, or competition, against other cities. This is not to say that this has always been the case. For example the Munich (1972) and Montreal (1976) Olympic Games led to significant losses for the public sector. Munich in 1972 experienced a loss of £178 million with Montreal losing £692 million four years later in 1976 (Gratton and Taylor, 2000). However, for the Olympics, arguably a turnaround came with the 1984 Los Angeles Games. These were funded privately as the citizens of Los Angeles voted against hosting a publicly financed Olympic Games (Preuss, 2004). The Games proved to be a commercial success, making a surplus of £215 million and paving the way for privately financed games through the sale of Olympic rights through broadcasting and sponsorship (Gratton and Taylor, 2000; Preuss, 2000; 2004). The financial success of the Los Angeles Games changed the attitude of cities and governments towards hosting major sporting events and so began the understanding of the broader economic benefits of hosting such events (Gratton and Taylor, 2000). It must be noted here; however, that the concept of '*hosting*' an event implies positive welcoming connotations and that the 'host community' has extended an invitation to, and is happy to, receive tourists. This may not always be the case. Events may be forced upon a community and tolerated, but not welcomed by all in the community. Major events such as the Olympics Games do have opposition movements that work against the hosting of major events (this is not covered within this thesis, but for further information see work by authors such as Helen

[2] The UK is not alone in this policy setting agenda, for example, the Australian Government has a Government policy for specifically developing sport tourism.

Lenskyj). The terms '*hosting*', '*host*' and '*host community*' are used within this research acknowledging this issue. The market for sporting events is now illustrated in section 2.2.3 of the chapter in order to demonstrate the size and scale of the market for major sporting events.

2.2.3 The Market for Sports Events

It is shown by Table 2.1 that in the UK in 2006 it was estimated that over 40 million adults experienced some form of live sport, with nearly 12 million people attending a live professional sporting encounter. This is a trend that is expected to continue to rise and consequently expenditure on sports event attendance is also predicted to rise. Mintel (2007) reports that between, 2005–2006 consumer expenditure on just over 150 million sports event attendances was valued at £920 million, with this expenditure figure being expected to exceed £1 billion in 2008. The popularity of sports events has reportedly increased as spectator sports have seen the overall market grow by nearly 2.5 million people between 2002 and 2006 (Mintel, 2007). Table 2.1, shows the growth in the market during the period 2004 – 2006, however it must be noted that the scale of measurement used for the live event category was altered by Mintel for the 2006 survey. This therefore may have some bearing on the results and over inflated the percentage change seen. However Table 2.1 does show that in 2006, 8 million adults in the UK bought tickets to attend a live professional sporting encounter as a sports spectator. This is not surprising as the UK have been seen as a market leader in the staging of major sporting events due to the wealth of annual domestic events such as Wimbledon and the FA Cup that are staged within the country (Gratton and Taylor, 2000). Sport and sporting events in the UK are seen as important to the UK tourism industry with their importance being quantified by UK Sport to be currently worth over £1.5 billion per annum (UK Sport, 2005:68), with sports events alone, to be soon estimated to be contributing £1 billion.

Table 2.1: Consumers Experiencing Live Sport 2004 - 2006

	2004 Adults in millions	2006 Adults in millions	% Change 2004-2006
All experiencing live sport	36.7	41.3	+12.5
Spectator at live event – ticket for one-off game/ event*	5.9	8.0	n/a
Spectator at live event – season ticket/other membership	2.4	2.5	+4.2
Spectator at live event – business guest/corporate entertainment	1.0	1.0	-

* Prior to the current survey, this response was phrased: "spectator at live event – ticket on the day"

Source: Mintel (2007)

The growth and importance of sporting events can also be seen to have occurred on a global scale over a number of years. When examining four major sporting events, the Olympic Games, the Winter Olympics, Football World Cup and the Rugby World Cup spectator attendance figures at these events illustrate that these events attract significant numbers of spectators as can be seen in Table 2.2. As a result of this, major sporting events can be expected to have experienced increasing ticketing returns with the only limiting factors being seen as the number of available tickets and the staging venue size. Due to the levels of growth and the economic focus on sporting events, ticketing returns are now viewed as a key source of revenue for staging any major sporting event due to the number of tickets that can be sold for major sporting events and the resulting potential revenues.

Table 2.2: Major Sporting Event Attendance Figures

Major Sporting Event	Total Attendance
Olympic Games (Tickets Sold)	1984 Los Angeles: 5.7 million 1988 Seoul: 4.4 million 1992 Barcelona: 3.021 million 1996 Atlanta: 8.318 million 2000 Sydney: 6.7 million 2004 Athens: 3.8 million 2008 Beijing: 6.5 million
Winter Olympics (Tickets Sold)	1988 Calgary: 1.6 million 1992 Albertville: 900,000 1994 Lillehammer: 1.207 million 1998 Nagano: 1.275 million 2002 Salt Lake City: 1.525 million 2006 Turin: 900,000
Football World Cup	1986 Mexico: 2.4 million 1990 Italy: 2.5 million 1994 USA: 3.6 million 1998 France: 2.9 million 2002 Japan/Korea: 2.7 million 2006 Germany: 3.4 million
Rugby World Cup	1987 New Zealand: 600,000984 1991 UK and France: 1 million 1995 South Africa: 1.1 million 1999 UK and France: 1.7 million 2003 Australia: 1.9 million 2007 France: 2.24 million

Sources: FIFA (2010); IOC (2010); IRB (2008).

This growth in sports events can be linked to the wider growth in sport as sport today is one of the most heavily packaged and promoted products in our marketplace (Coakley, 1994 cited in Crawford, 2004). Since the 1980s there has been a marked increase in the volume of capital that has entered sport. This capital has come from sources such as the sale of broadcasting rights, internet rights, equipment manufactures sponsorship, PR companies and through the sale of equity on the stock market (i.e. floatation of football clubs) (Giulianotti, 2002 cited in Crawford, 2004), resulting in big business now having a vested interest in the running of sport (Crawford, 2004). With the aid of the internet and satellite television, sporting events of national and international significance have become global sports events. Crawford (2004) has shown that sport, predominantly professional sport, and the media have had a long standing relationship and it has often been observed that one may not exist without the other and in acknowledging this, there has

been a categorisation in the literature on sports spectators between those that attend the live event and those that consume the event though its media representations.

Media interest in sport has enabled a wider group of people, including those that often want to attend sporting events but are constrained in doing so, to experience sporting events. The media therefore allows individuals to vicariously follow an event (Kim and Chalip, 2004; Wann, Melinck, Russell and Pease, 2001 cited in Mehus, 2005) through one of their many representations of the sporting event, whether it be via TV, radio, online or in print. Most commonly, individuals will follow sporting events via the television, radio and internet as the event is occurring, whilst utilising newspapers and magazines after the event has taken place. Men have been shown to be more likely to use media representations of a sporting event, creating their own individual sporting preferences profile

In becoming a sports fan, you only have to proclaim that you are a sports fan; therefore the barriers to becoming a 'sports fan' are often easier overcome than for other sporting activities, as it requires no specialised equipment or skills to participate and begin to form an identity as a sports fan (End, Kretschmar and Dietz-Uhler, 2004). Moreover, it has been found that those that are a sports fan and attend sporting events are more likely to be involved in sports participation, as sports participation is seen as a powerful predictor for both direct and indirect consumption of sport (Thrane, 2001; White and Wilson, 1999). This has been further illustrated by Armstrong (2002) whose findings indicated that over two thirds of her respondents interacted with sport by watching and talking about sport whilst over half of the respondents were active participants in sporting activities. Armstrong (2002) admits that the investigation findings only serve the attendants at one American sports event at a particular point in time, but she goes on to highlight that there is a need to build on and refine this profiling and motivational information for different sports events as well as events at different levels of competition, to be able to evaluate the usefulness of the motivational factors that have already been tested in the literature.

2.2.4 The Sport Tourism Market

Major sporting events can be positioned with in the Sports Tourism Market. The sports tourism literature indicates, however that there is a very clear distinction between those that participate in 'active' sports tourism, those people that travel to participate in a particular sport, and those that participate in 'passive' sport tourism, such as travelling to attend an event as a spectator. In this section the sports tourism market and the sports tourist literature is examined to illustrate this 'active' and 'passive' distinction. At the very early stages of academic enquiry into sport tourism Glyptis (1982) categorised sport tourism into 5 types by forms of demand – sports training, activity holidays, 'up-market' sports holidays, general holidays with sport opportunities and spectator events (Table 2.3).

Table 2.3: Demand Types of Sports-Related Tourism

Category of Demand	Description
Sports Training	Take advantage of climate and/or facilities and are usually undertaken at the elite level of sports performance.
Activity Holidays	Provided in the main by the commercial sector and activity holidays aimed at higher socio-economic groups.
Up-market sports holidays	Which include shooting, hunting, game fishing and golf with luxury accommodation and ancillary services and facilities.
General holidays with sports opportunities	Usually organised on a club or resort basis. The sports opportunities available often involve family-wide participation.
Spectator events	Involves individual and group travel on a national and international level with events ranging from football matches to the Olympic Games.

Source: adapted from Glyptis (1982)

Weed and Bull (2004) modified these categories, as presented in Table 2.4 to; tourism with a sports content, sports participation tourism, sports training, sports events and luxury sports tourism were thought more appropriate for use in today's society as they better reflected the sport tourism niche markets that had developed over the past twenty five years since much of Glyptis's work in the early 1980s.

Table 2.4: Weed and Bull Sport Tourism Categories

Weed and Bull's Categories	Description
Sports Training	Trips where the primary purpose is for sports instruction or training, can be weekend beginner courses to elite training camps.
Sports Participation Tourism	Sport is a primary purpose of the trip which can encompass a full range of sporting activities, thought of as outdoor/ adventure holidays, such as hiking or Skiing.
Luxury Sports Tourism	Characterised not by the quality of the sporting opportunities, but the quality of the facilities, accommodation and services on offer.
Tourism with a Sports Content	Sport is the primary purpose of the trip and is not an organised part of the holiday. Sports facilities / opportunities do not play any part in the choice of the destination. Any sport takes place spontaneously.
Sports Events	Tourism where the primary purpose of the trip is to take part in sports events either as a participant or as a spectator.

Source: Weed and Bull (2004)

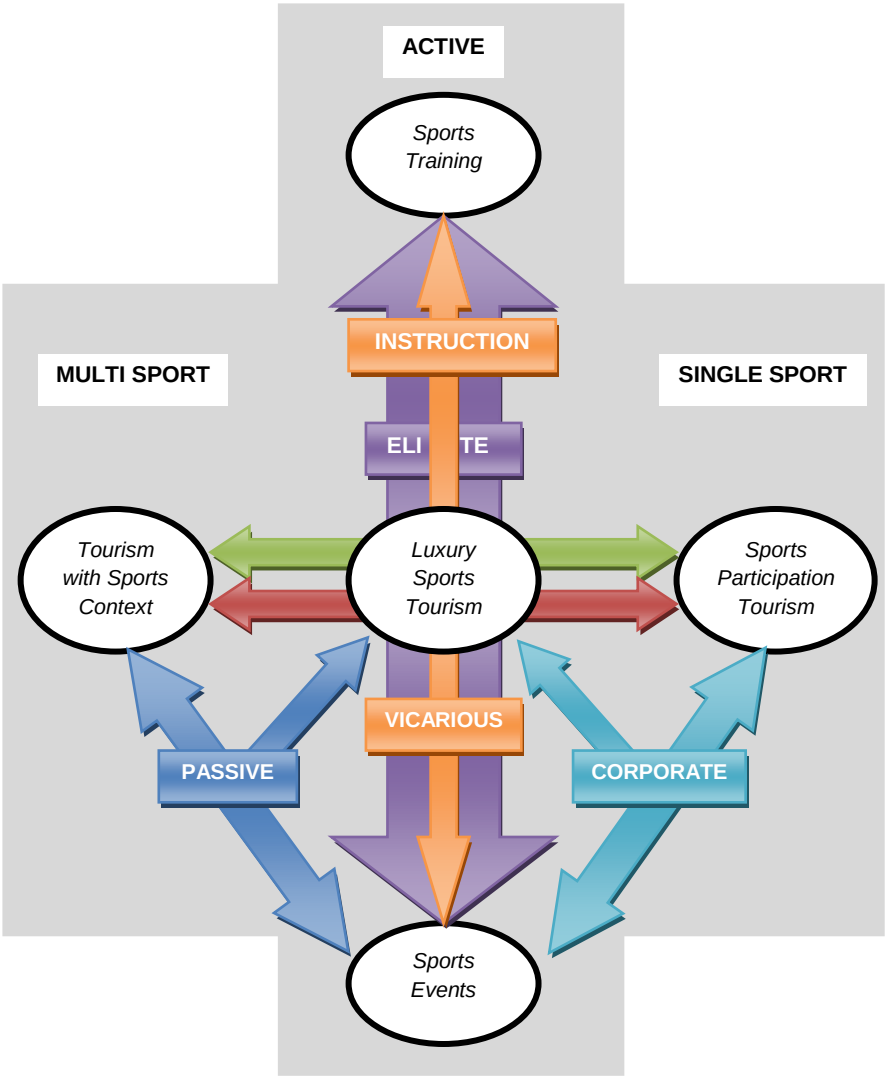
Table 2.5 shows the conversions from Glyptis' to Weed and Bull's categorisations. The change in categories and language were seen by Weed and Bull (2004) to be more appropriate to the way the market had changed and developed in the time that had elapsed. Also the range of academic enquiry, according to Weed and Bull (2004), into these areas had changed as they felt that research no longer simply was concerned with demand assessments, but complex research investigations that mirrored the increasing complexity and diversity of the growing sport tourism market. In modifying the categories Weed and Bull (2004) also argued that there are interactions between the categories.

Table 2.5: Sport Tourism Category Modifications

Glyptis's Categories		Weed and Bull's Categories
Sports Training	→	Sports Training
Activity Holidays	→	Sports Participation Tourism
Up-Market Sports Holidays	→	Luxury Sports Tourism
General Holidays with Sport Opportunities	→	Tourism with a Sports Content
Spectator Events	→	Sports Events

Weed (2008) presents these interactions as shown in Figure 2.1, further illustrating that there were a number of different elements to the sport tourism market. The five categories of sport tourism form the basis for the model, showing how interactions can occur between each of the categories and how active and passive forms of sport tourism fit into the model, as well as single, multi and elite sport, corporate and vicarious aspects of the industry.

Figure 2.1: Model of Sports Tourism Types



Source: Weed (2008)

The model shows that what Weed (2008) deems as 'features', the terms multi, single sports, passive, active, vicarious activities, can be associated with the sport tourism types

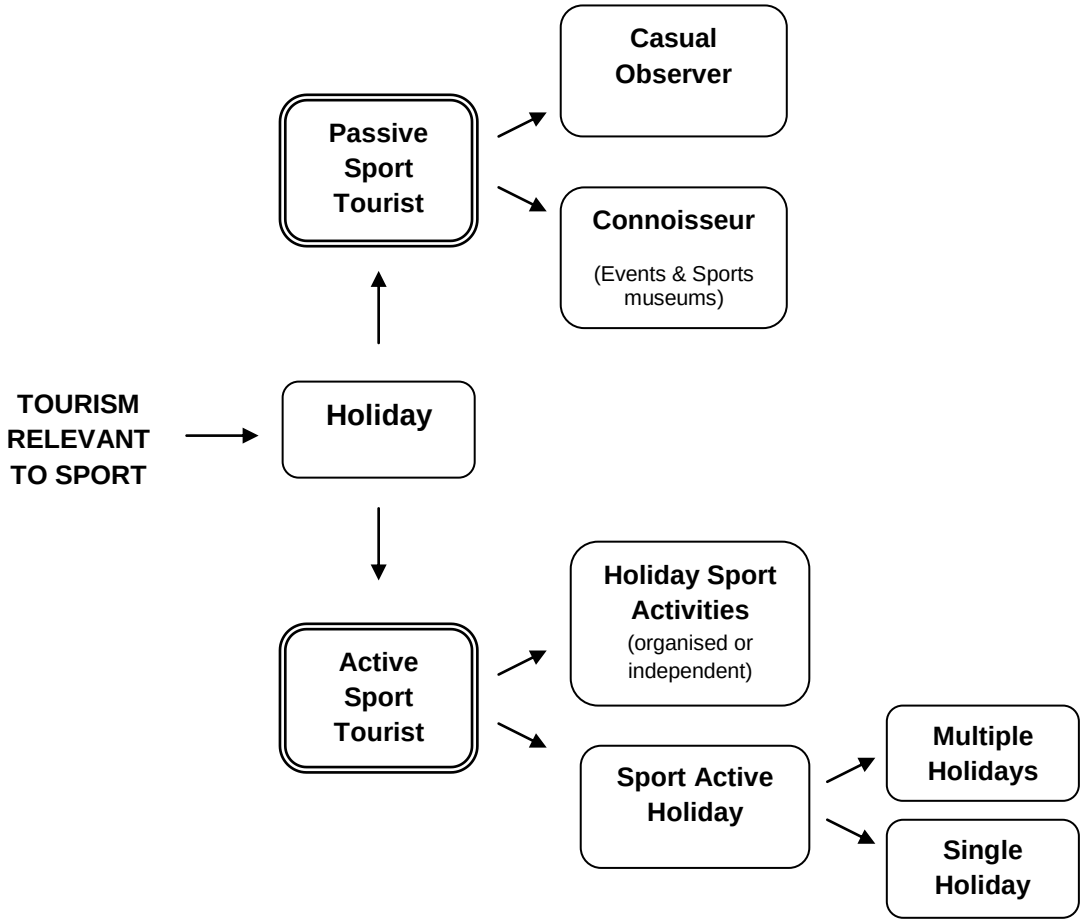
illustrated in Table 2.4. By displaying the 'features' and sport tourism types in terms of the model Weed (2008) illustrates that the sport tourism types can have some general characteristics. However, Weed (2008) is clear to point out that this does not mean that the 'feature' defines the tourism type, only that it may be a way in which the tourism type is experienced. Weed (2008) at some length discusses the interactions of the model and how each of the sport tourism types can display its 'features'. It is shown how Luxury Sport Tourism, at the centre of the model, can be a multi sport, single sport, active or passive, vicarious activity, or involve instruction, be at an elite level or be a form of corporate entertainment. The model is useful in this way as it allows individuals to see the reach of the sport tourism industry and how it can be richly interpreted and shows the diversity of the industry.

Weed (2008) presents this model as a modified version of the previous model that was presented by Weed and Bull (2004). In interpreting and reflecting on sport tourism types and interactions it must be noted that the size, colour and the shape of the arrows are not significant and do not add emphasis to the interactions that Weed (2008) postulates. Figure 2.1 is not an empirically determined model; rather it is an observed and theorised model that has been constructed with modification over time. This model has use to this research as it can visualise the positioning of this research. This research can be seen to occupy the bottom half of Figure 2.1 as its focus is around sports tourism type of sports events and can involve single and multi sports, passive and vicarious activities and it is some of these relationships that are explored within this research.

2.2.5 The Sports Tourist

Since the work of Glyptis acknowledged an active and passive element to the market for sport tourism, there has been an increased focus upon the specific distinctions between those individuals that travel to actively participate in sport, (Active Sport Tourists), and those that travel to watch sports events, (Event Sport Tourists) (Gibson, 1998; Hall, 1992; Standeven and De Knop, 1999 cited in Gibson, Willming and Holdnak, 2003). By modifying Standeven and De Knop (1999) distinctions of active and passive sports tourists Ritchie, Mosedale and King (2002) proposed the model set out in Figure 2.2, to illustrate the differences between the active and the passive sport tourist. The model is concerned only with the primary purpose of the trip.

Figure 2.2: Active and Passive Sports Tourist Distinctions



Source: Ritchie *et al* (2002)

This model from Ritchie *et al* (2002) illustrates that the primary purpose of a holiday / trip with a sporting context will involve an active or passive form of sport tourism. The model then aggregates down the types of activities that make up active and passive sport tourism. By doing this Ritchie *et al* (2002) visualises the concepts that where originally discussed by Standeven and De Knop (1999) to explain the differences between active and passive sports tourists. The model clearly indicates that to be considered as an active sport tourist the individual must participate in particular sporting activities whilst on holiday and this may lead to multiple active sporting holidays, adding the dimension of habitual behaviour to this form of sport tourism. Passive sports tourists on the other hand clearly do not take part in any sporting activity; rather they watch or consume sporting activities such as sports events and or sports related attractions such as sports museums

or halls of fame. However, this model does not afford the passive sport tourist the same dimension of habitual sport tourism behaviour as the active sport tourist as the model does not postulate that a passive sports tourist can engage in multiple passive sport tourism holidays. This is a weakness of this Ritchie *et al* (2002) model as Weed and Bull (2004) illustrate that active and passive forms of sport tourism can have an element of habitual behaviour attached to them.

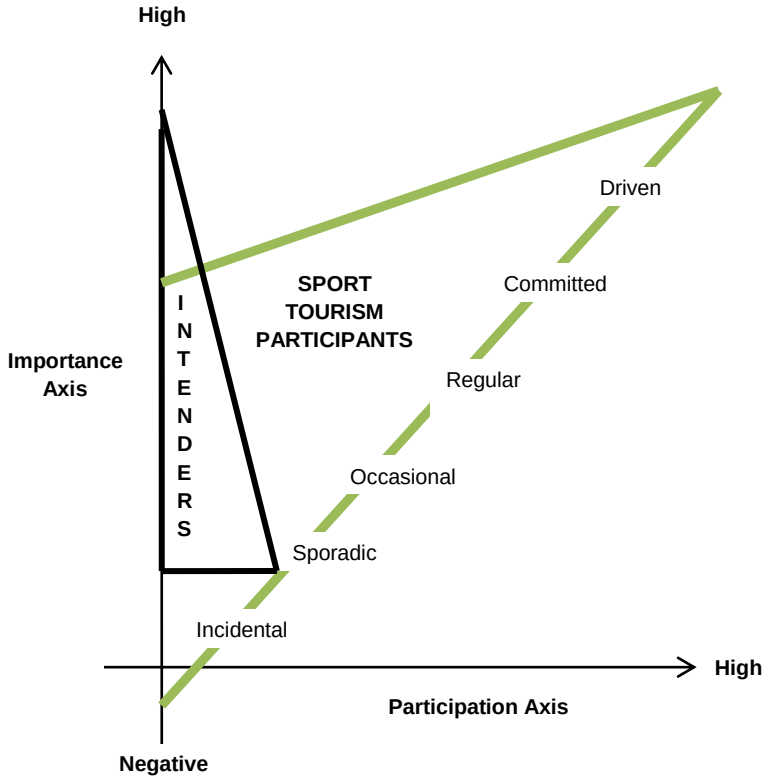
In seeking to address the weaknesses of sports tourism models (specifically Jackson and Weed, 2003 and Ritchie *et al,* 2002), the Sports Tourism Participation Model; Figure 2.3 was developed by Weed and Bull (2004). Their Sports Tourism Participation model theorises the relationship between participation and importance/commitment by plotting sports tourism participation against the importance placed on the sports tourism activities and trips. Participation levels increase along the horizontal axis, whilst importance to the individual, increases up the vertical axis. Weed and Bull's resulting model shows two things; sport tourism participants (green triangle) and their level of commitment/involvement with sport tourism and sport tourism intenders (black triangle), those that want to participate in sport tourism, but for some reason do not.

The model's sport tourism participant triangle shows that there will be a gradation in the actual numbers of individuals at each of the different levels of commitment indicated on the triangle. So at the base of the sport tourism participant triangle there will be many individuals that may be considered as Incidental sports tourists, with numbers decreasing as importance and participation increases and the triangle moves towards driven sports tourism participants. Although the model shows that sports tourist participants can be classified into one of six sport tourism participant types (Incidental, Sporadic, Occasional, Regular, Committed, Driven) the model on its own offers no concept of quantification as to the percentage of each of these sport tourism participant types, that may be found within the sport tourism population, this may be due to this being a theorised model.

As already identified, the intenders triangle within the model is theorised to consist of those individuals that would like to participate in sport tourism but are unable to do so. Again, the base of the triangle will see a greater number of individuals and as importance increases up the triangle, the actual number of intenders will decrease to the peak of the

triangle, but again however, the model offers no quantification as to the actual numbers/percentages of intenders within the sport tourist population. The intender triangle suggests that, for intenders there will come a point where the importance of wanting to participate (peak of the triangle) in some form of sport tourism will become too great and the intender flips to become part of the sport tourism participant triangle.

Figure 2.3: Sports Tourism Participation Model



Source: Weed and Bull (2004)

This model was developed out of the theoretical profiling of sports tourists where Weed and Bull (2004) suggested that there are three broad overarching sport tourist categories, Primary and Associated Experience sports tourists and Tourists Interested in Sport. These categories Weed and Bull (2004) feel acknowledge that there is a significant degree of variation and flexibility associated within sports tourists. Primary Sports Tourists are seen as the mainstream sports tourist market, for whom sports tourism participation is the primary reason for travel; Associated Experience Sports Tourists, interested in the post activity events rather than the actual sporting event - sport is the

primary reason for travel but factors other than sport are the reason for their sport tourism; Tourists Interested in Sport, participating in sport may be a spontaneous activity or have little pre-planning involved, sport is an interest, but not the primary trip purpose. It can be seen from Figure 2.3, that there are different categories of sports tourist and therefore different levels of provision are needed for the different types of sport tourist. Identifying and gaining information on the different types and actual numbers of sports tourists are areas that have not been widely considered by the academic research community and to address this there needs to be further enquiries made into the actual make-up of the individuals at each stage of Weed and Bull's model. Weed and Bull (2004) take this discussion no further than to say there will be significant variation at each of the levels within their model. However, it can be surmised that from their model and their three categories that associated experience and tourists interested in sport are located at the base of the participants' triangle with the primary sports tourists located at the higher end of the scale incorporating the driven and committed sports tourists. It is obviously at this part of the model that of primary sports tourist, which this research is looking to further investigate.

With regard to sporting event attendees there have been many developments of different typologies that try to classify individuals that attend sporting events (for example see Backman and Crompton, 1992; Campbell, Aiken and Kent, 2004; Clowes and Tapp, 2003; Crawford, 2003; Funk and James, 2001; Giuliannotti, 1995; Hunt, Bristol and Bashaw, 1999; Lewis, 2001; Mahony, Madrigal and Howard, 2000; Nash, 2001; Quick, 2000; Stewart and Smith, 1997; Stewart, Smith and Nicholson, 2003; Trail, Anderson and Fink, 2000; 2005; Trail Fink and Anderson, 2003). The research tends to deal with aspects of identification, commitment and entertainment. However, the majority of this work does not have a travelling to and attending an event / travelling sports tourist / sport tourism focus and many studies have been carried out on local teams with convenient samples and have tended to be conducted at sporting events that wouldn't be classed as major sporting events[3]. In acknowledging this, it is not to say that this body of literature is irrelevant to this particular research. While such literature adds value to this research, given that it provides background context and an insight into individuals that attend sporting events, it also facilitates an understanding of the motivational aspects concerned with attending lower level sporting events such as team affiliation and identification

[3] They would be categorised as Type D / E events according to the UK Sport event classification being utilised within this research and therefore their findings and conclusions may not be applicable across the other A, B or C event types.

(Backman and Crompton, 1992; Giuliannotti, 1995; Lewis, 2001), enjoyment and entertainment from the sport and competition (Lewis, 2001; Quick, 2000). This information is therefore important as there is limited literature on the motivations that affect individuals that travel to and attend major sporting events. Consequently these studies can also be used to inform the methods and research tools used within this study, as this research aims to further advance the information on total spend and trip duration decisions of individuals that travel to and attend major sporting events that is currently needed (Downward, 2005; Preuss *et al,* 2007; Weed, 2005) within the body of sport tourism knowledge, in order for event planners and marketers to be able to provide a targeted major sporting event product that engages with the market segments they are focusing on.

Therefore information and previous research into sport spectators and their typologies is important as it illustrates that the underlying motivations of individuals that travel to and attend major sporting events are important and have to be understood. Further discussions as to the motivational aspects of tourism, sport, sports events and individuals that travel to and attend major sporting events will be discussed in section 2.5 of this chapter. This chapter now moves on to discuss economic impacts with the context of major sporting events and how this is reported within the literature.

2.3 Economic Impacts

The scale and size of major sporting events and the importance of the economic aspects of hosting major sporting events are a growing area for academic enquiry. Within this section of the chapter the current models for assessing economic impact analysis are detailed along with the approach of calculating the direct economic impacts for sporting events. The methods of analysis for economic impact are assessed to establish their usefulness in addition to their potential application within the context of this research.

2.3.1 Classification of Major Sporting Events

A range of different definitions and criteria have previously been used to describe sporting events. Downward, Dawson and Dejonghe (2009a) have illustrated this as in Table 2.6

which sets out the most common criteria used in the literature for describing sporting events.

Table 2.6: Common Criteria for Describing Sporting Events

Occurrence	Characteristics
Frequency	**Irregular** Olympic Games, Commonwealth Games, World Championships **Regular** Wimbledon, Six Nations Rugby
Level of Competition	**International** World Cup, Champions League **National** FA Cup Final **Regional/Local** Amateur club championships
Single or Multi sport	**Single** Henley Rowing Regatta, Tour de France **Multi** Olympics, Commonwealth Games, Asian Games, School/university championships
Economic Scale and Impact	**Large or small scale (with respect to)** Attendances**,** Media, Coverage, Sponsorship, Investment requirements
Ownership of the Event	**International Sport Federation** IOC, FIFA, ICCB **Private;** Tour de France, Paris-Dakar Rally
Location and Assignment	Some National stadia, London, Paris, New York marathons **Rotating requiring bids** Olympic and other Games, Champions League Final, Final stage of Tour de France

Source: Modified from Downward *et al* (2009a)

Based on empirical analysis, the Sport Industry Research Centre (SIRC) (formerly known as the Leisure Industries Research Centre LIRC) developed a typology to classify and define major sporting events which can be seen in Table 2.7. This classification of events has been used by UK Sport since the late 1990s as well as in sports event research in the UK, such as, LIRC (1997); Gratton, Dobson and Shibli (2000); UK Sport, (1999), updated by Wilson (2006). The UK Sport typology uses the word 'major' in its descriptors of the events to signify the importance of sporting outcomes rather than just the economic importance of the event. Therefore an event that is classed as 'major' in sporting terms may not necessarily be 'major' in economic terms and vice versa (UK Sport 1999). Evidently this illustrates that the event can either be 'major' in terms of spectators thereby generating a significant amount of economic activity, or 'major' in terms of the numbers of competitors and generating a limited amount of economic activity (Gratton *et al* 2000).

Table 2.7: Typology of Events

Type	Description
Type A	Irregular, one-off, major international events generating significant economic activity and media interest. **e.g. Olympic Games, and Football World Cup**
Type B	Major spectator events, generating significant economic activity, media interest and part of an annual domestic cycle of sport events. **e.g. FA Cup Final, Five Nations Rugby Internationals, Test Match Cricket, Open Golf, Wimbledon**
Type C	Irregular, one-off, major international spectator / competitor events generating limited economic activity. **e.g. European Junior Boxing Championships, World Badminton Championships IAAF Grand Prix**
Type D	Major competitor events generating limited economic activity and part of an annual domestic cycle of sport events. **e.g. National Championships in most sports**

Source: LIRC, (1997); Gratton *et al* (2000); UK Sport, (1999:85)

This classification has been updated by Wilson (2006), whereby minor competitor and spectator sporting events were sampled to assess the economic impact of the event to the host city. The typology now includes 5 event categories including that presented in Table 2.8.

Table 2.8: Typology Update

Type	Description
Type E	Minor competitor / spectator events that generate limited economic activity that attract no media activity and are part of an annual cycle of domestic sporting events

Source: Wilson (2006)

In evaluating the UK Sport typology, Gratton *et al* (2000) summarised the potential economic impact and event drivers of different events as indicated in Table 2.9. This shows that event types A and B should, theoretically, generate the most significant economic impacts; the competitive and complex bidding stages to host them are therefore

understandable (Gratton *et al,* 2000). However, most cities that have chosen to implement a sporting event tourism-led strategy for numerous reasons are unlikely to have the capacity and infrastructure to host a type A or B events (Gratton *et al,* 2000; Preuss, 2002; 2004). This therefore indicates that there appears to be 2 tiers of events and a clear distinction between type A and B events and type C D and E events, leading to cities competing on these two distinct levels to host sporting events.

Table 2.9: Event Typology Characteristics

Type	Regularity	Level of potential economic impact	Event Driver
A	Irregular	High	Spectators
B	Part of an annual cycle	High	Spectators
C	Irregular	Limited	Competitors
D	Regular, annual	Low	Competitors
E	Part of domestic annual cycle	Low	Competitors

It also must be noted here that economic impact of events can be viewed with a longer term strategy when cities and regions are considering bidding to host events. The impact of one off, type A events may be significant, such as the impact of an Olympic Games or a Football World Cup on a host city/region for a small time period, however over time the impact of hosting regular annual events, such as Wimbledon or the Royal Ascot, may be more beneficial to the host cities/regions in the longer term. This is because the host city/region is assured an influx of spectators annually and there is less infrastructural investment needed to host the events year on year, with existing infrastructure being used more regularly.

This research therefore uses the UK Sport sports event typology to define the major sporting events sampled within this research. This typology has been used due to the dual consideration of economic impact and spectators, which for this research is a compatible and more comprehensive typology to use. The details of how this typology is utilised within this research is illustrated within Chapter Three, section 3.3.1.

2.3.2 Evaluating the Impact of Major Sporting Events

In evaluating the impact of sporting events it is possible to employ a number of different approaches. As can be seen from Table 2.10, different academics and evaluation groups have not tended to use the same method to measure economic impact, as there is no common agreement on the 'best' form of economic impact evaluation. It is highlighted in Table 2.10 that there are 4 main forms of economic impact method that have been used; Input Output; Computable General Equilibrium; Macroeconomic Expenditure and Cost Benefit Analysis, within the literature to examine the economic impact of major sporting events. Despite their varying method of analysis, essentially economic impact studies focus on how injections of money stimulate an economy due to the hosting of the sporting event. As has been previously commented on, major sporting events can act as a showcase for destinations that enhance the economic, social, and cultural dimensions of the host, for example by enhancing image, urban redevelopment and renewal, by adding to the tourism infrastructure, encouraging global business and economic development (Getz, 1991). Subsequently, the hosting of major sporting events has been seen as, and used as, a means of achieving these goals, particularly with respect to the hypothesised economic benefits that hosting an event can bring to a host economy.

Table 2.10: Economic Impact Studies of Major Events

Author	Event	Method	US$bn* **	Impact Period
Economic Research Associates (1984)	Los Angeles Olympics 1984	Input Output	2.3 (1984)	Not given
Kim *et al* (1989)	Seoul Olympics 1988	Not given	1.6	Not given
Brunet (1993, 1995)	Barcelona Olympics 1992	Not given	30	Not given
KPMG (1993)	Sydney Olympics 2000	Input Output	5.1 (1992)	Not given
Humphreys and Plummer (1995)	Atlanta Olympics 1996	Input Output	5.1 (1994)	Not given
NSW Treasury (1997)	Sydney Olympics 2000	Computable General Equilibrium	4.5 (1996)	1995-2006
Andersen (1999)	Sydney Olympics 2000	Input Output	4.5 (1996)	Not given
Papanikos (1999)	Athens Olympics 2000	Macroeconomic Expenditure	15.9 (1999)	2000-2010
Balfousia-Savva *et al* (2001)	Athens Olympics 2000	Macroeconomic Expenditure	10.2 (2000)	2000-2010
Cambridge Policy Consultants (2002)	Manchester Commonwealth Games 2002	Cost Benefit Analysis	Not given	to 2007
Madden (2002)	Sydney Olympics 2000	Computable General Equilibrium	(AUS)$6.5 (1996)	1995-2005
Yu (2004)	Asian Games 2002	Not given	(HK)$72.8	Not given
Blake (2005); Price Waterhouse Coopers (2005); EEDA (2006)	London Olympics 2012	Computable General Equilibrium	(£)1.94bn (2005)	2005-2016
Brunet (2005)	Barcelona Olympics 1992	Not given	Not given	1986-2004
Insight Economics (2006)	Melbourne Commonwealth Games 2006	Computable General Equilibrium	(AUS)$1.6 (2002)	2002-2022
Maening and Du Plessis (2007)	World Cup Germany 2006	Cost Benefit Analysis	$0.997	Not given
Maening (2007)	World Cup Germany 2006	Not given	Not given	Not given
Grant Thornton (2003)	World Cup South Africa 2010	Cost Benefit Analysis	(R)21	Not given

*unless indicated ** date of prices if available

Source: Downward *et al* (2009a)

The underlying economic rationale in the UK context for public sector investment in sport currently comes from Game Plan (DCMS/Strategy Unit, 2002), which set out a twin-track sporting approach of elite and mass participation sport. Whereby investments in elite sport, and the production of international success as well as the production of facilities that could host major sporting events, and facilitate mass participation, mutually reinforce one another. Initial investments then allow the host economy to re-use the investment to host subsequent events, albeit, probably at a different event classification type, as the infrastructure already exists within the host community. Any subsequent economic impacts experienced by a host city/region due to the initial levels of investment can be seen as an important benefit of hosting a major sporting event. The major sporting event policy and planning literature concentrates on achieving major sporting event legacies, with organising bodies tending to favour bids that are driven by legacy issues. Masterman (2009) highlights this and states that the legacy implications of the London 2012 bid were what ultimately won London the right to host the 2012 Olympic Games. The International Olympic Committee passes judgement on 'white elephant' facilities built for past Olympic Games (Masterman 2009) which have left host cities with debts from events hosted decades previously such as Sheffield (1991 World Student Games) and Montreal (1976 Olympic Games). Masterman (2009) further discusses the impact of the white elephant legacy and specifically uses the example of Montreal where due to spiralling costs the Olympic Stadium left the city of Montreal and the region of Quebec with large debts which were only cleared through taxes in late 2007 some 30 years after staging the event.

Notwithstanding that the actual hosting of the sporting event is a relatively short term occurrence (one day – three weeks), there are potentially a number of long term consequences (Roche, 1994), which as Table 2.11 illustrates can be positive or negative. This discussion will be expanded on in section 2.3.3 of this chapter after an initial examination as to how the impacts of hosting major sporting events are discussed within the literature.

Table 2.11: Positives and Negatives of Hosting Major Sporting Events

Positives	Negatives
• Image (re-)positioning • Media exposure • Improved infrastructure • Improved facilities (sporting and social) • Urban regeneration and renewal • Increased tourism • Additional employment • Culture exposure • Enhanced international reputation • Increased inward investment	• High construction costs • Temporary congestion problems • Displacement of other tourists • Underutilisation of facilities after events • Public sector may incur losses

Source: Bohlin (2000); Bramwell (1997); Brown (2002); Burgan and Mules (2001); Chalip (2003; 2004); Delpy and Li (1998); Getz (1997); Gratton *et al* (2006); Kasimati (2003); Light (1996); Mules and Faulkner (1996); Preuss *et al* (2007); Ritchie (1984); Ritchie and Beliveau (1974); Ritchie and Smith (1991); Roche (1994); Spilling (1996); Standeven and De Knop (1999).

2.3.3 Measuring Economic Impact

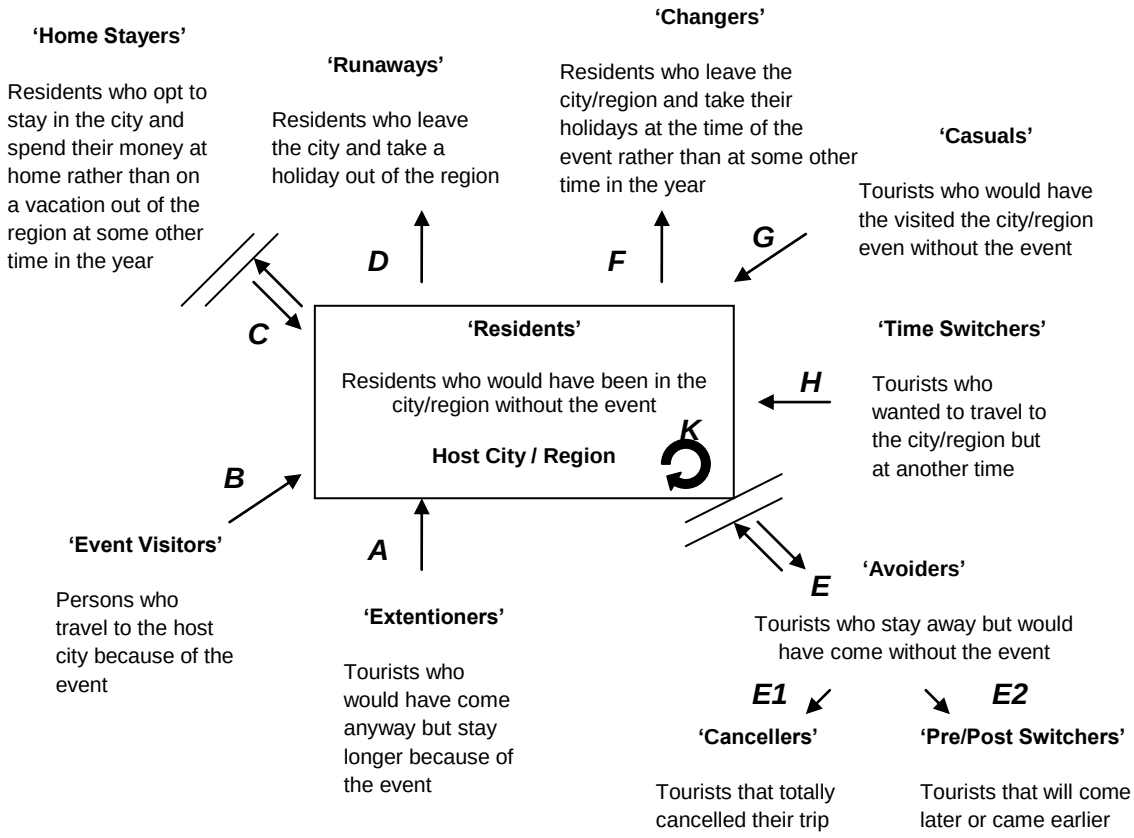
The term and concept of economic impact has become widely used when discussing major sporting events. Crompton (2006) defines it as the net benefits to a host economy that result from investment. Despite this definition as to what constitutes economic impact, there are a number of different methods that have been used empirically by different researchers to try to evaluate the economic impact of major sporting events.

There are two prominent authors with respect to the evaluation of economic impact of major sporting events, Crompton (1995; 2001) and Preuss (2000; 2002; 2004; 2005; 2007). These two authors have tended to offer a more general conceptual account of economic impact, and each offer an evaluative method. Their models offer demand side accounts of economic impact with their roots in the macroeconomic approach as they focus on levels of expenditure; which has obvious relevance for this research.

Preuss (2000; 2002; 2004; 2005; 2007) and Preuss *et al* (2007) identify the economic impact of major sporting events on host economies through the model presented in Figure

2.4. Flows of activity generating and economic impact are summarised in Equation 2.1, (Preuss 2007:288). This model has been refined and developed by Preuss by a number of empirical testing's (Preuss 2000; 2002; 2004; 2005; 2007).

Figure 2.4: Tourism Flows During a Major Sporting Event



Source: Preuss (2005)

$$\Delta Y = \Delta(E2 + G + H + K) + (A + B + C) - (E1 + D + F)$$

Equation 2.1

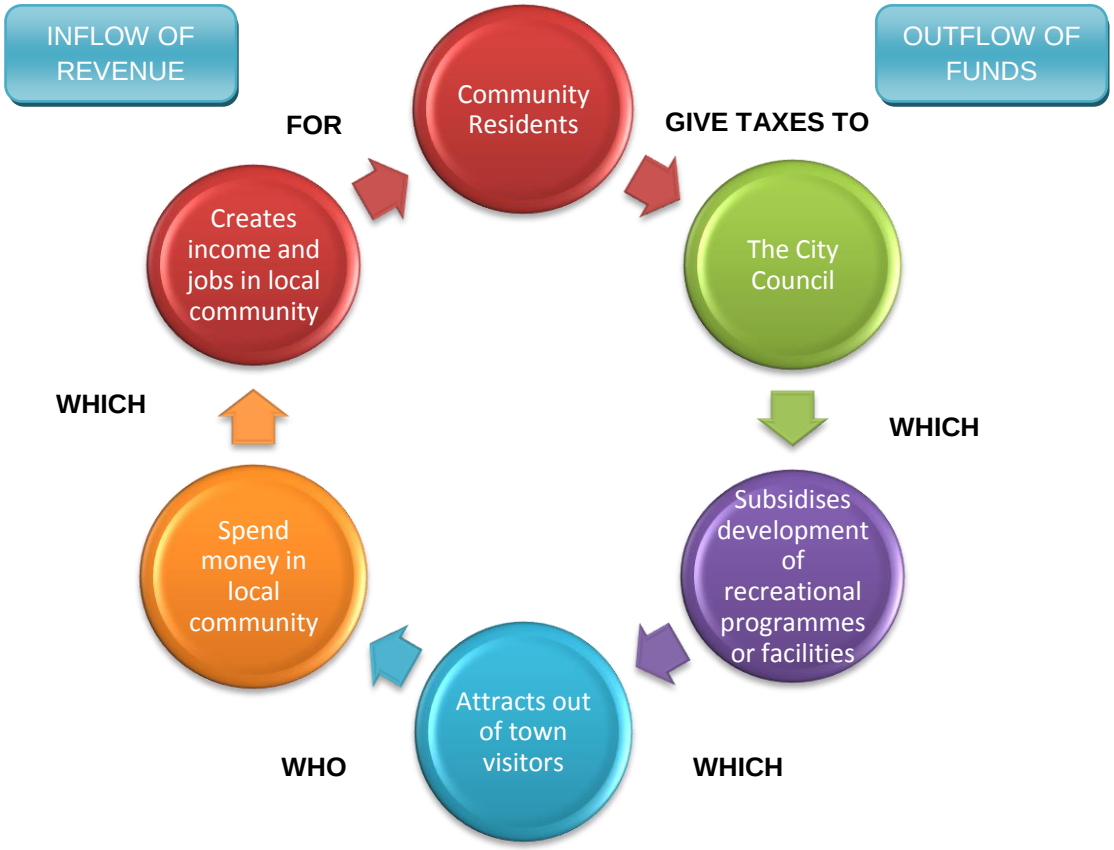
Where $E2$= Pre/Post Switchers, G= Casuals, K= Residents, A= Extensioners, B= Event Visitors, C= Home Stayers, $E1$= Cancellers, D= Runaways, F= Changers

In examining Equation 2.1 and Figure 2.4 it can be seen that, total expenditure for $(E2 + G + H + K)$ (Pre/Post Switchers + Casuals + Time switchers + Residents) is a re-allocation of money in the economy, $(A + B + C)$ (Extentioners + Event Visitors + Home

Stayers) is 'fresh/new' money that enters the economy due to the event and for $(E1 + D + F)$ (Cancellers + Runaways + Changers) the money is lost as there is an opportunity cost for hosting the event for the economy (Preuss *et al,* 2007b). Essentially the expenditure of most interest is the 'fresh' money that is being added to the economy $(A + B + C)$ and this expenditure would typically be made up of spending on accommodation, food and drink, travel, event tickets, event merchandise, souvenirs and other shopping in the host city/region. It can be noted here that this portion of the economic impact calculation is the most important and significant to this research as it includes the spending of the event visitors, those that are travelling to the host city because of the event taking place. Empirically Preuss *et al* (2007) note that to evaluate full economic impact of hosting the event, calculating the opportunity cost of hosting the event through sampling the $(E1 + D + F)$ segments of active participants within the economy poses significant problems. These individuals, by the definition offered by Preuss, leave the economy and therefore have consumption patterns that are difficult to measure, but Preuss *et al* (2007) feel that they still should be considered, but make no suggestion as to how to go about this. Despite this, Preuss *et al* (2007) do provide empirical evidence that indicates that different segments in the host economy have different consumption patterns and therefore the act of segmentation and the consideration of metrics for each segment is a legitimate line of enquiry and necessary to developing the understanding of those that travel to major sporting events and therefore the economic impacts of major events. This research and its aims are therefore appropriate to contribute to this area of study as it provides further evidence as to the variables that impact the decisions associated with travelling to and attending major sporting events.

Crompton (1995; 2001) developed an export multiplier model, based on the national macroeconomic circular flow of income. Crompton's model is illustrated in Figure 2.5. Residents are seen as making the funds available via taxes for councils to invest money in facilities and infrastructure to be able to host events and attract out of town visitors, therefore inducing them to spend money within the local economy, this money then creates income and jobs for the residents of the host community (Crompton, 1995; 2001; 2006).

Figure 2.5: Circular Flow of Economic Impact Within A Host Community



Source: Crompton (2001)

Whilst this simplifies matters to an examination of locally financed activities it does highlight that hosting major sporting events is directly concerned with attracting tourists from outside the region and benefiting from their associated levels of spending (Burgan and Mules, 2001). The additional influx of visitors and their spending is seen as additional expenditure that would not have been injected into the local economy, had the major sporting event not taken place (Crompton 2001; 2006; Jones, 2001). Therefore the type of event along with the composition and ratio of competitors to spectators will affect expenditure and the potential economic impact an event will have on the host economy (Gratton *et al,* 2000). However, this does not automatically assume that high numbers of spectators will result in substantial economic impacts for the host community (Crompton and Lee, 2000; Gratton *et al,* 2000), as is demonstrated by Table 2.9 in section 2.3.1 of this chapter. The type of event and whether the event is spectator driven or not, will have an effect on the economic impact of a major sporting event (UK Sport, 1999). Moreover though, as the majority of major sporting events are type A/B events they are likely therefore to be spectator driven. Downward *et al* (2009a) illustrates that Crompton's

approach is part of a more general approach to understanding economic impacts through the circular flow of income which predicts that expenditure will correspond to income at the aggregate level and therefore the value of the economic output, which can be summarised by Equation 2.2.

$$Expenditure = Income = Value\ of\ Output$$

Equation 2.2

However, there are also leakages from the system in the form of savings by households, taxation by public authorities and the imports of goods and services which, all things being equal, will act to reduce the flow of income. There are also injections that are experienced by the circular flow in the form of investments or expenditure by public authorities and exports, which act to increase the circular flow. Downward *et al* (2009a) illustrates that if these injections and leakages equal each other, they act to balance each other out and the circular flow is said to be in a constant equilibrium. Linked to the injections into the circular flow is the concept of the multiplier. The components of the multiplier have been shown by Downward *et al* (2009a) to be direct, indirect and induced effect as illustrated below in Figure 2.6.

The multiplier as indicated in Figure 2.6 links the value of economic activity caused by an investment to the value of the initial resource injection. Once the value of the multiplier is established then this value can be applied and used to scale-up the value of the economic activity from any investment to identify the true level of economic activity within the economy (Downward *et al,* 2009a).

Figure 2.6: Spending Effects

Direct Effect: The initial increase in expenditure or income connected with the injection of resources by the sports event. For example, the expenditure on building, or spectators visiting facilities, or income received by facility owners, event organisers

Indirect Effect: The increase in expenditure or income generated as a subsequent result of the sports facility construction or hosting the event. For example, the expenditure upon, income received by, suppliers to and employees of a construction company or the company running the sports event

Induced Effect: The increase in expenditures, or incomes received by, suppliers and employees of the organisations that supply those that are building the facilities or running a sports event

In principle the multiplier can be calibrated as:

$$\frac{\text{Direct Effect + Indirect Effect + Induced Effect}}{\text{Direct Effect}}$$

Source: Downward *et al* (2009a:349)

Although Equation 2.2 indicates that expenditure will equal income which in turn equals the value of the output, Downward *et al* (2009a) also note that employment may also be generated by an investment. This situation arises as economic output Y can be derived from the production function with the inputs of land, labour and capital, as illustrated in Equation 2.3

$$Y = Y(Ld, L, K)$$

Equation 2.3

Where Ld = land, L = labour and K = capital

Downward *et al* (2009a) further argue that because the value of the output is equivalent to the value of the inputs then the value of the output is equivalent to the total costs of the factors of production, as illustrated by Equation 2.4.

$$pY = rtLd + wL + rK$$

Equation 2.4

Where p = price of the output, rt = the rental value of the land, w = the wage rate, r = the cost of capital (profit is viewed as a cost and acts to keep capital within the productive activity).

It can therefore be seen to be the case for any given time, with a known price and fixed values of land and capital, the employment effects can be derived as depicted in Equation 2.5.

$$L = \frac{(pY - rtLd - rK)}{w}$$

Equation 2.5

This multiplier calculation illustrates the 'knock on' benefits of public sector investment to host populations, through increase employment opportunities, by hosting a major sporting event. However, there are problems with the multiplier calculations. Downward *et al* (2009a) specifically note that if aspects within the equations change because of the investment then the production function will also change. Downward *et al* (2009a) illustrate this point by demonstrating that if the investment technology changes, so does the production function (Equation 2.3), due to changes in productivity, but also even with similar technology the greater employment of inputs also affects productivity. Therefore in such situations where investments are taken, in the long run, changes in productivity will cause the relative changes in the price of factors of production in connection to their demand, which alters the relative employment of these factors of production (Downward *et al* 2009a). Therefore it is often the case that proportionate calculations of the employment of labour acts to assume these complications away (Downward *et al* 2009a).

Essentially there are three different types of multiplier that are used within the literature to calculate economic impact and can be seen to have been applied in a range of different studies as it illustrated in Table 2.10, which either focus on the demand side or supply side of the economy (Hudson, 2001; Blake, 2005), these models are,

1. Export injection multipliers
2. Input-output models
3. Computable general equilibrium models

Export injection multipliers are based on the Keynesian expenditure multiplier (Downward *et al,* 2009a). This Keynesian expenditure multiplier can be seen to be illustrated by the consumption function in Equation 2.6,

$$C = a + bY$$

Equation 2.6

$$Y = C$$

Equation 2.7

When Y = income, C = consumption, b = marginal propensity to consume (mpc), a = the hypothetical minimum consumption required if income was zero

Equations 2.6 and 2.7 can be solved simultaneously to determine the overall level of income, therefore,

$$Y = a + bY$$

Equation 2.8

Meaning that:

$$Y(1 - b) = a$$

Equation 2.9

Meaning that:

$$Y = a/(1 - b)$$

Equation 2.10

Downward *et al* (2009a) indicates that in this situation if there was an increase in public spending of €100m then the value of a would be increased by this value, with the multiplier being calculated as, Equation 2.11, whereby multiplying the increase in expenditure da by the multiplier gives the rise in income.

$$\frac{dY}{da} = \frac{1}{(1 - b)}$$

Equation 2.11

From this the export injection multiplier uses a more developed version of Equation 2.11, whereby the impact of imports and taxes reduce the value of the multiplier (Downward *et al* 2009a). This multiplier is shown in Equation 2.12, including $(1 - i)$ which indicates the

proportion of initial export generated expenditure that remains an export as multiplying by this reduces the mpc, accounting for imports. Similarly the inclusion of the term $(1-t)$ demonstrates the proportion of initial export generated expenditure that is not taxed (Downward *et al* 2009a:359). The addition of the marginal propensity to import and the marginal tax rate act to reduce the value of the multiplier signifying the leakages within the system.

$$\frac{1}{1-b(1-i)(1-t)}$$

Equation 2.12

Where b = mpc, i = marginal propensity to import (<1), t = marginal tax rate (<1)

The input-output (IO) multiplier is based on deriving supply-side transactions within a given economic region (Downward *et al,* 2009a). A change in the economic activity of one sector within the region can be observed as to its impact on another sector in the same region and the effects that this multiplier has. Dwyer, Forsyth and Spurr (2006a; 2006b) cite a number of assumptions with this form of multiplier analysis.

1. No resource constraints
2. Constant proportions between inputs and outputs are implied from the production function
3. There are neutral price effects
4. Government budgets are neutral
5. Components of demand are exogenous and not given by the model

Basically these assumptions imply that the supply-side of the economy faces an vertical (inelastic) supply curve which, when there is an expansion in a sectors output, results in the derived demand for inputs for other industries/sectors and employment having a proportional rise, with prices not rising to reduce the real value of overall output. Whilst effectively ignoring the impact of any expansion on Government finances (Downward *et al,* 2009a). Downward *et al* (2009a) illustrates how the multiplier is therefore calculated by presenting a set of input-output coefficients in a matrix that summarises the economies trading flows for a unit of output. With Equation 2.13 representing this multiplier,

$$X = [I-A]^{-1}D$$

Equation 2.13

When X = vector of the industries outputs, D = demand for outputs, I = identity matrix

The matrix $[I - A]$ is shown by Downward *et al* (2009a:360) to be calculated by 'subtracting the corresponding elements of the identity and input output coefficient matrices', with the resultant matrix being multiplied by D. It is this matrix that illustrates the multiplier effects for this method of analysis and indicates that for any change in consumption demand, the effect on the industry is a multiple of the demand for outputs that is determined by $[I - A]^{-1}$ where the parameters are the input-output coefficients, which describe the inter-industry trading structure.

The assumptions of the input-output multiplier matrix has been previously challenged and it has been argued by Dwyer *et al* (2006b) and Blake (2005) that maybe a more appropriate method for evaluating economic impact. Dwyer *et al* (2006b) and Blake (2005) both argue that the computable general equilibrium (CGE) method is a more appropriate way to estimate economic impact. Downward *et al* (2009a:360) provides a contrast of these two methods where, the CGE method can be seen to,

1. Constrain the availability of labour and capital so that wages and prices can change only, or as well as output changes, following an injection to the economy.
2. Account for the feedback on the demand for labour, and capital and corresponding consumption of the changes in wages and prices.
3. Components of (real) final demand are endogenous as prices vary
4. Changes in economic activity affect government expenditures and tax receipts.

Downward *et al* (2009a) uses this comparison to illustrate that input-output methods can only be used to evaluate the positive economic impacts and do not take into account the negative impacts, such as crowding out, which can be considered when using the CGE method.

The existence of the multiplier and its effects are the central argument to the justification for specifically using public funds to aid the investment needed to host major sporting events. However, the actual existence of the multiplier and its effects are shown by Downward *et al* (2009a) to be dependent of certain conditions being present within the

economy and the existing supply structure. The effects that the multiplier can have on regeneration and employment, following a resource injection, is basically shown by Downward *et al* (2009a:350) to be connected with the *possibility* of 'subsequent increases in real economic activity'. However, Downward *et al* (2009a) show that for there to be a multiplier effect within the economy due to an injection into the circular flow, there has to be an underemployment of resources in the economy (indicated by a horizontal supply curve); a market failure. Only in this case can an injection into the circular flow not cause an increase in prices, but enable the employment of more resource. The multiplier effect can therefore be seen to be reliant on the presence of market failures within an economy to have an effect. To highlight this point Downward *et al* (2009a) discuss the origins of the multiplier as being deeply rooted in the Great Depression of the 1930s. It is illustrated how the reasoning and logic that was applied to the Great Depression is implied and employed within today's literature and by those responsible for the policy setting agenda to argue for the regeneration of an area with public funds (Downward *et al,* 2009a). The value of the economic output (Equation 2.3) is the product of the price level and the real level of economic output (Equation 2.5). Downward *et al* (2009a) emphasises the point that any injection of income can therefore either result in a change in price and/or output due to the differences in the supply within the economy. The size of the change that is encountered directly from the injection acts to limit the potential effect of the multiplier.

The spatial context of investments is an additional supply-side issue that Downward *et al* (2009a) highlight as being important for consideration when discussing the multiplier, as it is seen as key to consider the "aggregate" form of the economy, whereby the circular economic flow of income is seen as a conceptual model of an economic system with boundaries. These boundaries have to be defined depending on the focus for analysis and as such, the multiplier effects will depend on the spatial context of the analysis being undertaken. Downward *et al* (2009a) illustrates that an injection of one investment may have the effect of "crowding out" other investments, expenditures or cause an increase of leakages from the circular flow, which as illustrated earlier can be seen as a negative impact. This is a situation that can be seen to be occurring within Preuss's (2005) economy model in Figure 2.5, as hosting the event is seen to encourage and discourage visitors to the area, as the model illustrates that tourism and expenditure is diverted to the host economy, or even lost from the host economy all together.

It is also important to consider the timescale that the investment and the subsequent multiplier are operating within. In the idealised situation (perfect competition) with an investment into an economic system, there would be an immediate adjustment within the economy to reallocate resources more effectively with no net overall increase in economic activity. However, in the short term the markets do not act in this perfect uniform manner as the demand and supply-side of the economy take time to react following an injection into the system. Downward *et al* (2009a:353) note that during this period of reaction a number of situations may be possible,

1. In the short term, an injection or increase in expenditure initially appears to increase real output.

   The injection is misconstrued as leading to a real increase in income, however the market system generates full employment in the long run and so only a nominal increase of income occurs.

2. The multiplier effects presuppose that the level of supply capacity or potential is fixed.

   The multiplier works by re-employing unemployed resources, for example an existing vacant facility may be refurbished to host a team/event within the local area. However, if the facility is then used to host an event, the event expenditure that results from hosting the event enters the system not as a direct result of the investment that refurbished the facility. This is therefore an example of an accelerator that acts to reinforce the effect of the multiplier.

The effect of the multiplier / accelerator relationship can be seen to be indicated within Table 2.12. Initial investments into the circular flow are indicated in column one with the purpose of the investment being stated in column two. The externalities and spill over effects of the investment are then seen in columns three and four, with the latter indicating the presence of the multiplier and or accelerator presence (Downward *et al,* 2009a). The final column in the table presents the outcomes that can be measured within the economy. What is apparent from this table is that different forms of investment will have different impacts on the host economy. This obviously has legacy issues for the hosting of major sporting events, especially when the legacy of a bid to stage a major sporting event is attracting such high levels of current scrutiny as discussed in section 2.3.2 of this chapter.

Table 2.12: Impacts of Investment

Investment	Economic Investment	Externalities	Multiplier / Accelerator	Typically Measured Outcomes
Facilitating international sporting success	Support national teams in competitions	1. Increased consumer confidence 2. Increased productivity		1. Rise in consumer confidence surveys, increase in consumption 2. Rise in productivity indices 3. 1 &2 Rise in share prices
Facilitating professional sports teams	Build new / refurbish stadium 1. Visiting spectators 2. Regeneration		Multiplier effect 1. Subsequent multiplier effect 2. Subsequent Multiplier / Accelerator effect	Rise in employment, income or expenditure
Hosting national Teams	Build new/refurbish a National Stadium 1. Visiting spectators 2. Regeneration		Multiplier effect 1. Subsequent multiplier effect 2. Subsequent Multiplier / Accelerator effect	Rise in employment, income or expenditure
Hosting local, national and international events	Build new/refurbish stadia and arenas etc 1. Visiting spectators 2. Regeneration Hosting events 3. Visiting spectators 4. Regeneration		Multiplier effect 1. Subsequent multiplier effect 2. Subsequent Multiplier / Accelerator effect 3. Subsequent Multiplier effect 4. Subsequent Multiplier / Accelerator effect	Rise in employment, income or expenditure

Source: Downward *et al* (2009a:355)

As has been discussed and is illustrated by Figure 2.4, economic impact studies have utilised different methods to evaluate and calculate the economic impact of a major sporting event. As already mentioned in the discussion relating to the type of multiplier, there are problems with these calculations. There is a concern within the associated academic community and its resultant literature, with the application of the different methods used to evaluate economic impact (Crompton and Lee, 2000; Gelan, 2003; Gratton *et al,* 2000). In the mid 1990's Crompton raised awareness (as represented in

Table 2.13), of eleven problems associated with having different calculations for measuring the economic impact of major sporting events (Crompton, 1995). Despite publicising these issues, Crompton was still reporting and highlighting the same issues in 2006, over ten years later.

Table 2.13: Problems With Differing Economic Impact Calculations

	Problem	Implication
1	**Using sales instead of income multipliers**	This model's gross business turnover and not the income created in the locality which may be of more use to local planning and forecasts of government tax revenue
2	**Misrepresentation of multipliers**	Employment multipliers not allowing for changes in working hours, growth in casual part-time work only
3	**Incremental multipliers used instead of proportional multipliers**	The denominator used is direct income rather than visitor expenditure. This inflates the multiplier, as the latter is clearly larger.
4	**Failure to define the region of impact**	Can overstate the impact in a region, part of a city etc
5	**Inclusion of local spectators**	Overstates expenditure
6	**Failure to exclude casual spectators**	Overstates expenditure
7	**Fudging multipliers**	Borrowing a multiplier, say, from an official regional source is misleading. National multipliers will be > state multipliers which will be > city multipliers because of leakages
8	**Claiming total instead of marginal benefits**	The return on the potentially incremental contribution of public funds should be considered otherwise benefits are overstated.
9	**Confusing turnover with the multiplier**	Aggregating spends incorrectly by double counting sales etc overstates the benefits as opposed to 'value-added'.
10	**Omit opportunity costs**	Would a shopping centre not attract more visitors and expenditure?
11	**Measure only benefits**	Omits costs of congestion etc

Source: Downward *et al* (2009a)

The implication is that studies are often capable of knowingly illustrating and engaging in mischievous practices, often with the aim of better proving the legitimacy for hosting the event (Crompton, 2006; Delpy and Li, 1998; Tyrell and Johnston, 2006). This has been

shown to occur through terminology being changed to achieve this, substituting terms such as *economic activity, gross economic impact, economic surge, economic significance, and gross economic output* for economic impact and therefore clouding the actual meanings and interpretations of the study (Crompton, 2006). Other authors have commented on and noted similar practices, Flyvbjerg, Bruzelius and Rothengartter (2003) cited in Theodoraki (2007) show this in relation to bidding and hosting costs. Exact bidding and hosting costs are rarely released into the public domain for public scrutiny illustrating the lack of transparency and showing such issues to be clouded with not wholly 'honest numbers', showing that there are always alternative ways of looking at the same information as there is the ability to put a different 'spin' on the numbers. Delpy and Li (1998) and Kasimati (2003) also highlight these issues and show that attention must be paid to who initially commissioned the economic impact studies and analyse this in relation to the study findings, as reports have often been found to support and further legitimise the commissioning body's' involvement in hosting major sporting events.

For this reason advocates of Cost Benefit Analysis see this measure of economic impact as a more beneficial and comprehensive method of analysis as it argues that the costs as well as the benefits of hosting major sporting events should be accounted for. This allows for winners (who tend to be organising committees/international sporting bodies) and losers (who tend to be taxpayers) of hosting major sporting events to be identified (Kesenne, 2005). However, in saying that Kesenne (2005) acknowledges that it is often difficult to put a monetary value on something that should be included in the impact calculations, such as the effect on sports participation levels. In trying to do this, however it is felt that in using Cost Benefit Analysis, a more appropriate analysis is achieved.

Establishing a standard form of economic impact method/model that could be used and adopted by all those that carry out economic impact studies at major sporting events would allow for an increased reliability, as the underlying methodologies and assumptions would be more consistent (Hudson, 2001). In having a standard form of analysis it is felt that there would be a greater opportunity for comparisons to be made across studies, further enhancing the understanding of major sporting event impacts, rather than only being able to consider each of the events and their host communities in isolation. Therefore it is for these reasons that Crompton (1995; 2006) continues to call for a clear, transparent method of analysing the economic impact of major sporting events. A

number of best practice suggestions have been put forward by Crompton and Lee (2000) who feel future economic impact work should adhere to the following elements,

- ⇒ Exclude all local residents from economic impact calculations
- ⇒ Exclude all "time-switchers" and "casuals" from economic impact calculations
- ⇒ Calculations should highlight levels of income rather than sales output measures of economic impact
- ⇒ More careful interpretations of employment measures are needed.

The reasoning for excluding all local residents, time switchers and casuals from the expenditure calculations is set down by Crompton and Lee (2000); Gratton *et al* (2000); Jones (2001), as there is a need to measure only *new* money injected into the local economy by visitors that have travelled from *outside* the host city/region with the sole purpose of attending the event. Preuss (2004; 2005) and Preuss *et al* (2007) segments this discussion by separating out the impact of different individuals and their associated spending. This segmentation is used to illustrate the different characteristics held by different individuals that may be present within a host city/region at the time of the event and illustrates how travel behaviour decisions can affect the economic impact of a major sporting event. Visitors to the event from outside the local area should be excluded if they are seen to be "time-switchers" or "casuals" (Crompton and Lee, 2000; Gelan, 2003), as time-switchers would have visited the area even if the event had not taken place, and casuals have been attracted to the city/region primarily due to other attractions, therefore their expenditure would have occurred in the local economy without the event (Crompton and Lee, 2000; Gelan, 2003). Therefore the argument can be made that only expenditure from individuals that travel to the city/region with the event as their primary motivation should be included in expenditure and economic impact calculations (Gelan, 2003).

From this it can be seen that there are a variety of methods with which one can evaluate major sports events. From this it appears that there is a need for a standardised measure of economic impact. This would enable research to collect primary consumption data to allow economic impact studies to better inform stakeholders as to the positive and negative impacts of hosting major sporting events.

2.3.4 Direct Economic Impacts

Gratton *et al* (2006); Preuss *et al* (2007) and Downward *et al* (2009a) highlight that there has been little attention paid in the literature to the consumption patterns and the underlying motives for consumption of visitors to major sports events. It is felt that these consumption patterns should be further investigated as a component part of economic impact studies (Gratton *et al,* 2006; Preuss *et al,* 2007; Downward *et al,* 2009a). With this level of importance and the significance that is being placed on this segment of expenditure, in addition to the issues surrounding the measurement and analysis of economic impact, this has lead to the collection of data and analysis of the direct impact of spectators' additional expenditure (Preuss *et al,* 2007). There has been some attempt to use this method at small scale sporting events (Crompton, 1999; Gratton *et al,* 2000; UK Sport, 2004 cited in Preuss *et al,* 2007), but there has been no attempt to do this with respect to sampling multiple major sporting events as classified by the UK Sport typology. Therefore and as most of the major sports event literature focuses around the Olympic Games there seems to be the need to extend this analysis to other forms of major sports events with Preuss *et al* (2007:8) feeling that,

> "there is a dire need to improve our understanding of both spectators and visitors' that attend other major sports events".

To be able to provide data on attendees of different major sporting events that occur within different host economies at different points in time, Gratton *et al* (2006) make the point that, data has to be collected at the micro level of the individual. This means collecting data on the direct impact of spectators' expenditure which does not include indirect or induced expenditure and does not take into account the impact of the multiplier. In adopting this method of economic impact analysis Gratton *et al* (2006) were able to illustrate the direct economic impact of a number of small scale sporting events. This method was favoured as opposed to trying to compare different host economies all of which would have different make-up and different regional multipliers which can be difficult to calculate and measure (Crompton, 1995; 2006; Gratton *et al,* 2006) which can cause problems when trying to carry out an event comparison.

In trying to address their own call for a more comprehensive information as to the micro level consumption patterns of individuals that attend major sporting events, Preuss *et al* (2007) tested the individual consumption patterns of attendees to the 2002 Commonwealth Games in Manchester, UK. Preuss *et al* (2007) uncovered that different sports attracted different segments of attendees, (Home Stayers 15.8%; Time Switchers 4.9%; Casuals 17%; Games Visitors and Extentioners 46% and Residents 16.8%) which exhibited different consumption patterns. In illustrating the different consumption patterns of the segmented Commonwealth Games attendee's Preuss *et al* (2007) also illustrated that individuals that attended did so with different attendance motivations as shown by Table 2.14. Preuss *et al* (2007) have been able to empirically demonstrate the expenditure differences between different classifications of attendee's. For the Commonwealth Games it can be observed that those that attended the Games and classified as Games Visitors were prepared to spend more money on attending the event and the associated consumption (accommodation and merchandising) than other groups and the results showed that the further the distance the individual had travelled to the Games the more money they spent (Preuss *et al,* 2007).

In Table 2.14 it can be observed that consumption patterns change depending on the segmentation of the event attendee (Preuss *et al,* 2007) which illustrates that event attendees are not a homogenous group of individuals and the segmentation of attendees is a legitimate exercise. Previous studies that have analysed consumption behaviour have asked respondents to report on a range of expenditure and behavioural characteristics of their trip (UK Sport, 1999, 2002, 2004; Wilson, 2006), but do not explicitly segment attendees in the analysis. Characteristics reported by such studies have included demographics, length of stay, purpose of travel, who their travelling companions are, number of travelling companions, estimated expenditure on food, drink, accommodation, tickets, merchandise and travel. Such information has tended to be collected in the format of self administered questionnaires, typically at the event location, highlighting the importance and practicality of primary data collection and its usefulness to economic impact studies. Estimates for total attendance can be established from primary data rather than speculative reports or other sources; however this does assume that those that attend the event are reporting truthful honest data.

Table 2.14: Consumption and Motivation Patterns

	Group 1 Residents	Group 2 Casuals & Time Switchers	Group 3 Home Stayers	Group 4 Games Visitors & Extentioners
Outlay (or opportunity costs)	low	medium	high	very high
Respondents	*n* = 166 (16.8%)	*n* = 222 (21.9%)	*n* = 160 (15.8%)	*n* = 466 (46%)
Ø**number days**	2.25 (*n* = 162)	3.04 (*n* = 212)	2.77 (*n* = 156)	3.16 (*n* = 459)
Ø**number tickets/day**	1.1 (*n* = 165)	1.05 (*n* = 214)	1.26 (*n* = 159)	1.24 (*n* = 456)
Ø**spending merchandise**	£21.41 (*n* = 40)	£15.44 (*n* = 138)	£20.00 (*n* = 29)	£27.74 (*n* = 340)
Ø**spending tickets**	£86.93 (*n* = 29)	£64.87 (*n* = 153)	£74.88 (*n* = 34)	£89.65 (*n* = 365)
Attended with family	60.9% (*n* = 165)	47.7% (*n* = 215)	59.4% (*n* = 159)	58.2% (*n* = 459)
Significance: relaxation	*N*/A	2.49 (*n* = 179)	*N*/A	2.24 (*n* = 401)
Significance: sports	*N*/A	3.58 (*n* = 177)	*N*/A	3.55 (*n* = 400)
Significance: cultural events	*N*/A	2.23 (*n* = 196)	*N*/A	1.81 (*n* = 433)
Significance: travel UK	*N*/A	2.46 (*n* = 178)	*N*/A	1.94 (*n* = 401)

Source: Preuss *et al* (2007:18)

These findings and analysis at the individual level have implications for this research. These studies indicate that collecting data at the micro level allows for the attendees of major sporting events to be compared more easily and provides data that can aid the understanding of the decisions and consumption patterns that individuals enter into when travelling to and attending major sporting events. Therefore it is seen appropriate for this research to sample the segment of those that travel to and attend major sporting events at this micro level in order to compile data across major sporting events with the intention of developing and testing an econometric model that investigates the factors that impact total spending and trip duration decisions. This indicates that this research is sampling and collecting data from within the third phase of Crompton's cyclical economic impact model, Figure 2.5; at the individual level, where those that travel to the host economy and spend money in the host economy whilst attending the major sporting event.

2.4 Economic Theory on Spending

As it has been stated that direct impacts (total spending and trip duration) are the focus of this study, this section of the chapter now focuses on the individual as a sports consumer and looks at how this can be understood through economic theory. It is illustrated how spending is determined with respect to economic theory and in achieving this draws on the existing literature that has examined visitor expenditure. The importance of this section to the research is that it informs the development of the total spend and trip duration conceptual model used within this research.

When assessing consumer demand from an economic perspective it is shown that there are four key variables, price, income, the price of other goods and tastes and preferences (Cooke, 1994; Downward and Dawson, 2000; Gratton and Taylor, 2000) with price often being regarded as the major determinant (Cooke, 1994; Downward and Dawson 2000; Gratton and Taylor, 2000). Downward and Lumsdon (2000; 2004) and Downward Lumsdon and Weston (2009b) utilise and express this standard demand relationship as illustrated in Equation 2.14

$$q_t = q_t(p_t, M_t, T_t)$$

Equation 2.14

When q = quantity demanded, p = relative price, M = income, T = consumer tastes, t = given time period

Consequently, as Downward *et al* (2009b) discuss the quantity demanded of a good/service, or in the case of this research, travel and attendance at major sporting events, with all things being equal is dependent on the price of other goods/services that are either compliments or substitutes and income levels. Therefore Downward *et al* (2009b) illustrate that demand can be represented by an 'Engel curve', as expressed in Equation 2.15, which focuses attention on the relationship between expenditure and income for given tastes (Deaton and Muellbauer, 1986, cited in Downward *et al,* 2009b).

$$p_t q_t = p_t q_t(M_t, T_t)$$

Equation 2.15

When q = quantity demanded, p = relative price, M = income, T = consumer tastes, t = given time period

In utilising this theory of demand it is suggested that for a given set of visitor preferences, for a given time duration, income and spending will co-vary as flows of economic activity and Downward *et al* (2009b) indicated that this is essentially the underpinning of the expenditure components of economic impact studies. This is therefore applicable to this research. However Downward *et al* (2009a) indicate that in this situation the consumer at the individual level, faces what Downward *et al* (2009a) term a 'dual decision dilemma', where if the individual wishes to purchase/consume, products/services the individual needs to work to earn a sufficient income to be able to consume the products/services. Having to work and earn an income therefore implies a trade off between work and leisure time (time in which to consume such products/services) is necessary (Downward *et al* 2009a). Within the income leisure–trade off, individuals are seen to maximise their utility, which Downward *et al* (2009a) illustrate to be an expression of the individual's own tastes and preferences. These tastes and preferences will be motivated and constrained by different factors resulting in leisure being chosen over income or vice versa. This relationship can be summarised with the substitution and income effect as illustrated in Equation 2.16 and is applicable for those individuals that choose to travel to and attend major sporting events. Equation 2.16 illustrates that with a simple demand function for leisure the demanded leisure depends on the opportunity cost of leisure/wage rate and the individual's tastes and preferences (Downward *et al* 2009a).

$$D_L = D_L\,(w, P)$$

Equation 2.16

Where D_L = leisure demand, w = wage rate/opportunity cost of leisure, P = individual tastes and preferences

Individuals therefore make choices involving their capacity to work or consume. Downward *et al* (2009b) see an application of this theory to the field of sports tourism. They see sports tourism as being a composite commodity with a composite demand as

products/services that are consumed are functions of products/services that are purchased in the market (Downward *et al* 2009b).

This research broadens the analysis of Downward *et al* (2009b) from cycling tourism, to that of major sporting events. Downward *et al* (2009b) apply a direct rational for modelling spending in relation to income; this research therefore follows this reasoning and spending is modelled with respect to income, time and preferences as expressed by Equation 2.17.

$$Spending = \alpha_1 + \alpha_{2i} I_i + \alpha_{3i} t_i + \alpha_{4i} P_i$$

Equation 2.17

Where I = Income, t = given time period, P = individual tastes and preferences

In this context, the model for individual choice uses a modification of the basic theory of demand, whereby for a given set of event attendee preferences, and given time durations at the event, income and spending varies with flows of activity (Downward and Lumsdon 2003; Downward, *et al* 2009b). In using this model it is implied that the effects of spending can be isolated from one another as codetermining factors, which enables a testable form of the econometric model to be developed, with Equation 2.17 allowing for a number of variables to identify tastes and preferences of consumers (Dellaert, Ettema and Lindh 1998 cited in Downward and Lumsdon 2003). This discussion will be developed further, but first a discussion of the component parts of demand need to be entered into. Individual tastes and preferences are used within this research as the motivational factors for travelling to and attending major sporting events. What follows now is a discussion of motivations and how they relate to this research.

2.5 Motivations

This section of the chapter begins by illustrating the motivations for tourism and sport before focusing on and highlighting the limited literature that has previously discussed individuals that travel to and attend major sporting events. In addition to this the literature and concepts that are associated with trip duration decisions that are entered into by

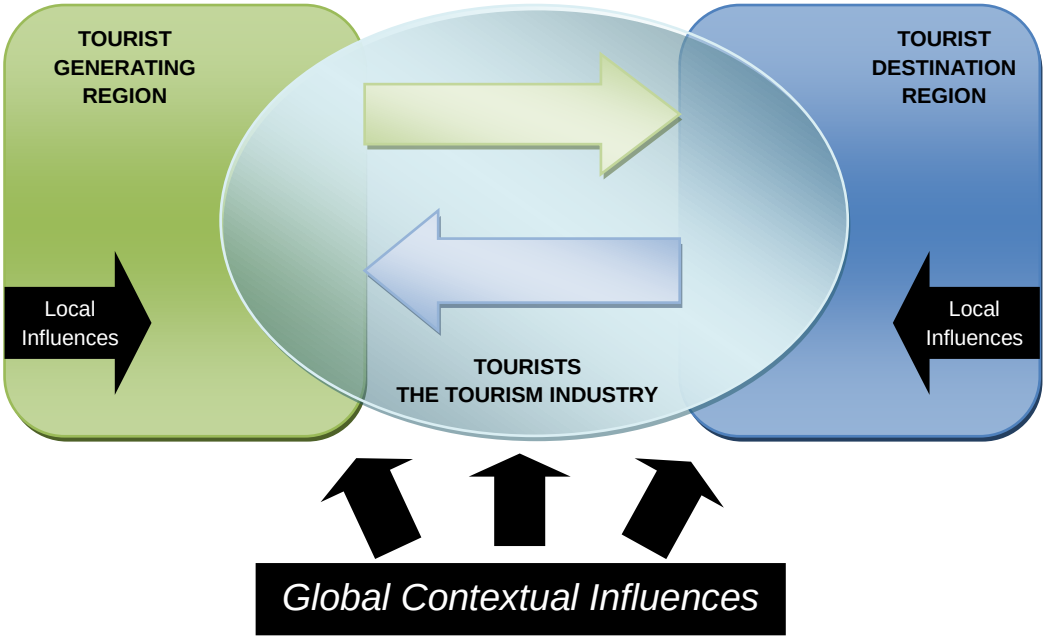
individuals are explored. Conclusions are then drawn from this area along with the economic theory discussed in section 2.4 in order to develop the conceptual model that will be tested and estimated within this research.

2.5.1 Travel Motivations

By definition motivations induce people to behave in a particular way and therefore motivations are seen as complex, multidimensional constructs (Armstrong, 2002; James and Ross, 2002; Kerstetter and Kovich, 1997; Kim and Chalip, 2004; Lascu, Giese, Toolan, Guehring and Mercer, 1995). Research into travel motivations have been carried out from a number of different disciplines and backgrounds such as psychology, marketing, sociology and economics. By understanding the motivations that individuals have for choosing one form of tourism over another allows for a better understanding of sub-sectors of the tourism industry.

The inclination to travel to and attend major sporting events is a function of contextual (levels of economic development, demographics, political and power relations), personal (lifestyles, life cycle, personality) and supply factors (opportunities, technology, prices, transport, accommodation/facilities), which all affect the sample population, travelling sports spectators, as a whole. It is for these reasons that motivations are seen as a complex phenomenon and can lead to a host of consequences and/or behaviours. Illustrating this, Weed (2008) adapted Leiper's (1979) tourism system model to show how these factors affect tourism flows (Figure 2.7).

Figure 2.7: Modified Tourism System



Source: Weed (2005) – adapted from Leiper (1979); more recently cited in Weed (2008)

Figure 2.7 acknowledges that the tourism system is subject to numerous interactions, and that tourists are subjected to numerous influences that act to impact their travel decisions, either at a local individual or global level. In examining the industry at a micro level, different combinations of motivations have been shown to have different outcomes on travel decisions. Weed (2008) shows that global contextual influences, illustrated in Figure 2.7, impact the individual acting within the tourism industry; this can be interpreted to illustrate that social differences that individuals encounter have an effect on their tourism motivations and behaviour. Therefore Holden (2005) notes that social differences impact the tourism industry, with income and demographics being the most constraining factors to tourism. Holden (2005) postulates that this enables a simplification of tourism motivations into three main categories; (a) those that impact participation in tourism, (b) those that impact the destination choice and (c) the motivations that impact the activities undertaken whilst at the destination. Moreover, there have been more theoretical approaches to try and explain tourism motivations. There are three main theories that have been applied to the tourism industry and are illustrated in Table 2.15, The Psychographic Profile, (Plog, 1974; 1987), The Travel Career Tapestry (Pearce, 1991; 1998) and Intrinsic Motivation – Optimum Arousal (Iso-Ahola, 1980).

Table 2.15: Motivational Theory Comparison

	Psychographic Profile (Plog 1974; 1987)	**Travel Career Tapestry** (Pearce 1998; 1991)	**Intrinsic Motivation – Optimum Arousal** (Iso-Ahola 1980)
Role of the theory	Market research orientated	Both academic and commercial targets	Predominantly academic goals
Ownership of the theory- to whom it will appeal	1. Marketers 2. Non-specialist researchers 3. Popular use	1. Specialist researchers 2. Specific commercial settings 3. Marketers	1. Academic leisure and tourism researchers 2. Some recreation managers
Ease of communication	Now well know and integrated into tourism texts. North American bias in all examples – strongest feature of model	More complex to explain. Suits more sophisticated audiences and a multivariate approach to tourist behaviour. Universal application.	Somewhat complex to explain
The measurement issue	Measures not widely available. Use of measures to produce dimensional view highly questionable.	Clear and situationally varied. A family of measurements to suit contexts.	Eclectic: warns against stereotypical responses to obvious questions. Optimal arousal difficult to specify.
Multi-motive versus single-trait approach	Single-trait dominated. No continuing evidence that the distribution of the trait is normal.	Explicitly multi-motive. Forces a consideration of the pattern of visitor motivation not the dominant motive	Motives seen as unitary but different levels of explanation recognised.
Dynamic verses snap-shot approach	Single snap-shot. Maybe historically dated. No capacity for individuals to change. Over time a tourism product is 'passed' from psychocentric groups.	Individuals can change and are expected to change. The role of societal changes can be assessed with relevant content at each travel level.	An emphasis on changing needs with situation and over life-span.
Extrinsic and intrinsic motivation	Not considered.	Explicitly considered. Each level has external and internal component (can be sub-components within each level of the model).	Dominant emphasis on intrinsic motivation. In danger of ignoring extrinsic motivations.
Overall summary	Historically generated an interest in psychographics.	Likely to be used more widely.	Future use limited unless more precise measures of optimal arousal can be articulated.

Source: adapted from Pearce and Butler (1993)

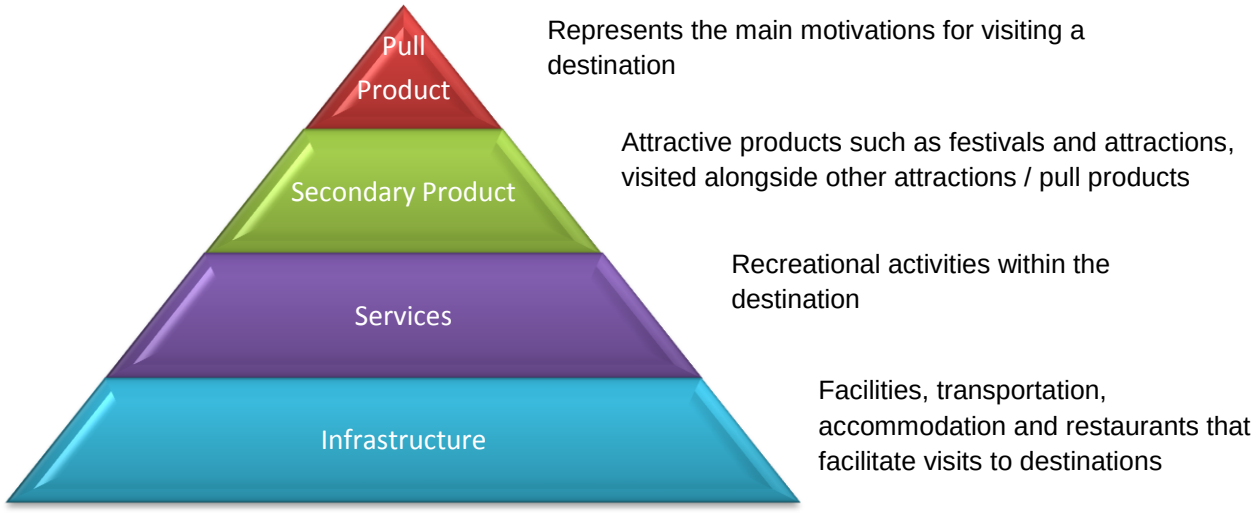
Within the tourism system from Figure 2.7 and Table 2.15, it can be observed that external and internal factors can act upon an individual and influence their motivations. These interactions have broadly been described in the literature as the effect of push and pull factors. These factors are either push factors, and are connected with or centred on the individual, or pull factors and are located within the destination and its attractions. Within Weed's modified Leiper model, push factors tend to act from left to right (top arrow) in Figure 2.7, with pull factors working from right to left (bottom arrow) and are seen to be continually present. Push factors are shown by to be socio-psychological motivations where the individual has a need for something, here, tourism is seen as a way of satisfy that need (Holden, 2005; Kim and Chalip, 2004).

Within the tourism motivational literature, push factors are seen to be to be intangible motives such as the need to escape everyday life, relaxation, prestige, spending more time with friends and family, engaging in social interaction, exploring and evaluating the self as well as the need to satisfy individual interests and preferences. Moreover research into travel motivations has shown that the decision to travel was affected by factors beyond the individual with family influence, social groups, and social class and cultures all being important in determining individuals' motivations for travel (Moutinho, 1987). Similarly Weed (2008) shows that family bonds and interactions can be an important motivation as family relationships are often reinforced with the shared interest of travel. The affects of social groupings and social class on tourism motivations have been shown to manifest themselves in such a way in that individuals want to use travel as a way of differentiating themselves from others. This has been reported to have been achieved through the desire to experience/consume different opportunities to those experienced/consumed in everyday 'normal' life (Graburn, 1983; MacCannell, 1996; Reeves, 2000; Smith, 1977). To be seen to be 'collecting destinations' or 'authentic' travel experiences in this way has been shown by MacCannell (1973; 1976 cited in Cohen, 1984) and more recently by Urry (2002) as a way of satisfying the motivations for status and prestige.

Pull factors are typically associated with the tourist destination and its attractiveness to the individual as well as the attributes of the destination (Kim and Chalip, 2004). Destinations go about 'advertising' their attributes and making themselves attractive to certain groups in society. In order to attract people and motivate them to attend a destination, destinations actively market themselves illustrating their attractiveness to

potential visitors. This is a strategy that is actively pursued through the utilisation of strategically targeted tourism policies that aim to establish the destination as a particular kind of (often niche specific) destination. Destinations tend to carry out this placement exercise in the introductory phase of the tourism product life cycle, or as a method of repositioning themselves in an attempt to reduce the stagnation phase of the tourism product lifecycle (Kirkup and Major, 2006). This placement of a destination is achieved through destination marketing. Chassé (1989 cited in LeBlanc, 2004) discusses this positioning of the tourism product, illustrated as shown by Figure 2.8, which highlights that other sectors and attractions can benefit from a core destination image focused around a specific tourism product.

Figure 2.8: Tourism Product Triangle



Source: Chassé (1989) cited in LeBlanc (2004)

The strength of these push and pull factors will contribute to whether the individual participates in tourism or not as well as the destinations individuals choose to travel to, as well as the types of activities undertaken whilst at the destination. However, there are obvious challenges in researching the underlying motivations associated with these decisions. In complicating the decision process further, motivations have also been show to be affected by factors beyond the individual's control, with significant others being shown to have an effect on an individual's motivations to travel. This lead Moutinho (1987) to establish that motivations to travel came about through an interaction of information regarding the destination and attractions, along with the individual's memory,

attitudes, self image, leadership opinions, sources of communication and the overall perceived risk factors connected to the act of their tourism.

A useful summary of travel motivations is given by McIntosh and Goeldner (1986), as presented in Table 2.16, in which they show that tourism motivations can exist with four different levels of focus covering the main dimensions of both push and pull factors, suggesting that it is a combination of these factors that determine an individual's motivations. However, Reeves (2000) highlights that motivational models need to take more account of the life-stages of individuals, their changes in tastes and preferences as their life view changes as well as taking into account the broad range of different cultures that affect people's behaviour. This indicates that people will have different combinations of motivations at different times of their lives due to differing levels of importance that they attribute to physical, interpersonal, cultural and status motivations.

Table 2.16: McIntosh and Goeldner's Tourism Motivations

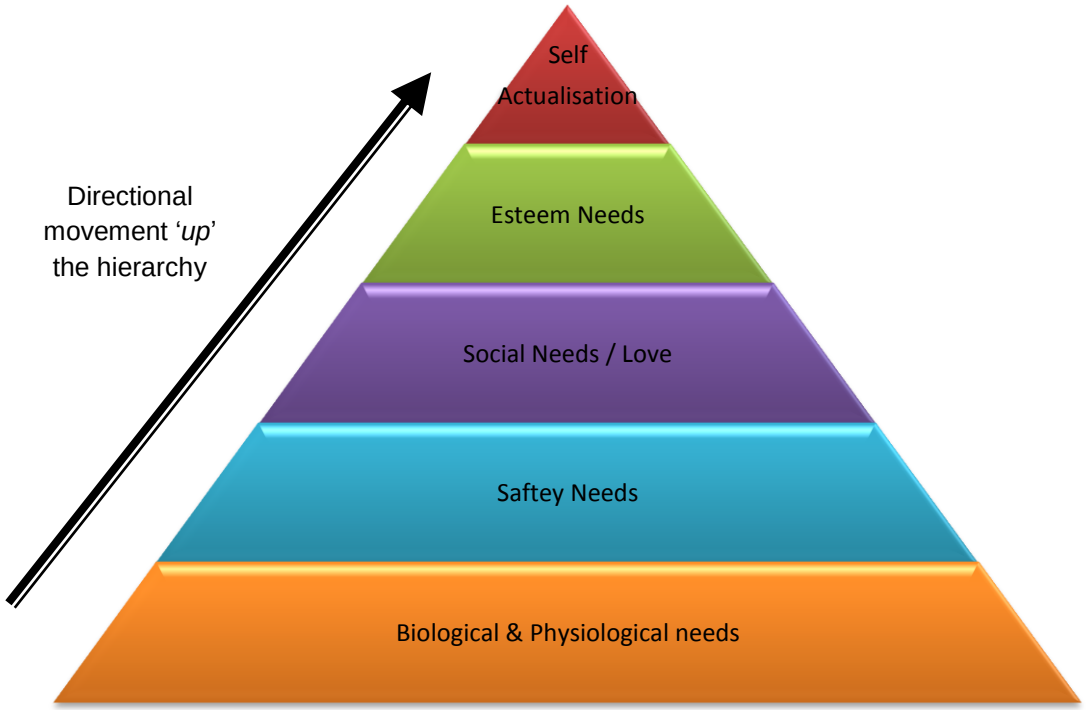
Motivation	Component Parts
Physical	Activities, sport and recreation, health and fitness, wellbeing
Interpersonal	Meet new people, visit friends and relatives, spiritual, pilgrimage
Cultural	Other lifestyles, music and dance, folklore, art
Status and Prestige	Hobbies and interests, personal development, ego enhancement / recognition

In conclusion, from this review of the tourism motivational literature it can be seen that there are a number of common elements. Tourism motivations differ from individual to individual; individuals are 'pushed' towards travel to satisfy some internal needs whereas destination image and attractions can be a 'pull' on an individual's motivations to travel.

2.5.2 Sporting Motivations

Where motivational theories have been applied to sport, established motivational theory has been applied to a sporting context, as such Maslow's (1970) Hierarchy of Needs as illustrated in Figure 2.9. Maslow (1970) has been utilised and applied to sport and particularly sports spectators (see Armstrong, 2002; Robinson and Trail, 2005; Robinson, Trail, Dick and Gillentine, 2005; Robinson, Trail and Kwon, 2004). Despite this being a motivational theory from the 1970's, the principals of the theory, due to its relatively universal application, are still seen as applicable to situations and life-stages within contemporary society and contemporary cultures (Mullins, 2005). In this way the progressive stages of Maslow's hierarchy have been used by the literature to explain that spectators move '*up*' and '*through*' stages, to demonstrate that psychological and social factors have an influence on an individual's sport spectating motivations and therefore sport affects both internal/intrinsic and external/extrinsic motivations (Armstrong, 2002; Robinson and Trail, 2005; Robinson *et al*, 2005; Robinson *et al*, 2004).

Figure 2.9: Hierarchy of Needs



Source: Modified from Maslow (1970)

However, it must be noted that there are limitations to using this model. Many of the studies highlighted here that use Maslow's Hierarchy of Needs model within their research do so with the condition that the stages are progressively acquired from the bottom of the hierarchy to the top. This may not always be the case as is pointed out by Bartol and Martin (1991), Daft (2003) and Mullins (2005), these authors make the point that needs may be satisfied out of order or concentrated in clusters of satisfaction and may not neatly progress 'up' and 'through' the hierarchal stages as suggested by Figure 2.9. Not all sports spectators will have the same needs as each other, differences in need may be due to situational factors and spectators may try to satisfy more than one need at once, despite the perceived importance of the lower order needs.

Investigations into sporting motivations have concentrated upon intrinsic and extrinsic factors and it is these factors that are central to the role in which sport plays a part in an individual's life (Vallerand, 2000). Sporting motivations will vary according to the type of activity, level of participation, effect and opinions of significant others along with the psychological and philosophical outlook of the specific individual and subject to change over time with age and lifestage (Reeves, 2000). Differences in sports participation choices have also been shown to be the product of different social backgrounds (Bourdieu, 1984 cited in Thrane, 2001), resulting in people from the same social background having similar physical situations and ideologies, which means that people having similar lifestyles make similar sporting choices (Thrane, 2001). Therefore this can be shown as a contributing factor to different levels of sporting participation behaviour within the general population. Motivations that have been shown to be common for sports participation are associated with; displaying competences, learning and improving skills, affiliation with and making friends / social interaction, team identification, camaraderie, health and fitness, excitement of competition, a competitiveness and a desire to win, prestige and status and pleasure reasons (Milne and McDonald, 1999; Roberts, 1992; 2001; Weed, 2008; Weiss and Chaumeton, 1992). Factors such as time, other interests, family commitments and significant others will all impact an individual's sports participation motivations (Reeves, 2000).

Armstrong (2002) argues that a fuller profile of those that attend sports events is required, consequently this research will also investigate whether sports participation and involvement in sport impacts the total spend and trip duration decisions. Without individuals that have the motivation to volunteer and facilitate other people's sporting

opportunities, the opportunity to participate in sport would be far less as amateur and junior sport are heavily reliant volunteers (LIRC, 2003). Despite this dependency and crucial role, sports' volunteering has received less attention from academic researchers than general sports participation (LIRC, 2003). There have, however been two major volunteering studies conducted in the UK. The National Survey of Volunteering, carried out in 1997, was seen as an important study of volunteering in the UK (Ralston, Lumsdon and Downward, 2005). The 1997 survey suggests that those people most likely to volunteer in sport are those between the ages of 45-54, along with those of higher education levels, higher economic groupings, married or cohabiting, have children, have access to a car and are from white ethnic backgrounds (Institute for Volunteering Research, 2008). People that are less likely to volunteer tended to be aged between 18-24, 55-64, or over 75, along with those people that reported themselves as unemployed (Institute for Volunteering Research, 2008). Subsequently, Sport England commissioned the Sports Volunteering Study to formally evidence the breadth and support that volunteers give to sport in order to allow people to participate in the UK (LIRC, 2003). The Sport England survey reported that there were 5,821,400 sports volunteers (15% of the adult population), that contributed 1.2 billion hours a year to sport and that time commitment represented an estimated £14 billion (LIRC, 2003). Volunteering in the UK was therefore estimated to facilitate 8 million club members participation in sport, with 40% of all volunteers being aged 39 - 50 (LIRC, 2003). Both of these studies illustrate the size and impact that volunteering has on the ability of individuals to participate in sport. Smaller scale volunteering studies within the academic literature and have focused on the motivations behind an individual's decision to become a volunteer (Clary, Synder, Ridge, Copeland, Stukas, Haugen and Miene, 1998; Clary and Synder, 1999; Clary and Synder, 2000; Miller, 1985; Unger, 1991; Wardell, Lishman and Whalley, 2000). Ralston *et al* (2005) specifically investigated the motivations for volunteering at a major sporting event. Their findings demonstrated that individuals had a range of diverse motivations for choosing to volunteer. Ralston *et al* (2005) measured the motivations of volunteers before and after the event volunteering. Table 2.17 illustrates that the 'uniqueness and excitement' of the opportunity as well as the 'opportunity to be associated with sport, the community' and 'being part of a team' and 'meeting people' were important motivations for volunteering at this major sporting event.

Table 2.17: Motivations for Volunteering at a Major Sporting Event

Motivation	Pre and Post Event Result
The excitement	97.4% and 94.5% agreed or strongly agreed
The chance of a lifetime	94.9% and 96.8% agreed or strongly agreed*
Meeting interesting people	88.9% and 91.5% agreed or strongly agreed
Supporting sport, even though many had not been volunteers at another major sporting event	86.1 % and 87.1% agreed or strongly agreed
Doing something useful for the community	83% and 88.8% agreed or strongly agreed*
Being part of a team	84.8% and 89.3% agreed or strongly agreed*

* indicates a significant difference over the two samples

Source: Adapted from Ralston *et al* (2005)

Despite the literature illustrating that there are different motivations connected with volunteering, there are a number of other factors which can outweigh the motivations to volunteer. Factors such as boredom, poor organisation, an inability to cope with tasks, lack of advice, guidance, support, appreciation and flexibility have been shown to be difficult to overcome despite individuals having the motivations to want to volunteer (Davis-Smith, 1998 cited in Ralston *et al,* 2005).

This section of this chapter has illustrated that there are a range of motivations that influence an individual to participate in and volunteer in sport. This literature has been discussed briefly here in response to Armstrong's (2002) profiling call and as Sloan (1985); Berhthal and Graham (2003) and Lascu *et al* (1995) all have indicated that this is the body of literature that was initially drawn upon and used as a basis for evaluating the motives for sports spectatorship. This literature linked sports spectatorship to sports participation and volunteering in sport. The literature that relates to sports spectators will now be discussed.

2.5.3 Sports Spectator Motivations

Investigations into the motivations of individuals that attend sports events are becoming a growing area of interest. This increasing level of interest has come about as the determinants of sports spectating are not fully understood, although it is felt by some that this level of academic interest should be greater than it currently is (Dietz-Uhler, Harrick, End and Jaquemotte, 2000; Fairley, 2003; Funk, Haugtvedt and Howard, 2000; Funk and James, 2001; Hunt *et al*, 1999; Melnick and Wann, 2004; Trail *et al*, 2000).

In trying to address some of these issues, investigations into the motivations for attending sport events have been pursued from a number of different perspectives, such as economics, sociology, psychology, anthropology and geography. Attending sports events is also discussed at some length in marketing and business management literature with the objective of segmenting and targeting sports events to better meet the needs of those that attend the events. Initially, research into this area of study contributed to an understanding of the short term factors that influence an individual's decision to attend a sporting event. Moreover, the focus tended to be centred around the demand for a sport with economic factors being the main area for consideration (see Donihue, Findlay and Newberry, 2007 for an overview), illustrating that such things as ticket pricing, promotions and competitive balance in addition to residual factors such as the effect of the weather, kick off time and TV broadcasting, all impact the attendance and demand for sporting events (Donihue *et al,* 2007; James and Ross, 2002). Subsequent investigations illustrated that these factors were found to be an insufficient basis on which to solely attribute sporting event attendance motivations. Therefore it was thought that the levels of interest must go beyond simply attending a sporting event (Kahle, Kambara and Rose, 1996; Pooley, 1978 cited in James and Ross, 2002).

In order to improve the levels of knowledge relating to sports spectators, investigations have tended to look for types of commonly exhibited behaviour and segment the market based on this. This categorisation of behaviour has resulted in typologies and classifications of sports spectators (Backman and Crompton, 1992; Bourgeon and Bouchet, 2001; Campbell *et al*, 2004; Clowes and Tapp 2003; Crawford, 2003; Funk and James, 2001; Giuliannotti, 1995; Hunt *et al*, 1999; Lewis, 2001; Mahony *et al*, 2000; Nash, 2000; Quick, 2000; Stewart and Smith, 1997; Stewart *et al*, 2003; Trail *et al*, 2000; 2005; Trail *et al*, 2003). However, there are many investigations into sports spectators that

neither have a theoretical grounding nor develop a typology or theory of spectatorship. General findings have shown that behaviour is affected by a number of different constructs such as loyalty, identification, identity, motivations, attitudes, past behaviour, intentions and social norms. However the majority of investigations often look at these concepts in isolation and don't seem to build on past investigations, nevertheless there are exceptions to this (Trail *et al*, 2000; Trail *et al*, 2003; 2005)[4].

In attempting to quantify and specifically show which broad motivations were significant for sports spectators, Wann (1995) developed the Sports Fan Motivational Scale (SFMS), which is thought by Armstrong (2002) to be one of the more comprehensive measures of sports motivations. The findings of Wann's research were not developed into a typology, but a scale with which sports fan's motivational levels could be assessed. The scale classified motivations as falling into one of eight categories,

1. Entertainment motivations
2. Eustress (excitement and arousal) motivations
3. Self-esteem motivations
4. Escape motivations
5. Affiliation need motivations
6. Economic gain motivations
7. Family motivations
8. Aesthetic value of sport motivations

This scale has been repeatedly used by researchers from the USA who have focused their attentions on validating the scale in different sport settings, typically this has been within the American collegiate sports system (Armstrong, 2002; Bilyeu and Wann, 2002; James and Ross, 2002; Wann and Ensor, 2001; Wann, Allen and Rochelle, 2004; Wann, Bayens and Driver, 2004; Wann, Bilyeu, Brennan, Osborn and Gambouras, 1999; Wann, Brewer and Royalty, 1999; Wann, Lane, Duncan and Goodson, 1998; Wann, Schrader and Wilson, 1999). The conclusions of Wann (1995) and subsequent studies illustrate that high SFMS scores corresponded with high levels of general sport involvement and

[4] It must also be noted that much of the literature talks about broadly the same issues but the typologies and frameworks all use different terminologies, see Backman and Crompton 1992; Campbell, Aiken and Kent 2004; Clowes and Tapp 2003; Funk and James 2001; Hunt, Bristol and Bashaw 1999; Lewis 2001; Mahony, Madrigal and Howard 2000; Nash 2000; Quick 2000; Stewart and Smith 1997; Stewart, Smith and Nicholson 2003.

that overall the most significant motivational factor for fans was the desire to be entertained, with the least significant motivational factor being economic gains (predominantly through gaming/gambling). However, the scale has received some criticism. Armstrong (2002) feels that the model has been constructed upon white/European motives for sport consumption and that generally the literature in this area is also based upon white/European cultures which are assumed to be applicable to all sport consumers. Also it must be noted that this scale may not be appropriate for use or application within this research, due to the fact that Wann's scale has been repetitively tested within the US collegiate sports system with convenient samples[5] with no consideration of travelling to and attending major sporting events. However, Wann's subsequent results can be used to formulate and shape this research as they provide context in which to view the limited information that exists with regard to the motivations of travelling to and attending major sporting events that are now discussed.

2.5.4 Sports Event Tourism Motivations

This literature review has so far considered literature and theories from both a sport and a tourism perspective. This has been entered into to try and gain a better understanding of the phenomenon that is sports tourism and the motivations that underpin it. The following discussion evaluates the limited literature that has been produced relating to travelling sports spectators and their motivation to attend major sporting events.

It has been suggested by some authors that there is a duality of motivations for sport tourists; they will either have sport or tourism as their primary motivation (Gammon and Robinson, 2003; Standeven and De Knop, 1999). There is also the notion that those individuals that attend major sporting events are what Faulkner, Tideswell and Weston (1998) (cited in Higham, 1999) terms '*sports junkies*', who are less likely to be interested in anything outside of the sporting event itself. Nogawa Yamaguchi and Hagi, (1996) argues the point that sports tourists should not be treated the same as typical tourists by host communities, but the authors then fail to define a typical tourist and draw distinctions between the two tourist types, or provide a qualifying criteria for a sports or typical tourist.

[5] Typically US students were tested in order to develop this scale with the students receiving the incentive of gaining extra class credits for completing the questionnaire.

As sporting events have grown in stature, spectators who travelled to the event have become to be labelled “sport event tourists”, and it can be argued that the individuals that travelled to the Ancient Olympic Games in Olympia, Greece, were the original pioneers of sport spectating and sports event tourism. Travelling to a sporting event in Ancient times used to be primarily about the pilgrimage and the competition to honour the Gods (Crowther, 2001). Along with this modern labelling, there has been an obvious change in the reasons people travel to sporting events, as entertainment is now one of the biggest motivational factors (Wann, 1995; Wann *et al*, 2001), replacing pilgrimage. However, attending an event in ancient times must also have been about the desire to be entertained, as if individuals were not entertained they simply would not have continued to travel to the Games. Event tourism and sport event tourism is shown by Preuss (2004) to be one of the current key academic terms being utilised to illustrate how large scale events are seen as a way of driving tourism. Hosting such events gives an event and host city a higher than normal profile, ensuring thousands of people are prepared to travel hundreds and even thousands of miles to attend major sporting events in person (Gibson *et al*, 2003). As such, hosting major sports events are now a significant part of the global tourism industry and specifically in the UK they are a substantial element of the tourism industry (Crompton, 2001; Gratton *et al,* 2000; Jones, 2001; Lee and Taylor, 2005). This has been partly through historical staging of major sporting events (such as Wimbledon, FA Cup Final and The Grand National) and the active pursuance of a strategy over the past 10-15 years to attract and host major sporting events. Leading to the upcoming decade 2010-2020 being dubbed the Golden Decade for British Sport with the UK hosting the 2010 Ryder Cup, 2010 Champions League Final, 2012 Olympic Games, 2013 Rugby League World Cup, 2014 Ryder Cup, 2014 Commonwealth Games, 2015 Rugby World Cup, 2019 Cricket World Cup along with the a bid in progress to host the 2018 Football World Cup. With this rich event hosting history in the UK, in 2007 sports related consumer expenditure totalled £21.1 billion, with 8.2% (£1,722 million) being spent on sport related travel and 3.5% (£745 million) of total expenditure being spent on spectator sports (SIRC 2008).

Within the sports event attendance literature there seems to be an accepted practice whereby tourism motivational theories are utilised as event motivational theories as it is generally assumed that there are no better theories (Nicholson and Pearce, 2001). Academic texts that specifically report on the *travelling sports spectator* are starting to appear such as Weed (2008); however few are empirically grounded and tend to form overviews of travelling sports spectators without adding anything new to the debate. Only

six studies have been identified that investigate both the concept of travelling to and attendance at major sporting events. These are Breitbarth (2006); Delpy (1997); Delpy Neirotti, Bossetti and Teed (2001); Kim and Chalip (2004) and Mashiach (1980; 1981) and are summarised in Table 2.18.

Table 2.18: Investigation Findings

Study	Findings
Mashiach 1980, 1981 Montreal 1976 Olympic Games	**Demographics, Men** - 80% US born, 37 average age, 47% lived in cities, 71% married, 43% graduate educated, professional occupations, 42% income $15,000-$30,000. **Demographics, Women** - 85%US born, 42% lived in cities, 54% single, 55% income $5,000 - $15,000 **Sport Involvement, Men** - 84% regularly participate in tennis 34%, basketball 6% or golf 24%. 41% watched sports events 1-3 hours per week, 87% watched via TV, 78% read sport section in the newspaper daily, 56% subscribed to a sports magazine. **Sport Involvement, Women –** 75% regularly participate in, tennis 31%, swimming 22%, equestrian events 15%. 33% watched sports events 1-3 hours per week, 82% watched via the TV, 45% read sport section in the newspaper almost daily. **Motivations, Men –** considered themselves a sports 'freak', 34% grace and beauty, 44% international excitement, 45% cheer on American team, 27% compete against the world and beat them, 35% sports activities of other cultures, 27% prestige, 33% closeness to hometown, 40% Olympic spirit **Motivations, Women –** considered themselves a sports 'freak', 31% grace and beauty, 45% international excitement, 43% cheer on American team, 35% sports activities of other cultures, 32% see who wouldn't give up, 27% spend summer vacation in Montreal, 40% Olympic spirit. - Behaviour is not determined by single factors, but a myriad. Motivations for attendance are caused by several underlying factors.
Delpy 1997 1996 Atlanta Olympic Games	**Average Sport Tourist Profile –** physically active, college educated, relatively affluent, 18-44 yrs old, average spend over $500 per vacation. **Sports event motivators –** excellent in sport competition, party environment, cultural experience, business and historical significance. **Barriers to sporting event attendance –** cost, distance from home, access to tickets and housing.
Delpy Neirotti, Bossetti and Teed 2001 1996 Atlanta Olympic Games	**Demographics –** 78% US Citizens, 53% Male, 76% 18 – 44 years old **Main reason for attending –** 51% Olympic/Sports Fans, 16% Tourists **Past Attendance –** 93% had not attended any other Olympic Games, 30% had travelled to other major sporting events **Temporal Decision Making –** 31% six months to a year **Physical activity –** 79% were physically active

	Spectator interest – Basketball, gymnastics and track and field were events attended **Influencing factors to attend –** 29% Once in a life time opportunity (expense only 5%) **Influencing factors after decision to attend made –** 34% excellent athletic competition **Future Olympic Games attendance –** Half respondents indicated would attend another Olympic Games (summer rather than winter).
Kim and Chalip 2004 2002 Football World Cup	**Profile –** 71% Male, 49% had previously attended a World Cup event, average income $80,001-90,000, over 70% college educated, 86% Caucasian. - Respondents reported a significant desire to attend, but felt they would be unable to attend as they perceived the costs to be too great, however financial costs did not impact the desire to attend. - The higher the perceived risk of attending, the lower the desire to attend was. - Younger respondents reported a higher degree of desire to attend than older respondents. - Previous interest and attendance at the event affected future/intended interest and attendance at the event. - Event interest is complex and multiply determined and therefore a function of fan motives, travel motives and the individual's background.
Breitbarth 2006 2006 Football World Cup	**Profile –** Typical travelling fan 88.6% male, 42 years old, well educated, some disposable income (39% over NZ$120,000), 61% employed full time, travelling with friends or family. 43% used the internet as their main information source. Spent NZ$15,000 per person, most organised their own travel. 80% bought some event related clothing and merchandising was important to them, leading to an average merchandising/souvenir spend of NZ$700. **Motivations –** main motivation was positive level of arousal gained from attending the event, its entertainment value, diversion from everyday life, need for affiliation, fascinating experience - combination of push and pull motivators.

As can be seen from Table 2.18 these six studies highlight that there are a range of different issues and motivations that impact the decisions to travel to and attend major sporting events. The main motivations for major sporting event travel and attendance that have been identified from within these studies are presented in Table 2.19. It can be observed, by the red highlighting, that there are common motivations across these studies as well as there being motives that are common to sport and travel motivations that have been previously illustrated in sections 2.5.1, 2.5.2, 2.5.3 of this chapter. The findings of these studies are interesting as they highlight similar themes and profiles of individuals despite the obvious differences in time periods.

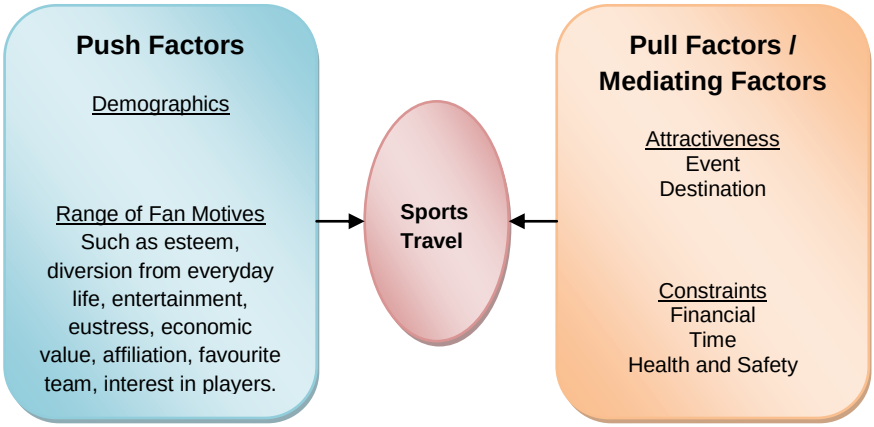
Table 2.19: Travelling Sports Spectator Studies

Authors	Mashiach 1980; 1981	Delpy 1997	Delpy Neirotti, Bossetti and Teed 2001	Kim and Chalip 2004	Breitbarth 2006
Major Sporting Event	Montreal 1976 Olympic Games	1996 Atlanta Olympic Games	1996 Atlanta Olympic Games	2002 Football World Cup	2006 Football World Cup
Range of Motivations	Sports interest levels Aesthetics Excitement National pride Desire to win Experience other cultures Determination Status and prestige of being there. **Also** Sporting motivations / profile Sports participated in past and present Use of media – Vicarious achievement	Excellent sport competition Party environment, Cultural experience Business and Historical significance Cost Travelling distance / Time away from home Access to tickets Access to accommodation	Once in a life time opportunity Availability of accommodation Availability of tickets Distance from home Business / employment, overall expense Availability of Time Family or friends competing Visit event location Athletic competition Party atmosphere Cultural experience Historical significance Business / networking opportunities Great ceremonies Educational experience Meet/mingle with celebrities Other reasons	Aesthetics, Vicarious achievement, Eustress Supporting national team Interest in players, Escape Learn about Korea, Socialisation Event interest, Financial constraints Risk constraints Desire to attend the World Cup Ability to attend the World Cup, Previous event attendance,	Eustress / positive level of arousal Entertainment value Diversion from everyday life Need for affiliation Family ties Show national identity / represent New Zealand Destination attractiveness Event attractiveness Constraints – Health and Safety Constraints - Financial

The information gleaned from the examination of these key six studies and the other literature reviewed within this chapter demonstrates that the motivations to travel to and attend a major sporting events are not singular (Delpy Neirotti *et al,* 2001; Kim and Chalip, 2004) as can be observed from Table 2.19 as more than one motivation determines travel to and attendance at major sporting events. A summary of push and pull motivations with regard to major sporting events is offered by Breitbarth (2006) in his adaptation of Kim

and Chalip's (2004) Fan and Behaviour model, Figure 2.10. However, despite this summary offered by Breitbarth, there is no analysis in the existing literature as to the individual variables and motivations that act to impact the actual decision processes to travel to and attend major sporting events and it is this gap in the literature that this research is addressing.

Figure 2.10: Understanding Fan and Travel Behaviour



Source: adapted from Kim and Chalip (2004) cited in Breitbarth (2006)

With Breitbarth's (2006) adaptation of Kim and Chalip's (2004) model it can be seen that the sports venue and sports event, become a tourist attraction in their own right and visiting an event and the associated venue(s) has come to be seen as collecting an experience (Rinehart, 1998 cited in Crawford, 2004) and something that acts to motivate individuals to attend an event. Urry (1990; 2002) shows that it is not merely the event, but the whole experience connected to it that differentiates 'being there' in person from simply consuming media representations of the event (i.e. television broadcasts). 'Being there' is seen as a status that is acquired from attending the event. Aspects such as the general atmosphere and the sense of festival that is created are often seen as having to be experienced in person as viewing through the medium of television is not seen as the same experience, as it is not live. Therefore this 'being there in person' is seen as an important part of status and prestige motivations which maintains favourable perceptions about an individual's ability and accomplishments (Reeves, 2000 and Weed, 2008). In highlighting this Weed (2008) states that,

> "…it is likely that an event like the Olympic Games will attract more people who are motivated by the various status and prestige motivations that are perceived to be attached to associations with the Olympics. As such attendance at an Olympic Games is 'conspicuously consumed' as a place or experience to be 'collected' and may be valued as much for the kudos of having 'been there' as for any intrinsic value of interest in the event itself".
>
> Weed (2008:55)

In applying push and pull factors Kim and Chalip (2004) illustrate that event 'pull' factors are typically associated with the event and tend to increase its attractiveness to the individual as events are seen to 'pull' visitors into the destination. This is how events in their own right act to build up an audience as their multiple forms of experience and/or genres go far beyond the sporting competition itself (Chalip, 1992 cited in Kim and Chalip 2004). In this way the increasing attendance levels at major sporting events such as the Rugby World Cup, as previously shown in section 2.2.2 of this chapter, can be explained. An individual's motivations to attend a sporting event may be constrained by a number of factors as highlighted by Kim and Chalip (2004). These factors have been shown to include, family limitations and financial constraints that may act to inhibit attendance in addition to the perceived sense of risk of attending the event. As with factors that act in conjunction with each other to motivate an individual to attend an event, constraints will interact and act to often multiply constrain individuals. Therefore the relationships that are exhibited in an individual's choices and the interaction between constraints and motives are unclear (Kim and Chalip 2004).

Kim and Chalip (2004) have show that solely identifying travel motives or spectator motives is insufficient when trying to identify the factors that cause people to travel to sporting events. Therefore this research considers sporting, tourism and sports event tourism motivations in order to evaluate if motivations the impact total spend and trip duration decisions for travel to and attendance at major sporting events. From the different motivational discussions within this chapter it has been shown that there are a number of motivations that have been and could be used to evaluate the motivations involved in travelling to and attending major sporting events. After evaluating,

rationalising and removing repetition the following motivations have been selected to be tested within the conceptual econometric model, once in a life time opportunity, cultural experience, historical significance, prestige of the event, educational experience, location of the event, tourist attractions other than the event itself, escape everyday life, enjoy travelling, enjoy the excitement and the atmosphere, enjoy the competition and the sport, good source of entertainment, relative of a competitor, visit family and friends, availability of tickets, availability of accommodation, overall cost of trip, business / networking opportunities, other reasons. These motivations reflect the range of motivations presented in the existing literature. The next section of this chapter illustrates how the conceptual model for this research was developed.

2.6 Research Synthesis

In order to evaluate the total spend and trip duration decisions of those individuals that attend major sporting events a conceptual model has to be developed for this research. This section of this chapter therefore develops this model by initially continuing the discussion entered into in Section 2.4 to illustrate the component parts of the conceptual model. The conceptual model is then identified before the literature review chapter is concluded.

Equation 2.17 in section 2.4 illustrated that spending was a function of income, time, and preferences. To develop this and following the identification and profiling of preferences by Downward and Lumsdon (2003) for visits to a specific area, this research breaks down preferences into the individuals' event related motivations, major sporting event profile, sporting involvement and demographic characteristics, which is expressed by Equation 2.18.

$$P_i = \beta_1 + \beta_2 Mot_i + \beta_3 Ep_i + \beta_4 SI_i + \beta_5 De_i$$

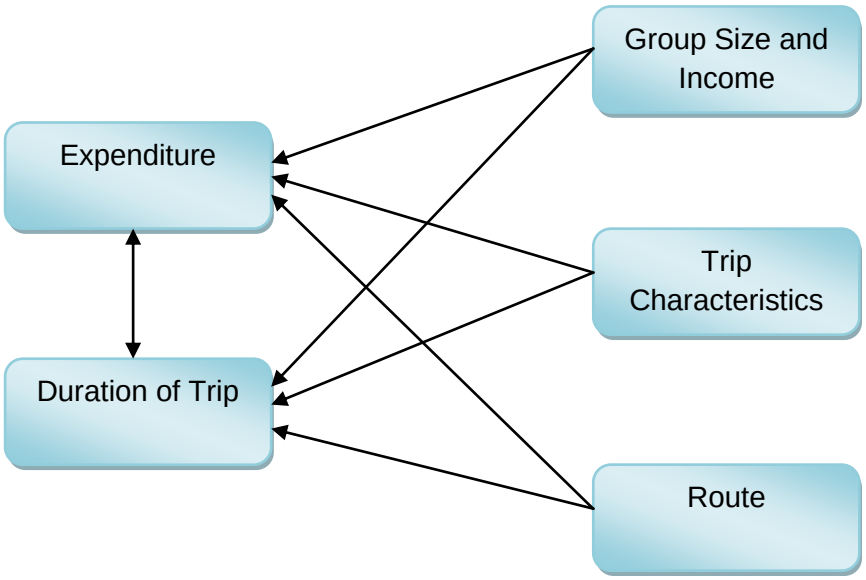
Equation 2.18

When P_i = individual tastes and preferences, Mot = Motivations, Ep = Event profile, SI = Sporting involvement and De = demographics

Specifying an economic theory for this research enables an econometric model to be developed for this research. In order to fully express the conceptual econometric model for this research and specify the variables that will be tested within the model, this section now justifies investigating trip duration as the time element within the conceptual econometric model.

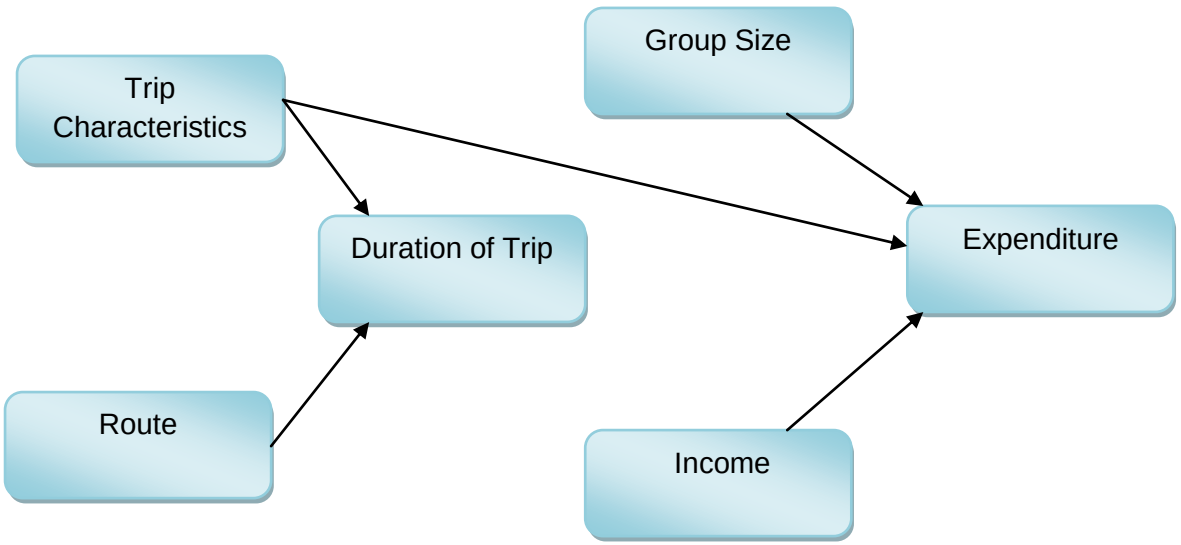
Alongside the determinants of travel to and attendance at major sporting events is the concept of trip duration. This area of research seems to have been neglected when evaluating major sporting events, Downward *et al* (2009b) remark that economic impact studies ignore trip duration but continue to model expenditure and for this Literature Review it has been found to be the case that no consideration has been given to the length of time that individuals attend a major sporting event for. From their work into total spending with regard to local UK tourism evaluations, Downward and Lumsdon have shown that the duration of stay is an important variable that can be linked to spending and that encouraging visitors to increase their duration of stay has favourable economic implications for a destination (Downward and Lumsdon 2003). This relationship was further empirically tested with cycling tourists by Lumsdon, Downward and Cope (2004), whereby it was shown that the variables of trip duration and income act to determine levels of spending, in the sense that the longer the trip duration and the higher the income level, the greater the level of spending that would occur within the host economy. In developing the total spending trip duration interaction for cycling tourism, Downward *et al* (2009b) have developed a conceptual model of expenditure and trip duration that is of use to this research and illustrates the relationship between the variables under investigation. From Figure 2.11 it can be seen that conceptually it is proposed by Downward *et al* (2009b) that there is a feedback relationship between the dependent variables of expenditure and trip duration and that the independent variables of group size and income, trip characteristics and route, mutually determine expenditure and trip duration. In conceptually modelling these relationships Downward *et al* (2009b) were also able to develop expenditure and trip duration equations for these relationships. Their resulting regression analysis presented the findings illustrated in Figure 2.12 whereby it can be seen that trip duration and expenditure are not mutually deterministic, but that income, trip characteristics and group size are influential variables in determining expenditure, whereas for trip duration, trip characteristics and the route are the important variables.

Figure 2.11: Downward *et al* (2009b) Conceptual Model of Expenditure and Trip Duration



Source: Downward *et al* (2009b)

Figure 2.12: Expenditure and Duration Model

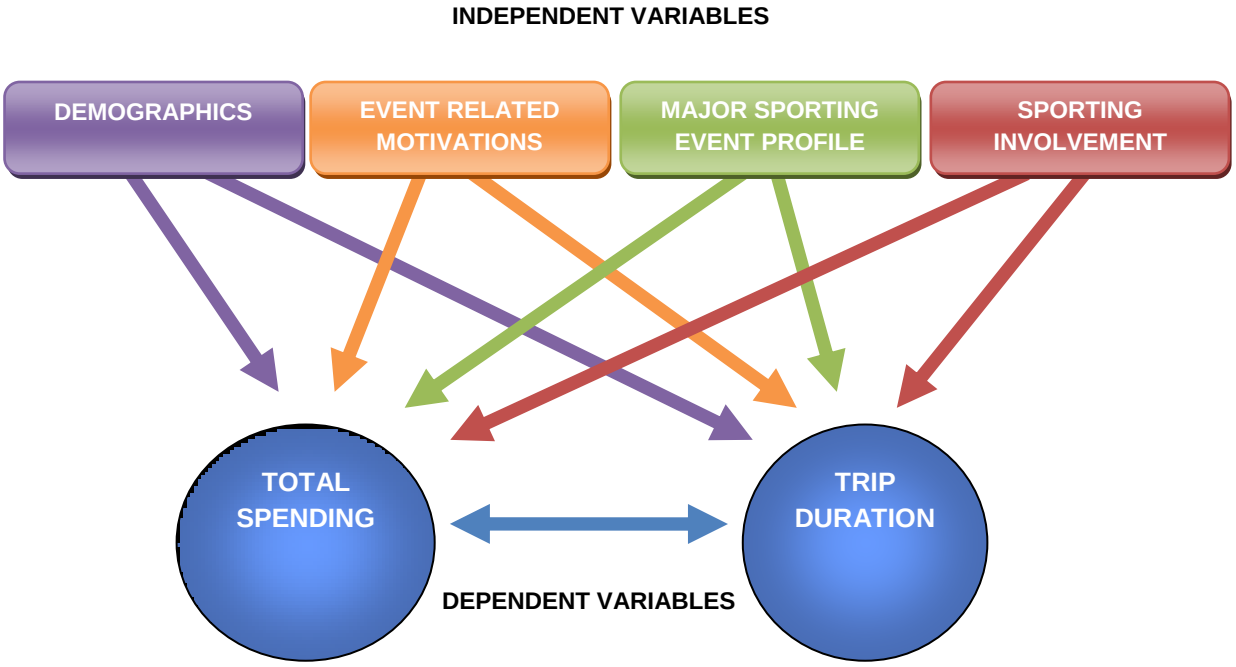


Source: Downward *et al* (2009b)

Although these specific trip duration and expenditure findings are in the context of cycling tourism the principles that arise from these papers highlighted here, is that trip duration and levels of expenditure may well be linked with each other and therefore should be tested and evaluated together. This has specific importance for this research as it suggests that in evaluating the concepts of trip characteristics, motivations, and expenditure, trip duration is also in important factor that should also be investigated as Downward *et al* (2009b) illustrate it can impact trip characteristics.

This therefore provides the justification along with the economic theory discussion in section 2.4 and at the beginning of this section for the development of a conceptual econometric research model. For this research the conceptual model will model and econometrically estimate information in the areas of event related motivations, sporting involvement, demographic information (including income) and major sporting event profile to evaluate how these areas impact the total spend and trip duration decisions of the individual when it comes to decisions regarding the travel and attendance to major sporting events. The conceptual model for this research is presented in Figure 2.13.

Figure 2.13: Conceptual Research Model



This conceptual model follows the reasoning of the Downward and Lumsdon (2000) and the Downward *et al* (2009b) model depicted in Figure 2.11. The full composition of the dependent and independent variables that make up the conceptual model will be discussed in Section 3.3.2 of Chapter Three. The conceptual model therefore hypothesises that the independent variables of demographics, event related motivations, major sporting event profile and sporting involvement, impact the dependent variables of total spend and trip duration. It is also hypothesised that there is a feedback relationship between the dependent variables of total spend and trip duration.

2.7 Conclusion

This review of the literature has enabled a conceptual research model to be established for the further investigation of Preuss' 'Event Visitors' market segment, those individuals that travel to and attend major sporting events. The literature review has highlighted a gap in the knowledge base that pertains to those individuals that travel to and attend major sporting events as only six studies have been identified that investigate both the concept of travelling to and the attendance of major sporting events. By utilising the information from these studies and the additional literature discussed within the sections of this chapter, this research has been able to develop a conceptual model for statistical estimation to augment the analysis and understanding of this specific segment of major sporting event attendees through their total spend and trip duration decisions. By being able to ascertain this level of information regarding this specific segment of major sporting event attendees demonstrates that this research makes the initial contributions to, which will have to be built on by further research, what has been seen as a key objective for event planners and policy makers to better target the marketing and services provided to the most receptive major sport event attendees (Fairley 2003; Gandhi-Arora and Shaw 2002; Gibson *et al* 2003; Goslin, Grundling and Steynberg 2004; Kim and Chalip 2003; Kurtzman and Zauhar 2005; LeBlanc 2004; Ritchie *et al* 2002; Saayman and Uys 2003).

A full discussion of the conceptual model presented by Figure 2.15 is entered into in section 3.3 of Methodology Chapter. Within this section all the constituent variables of the model are discussed along with how the data will be collected, with the subsequent section of the chapter illustrating the methods of data analysis. The discussion of this

thesis now moves on to illustrate the methodological positioning and issues that concern this research.

3 Chapter Three: Methodology

3.1 Introduction

The purpose of this chapter is to set out the methodological assumptions underpinning this research along with the methods that were applied in order to respond to the research questions and objectives set out at the beginning of Chapter One. Section 3.2 of this chapter provides a philosophical discussion in which the methodological presuppositions of the research are identified. Section 3.3 then moves to discuss the methods employed within the research and how the resulting online survey was shaped and structured along with the issues that had to be dealt with for its administration. Section 3.4 of the chapter then discusses how the data collected via the survey has been analysed. Two distinct forms of analysis have been undertaken with an initial descriptive analysis and a more sophisticated statistical analysis, which utilises regression techniques in order to model the conceptual model using econometrics. The technicalities of applying these two forms of analysis are therefore discussed here. The final section of this chapter, section 3.5, illustrates how the conceptual model that was proposed in Chapter Two, Figure 2.15 is applied to the data collected.

Gibson (1998) comments, there is an apparent lack of methodological diversity within the sports tourism literature as it is noted that the research surveys are the predominant method employed by research in the area. Supporting this observation, Weed (2006) through a meta-evaluation of sports tourism research, indicates that 71% of research utilised a positivist approach. Despite this apparent dominance of the research survey and the associated methodological positioning, Gibson (1998) notes that there is the need for multivariate statistical analysis to be undertaken to develop the literature, while Weed (2006), calls for the development of empirical work to be done that builds upon and develops the existing knowledge base in a way that pays attention to methodological and epistemological concerns. With this information, it is important here to reiterate that the aim of this research is to investigate the total spend and trip duration decisions taken by individuals that choose to travel to and attend major sporting events. In doing this, this research is focusing on investigating a specific segment of individuals that travel to and attend major sporting events, Preuss's (2005) 'Event Visitors'. To be able to achieve this, this research has a number or research objectives, which are to:

1. Review the current literature on major sporting events, with particular respect to travel, tourism, motivations and the economic importance of major sporting events.
2. Synthesise the insights from the travel motivation and event expenditure literatures to develop an econometric model in which the relationships between motivations, trip durations and expenditures are tested.
3. Collect data from individual respondents on nine different major sporting events relating to major sporting event motivations, trip durations and expenditures, as well as demographic profiling information.
4. Provide a detailed discussion of the motivations for major sporting event attendance.
5. Provide a micro level evaluation of total spending and trip duration for major sporting events.
6. Provide an extension of the analysis of those that travel to and attend major sporting events beyond that of a basic quantitative descriptive account to that of a more sophisticated statistical analysis.
7. Provide recommendations and conclusions that can be used by those that manage and market major sporting events in order to enhance the economic impact of hosting a major sporting event.

Therefore in addressing the specific concerns and issues from Gibson (1998) and Weed (2006) and in order for this research to address the research objectives reiterated above, this research will build upon previous research and undertake a multivariate statistical analysis to develop the understanding/knowledge in this area. In doing this, this research has to implicitly draw on a particular philosophical approach. The approach of this research is therefore positivist in nature by drawing on economic reasoning and using the multivariate technique of regression analysis to.

3.2 Philosophical Considerations

> "...we cannot, and do not, enter the research process as empty vessels or as blank slates that data imprints itself upon. Essentially, ontological assumptions give rise to epistemological assumptions which have methodological

> implications for the choices made regarding particular techniques of data collection, [and] the interpretation of these findings".
>
> Sparkes (1992:14)

A paradigm is a "world view" which filters through all acts associated with inquiry (Sparkes 1992). As stated in the above quote, the paradigm that a researcher identifies guides the choices made in terms of data collection techniques, treatment and interpretation of the data, and the [re]presentation of the data. Individuals adopt the belief systems associated with a certain paradigm through a process of socialisation (Sparkes 1992). There are certain *ontological* and *epistemological* assumptions associated with the different research paradigms.

3.2.1 Ontology and Epistemology

The philosophical assumptions that a researcher uses either implicitly or explicitly underpins their research and informs their research questions and in turn their choice of methods. Ontology is the study of being and is concerned with the nature of being and the structure of reality (Crotty, 1998). Ontological positions are either *external-realist*, which perceives reality to be "a given 'out there' in the world"; or *internal-idealist* which believes reality to be the product of individual consciousness...the product of one's mind" (Burrell and Morgan, 1979 cited in Sparkes, 1992:13). Linked to issues of ontology are epistemological assumptions which refer to the question of knowing and the nature of knowledge (Sparkes 1992). The *objective* epistemological stance posits that "knowledge is something that can be acquired" (Burrell and Morgan, 1979 cited in Sparkes, 1992:13) and if research is carried out in the right way we can discover the *objective truth* (Crotty, 1998). This view differs from the *subjective* epistemological stance which asserts that "meaning is imposed on the object by the subject" (Crotty, 1998:9). Therefore the ontological and epistemological positions taken up will have an impact on how social researchers view the world and thus, their modes of enquiry (Sparkes, 1992). Sparkes (1992) refers to this world view as a paradigm while Crotty (1998) uses the term *theoretical perspective.*

Different and competing 'world views' or paradigms have developed over time in the pursuit of inquiry into knowledge in the social sciences and the 'real' world. This results in two main questions being posed and forming the basis of the paradigm argument; what counts

as valid knowledge, and how is that knowledge acquired? (Denzin and Lincoln, 2005; Guba and Lincoln, 2005; Henn, Weinstein and Foard, 2009). Paradigms, according to Bryman (1998) are a cluster of beliefs that influence how research should be conducted, analysed and more generally studied as a whole. Hence, this is why the paradigm debate is important within the methodological discussions of conducting research (Guba and Lincoln, 2005). Paradigms therefore encompass the ontology and epistemology in addition to the methods of research, with questions regarding the nature of reality (ontology), what exists as knowledge (epistemology) and how the research is undertaken (methods) (Denzin and Lincoln, 2005; Guba and Lincoln. 2005).

Paradigms were the development and thinking of Thomas Kuhn (Crotty, 1998). He saw the concept of a paradigm as being an overarching conceptual construct of beliefs that guides researchers in making sense of the real world, whilst at the same time, legitimising and providing boundaries in which enquires into the real world can be conducted (Crotty, 1998; Guba and Lincoln, 1994). Crotty (1998) communicates Kuhn's (1970) thinking regarding paradigms as emerging when the original paradigm becomes inadequate and findings that are being proposed can be no longer be explained within the prevailing paradigm. Sparkes (1992:21) has outlined three major paradigms, given in Table 3.1, which hold different assumptions upon which the paradigms are based.

Table 3.1: Paradigm Assumptions

	Positivist	**Interpretivist**	**Critical**
Ontology	External-realist	Internal-idealist	External-realist or Internal-idealist
Epistemology	Objectivist, Dualist	Subjectivist, Interactive	Subjectivist, Interactive
Methodology	Nomothetic, experimental, manipulative	Ideographic, hermeneutical, dialectical	Ideographic, participative, transformative
Interests	Prediction and control (technical)	Understanding and interpretation (practical)	Emancipation (criticism and liberation)

Source Sparkes (1992:21)

Therefore the positivist paradigm sees the world as real, hard and concrete as the natural world, where the social world is not something that the individual creates; it exists 'out there' (Burrell and Morgan, 1979), and can be directly observed. The positivist paradigm is often viewed as the backdrop from which all other paradigms operate and emerge from (Denzin and Lincoln, 2005), which has also resulted in positivism growing and changing over time in response to criticism (Crotty, 1998). Crotty (1998) illustrates that because of this alternative way of viewing the world and its reality a paradigm shift can be experienced, resulting in a new way of thinking about reality and a new paradigm, or a scientific revolution to use Kuhn's words. However, Guba and Lincoln (1994) insist that new paradigms can only emerge when the associated thinking is more informed and sophisticated than the original or any other existing paradigm and the emergence occurs with the coming together of proponents of the new paradigm to discuss their views on the matter (Guba and Lincoln, 1994). Two such paradigm shifts can be shown to be the emergence of the interpretivist and the critical paradigms leading to there being three main research paradigms within the social sciences, the positivist paradigm, the interpretive paradigm and the critical paradigm, with each of these paradigms providing a different lens with which human behaviour can be viewed and understood (Guba and Lincoln, 1994). In this way researchers working within each of the paradigms may seek to answer the same question, however the ways they view the research, ontologically and epistemologically, and how they actually go about conducting the research vary considerably.

Interpretivism is based on the assumption that there is no independent reality, as facts and data are only visible through value laden frameworks that can be constructed in many different ways by different individuals, as individuals negotiate the meanings for actions and situations (Blaikie, 1993; Crotty, 1998). Fundamentally interpretivism seeks to understand the social world at the level of what Burrell and Morgan (1979) deem, the subjective experience. With Blaikie (1993) reasoning this as individuals constantly interpreting and constructing their world. Within this paradigm, unlike the positivist paradigm, the researcher is an integral part of the research process, with reality being seen as a conscious construction of an individual (Sparkes, 1992). Because of this the interpretivist paradigm tends to use qualitative techniques to collect data to enable them to gather information on the historical, political, social and cultural influences that may act to impact human behaviour and the individually constructed reality. Sparkes (1992) makes the point that in order to collect such data interpretive research is a personal and interactive process of engagement that requires the researcher to be creative and command excellent social skills and be accomplished in employing more than one data collection technique, with

ethnography, focus groups and interviews commonly being needed to collect data. In these situations, the emphasis is placed on the participants' use of language as a tool for conveying meaning which provides an account of their world within their own words (Henn *et al,* 2009). This allows researchers to gain an understanding of how the social world is interpreted and how this informs action, to build a theory.

The critical paradigm again rejects positivism and is distinctly different to interpretivism. The term 'critical paradigm' is used as a blanket term to discuss a range of critical theories including neo-Marxism, some feminisms and materialism (Guba and Lincoln, 1998). Although it can be seen that these positions and theories vary, they hold common philosophical positions which makes them distinctly different to that of positivism. Within this critical paradigm the researcher and the researched are considered to be inextricably linked, rather than objectively detached as with the positivist positioning of the researcher. This linkage is shown by Guba and Lincoln (1994) to inevitably have an influence on what is being researched. Therefore critical theory rejects positivism and the notion of a value free research process, and although critical researchers can agree with some aspects of the interpretivist paradigm, areas of conflict do exist between the two paradigms. The central area of conflict is around the notion of power relations and the way in which the critical paradigm feels that the interpretivist paradigm fails to acknowledge the effect that power can have within constructed personal realities (Sparkes, 1992). Whereby it is the acknowledgement and understanding of power relations of oppressed individuals and groups within society that Sparkes (1992) feels it is critical to uncover to enable individuals and groups to take charge of their lives and in effect emancipate them from these social constructs.

From this discussion it can be seen that there are a range of ontological and epistemological positions that can be taken by researchers and used to inform the way in which they conduct research. These discussions have informed the methodological approach of this research. With this knowledge it is clear that this research could have been conducted within any of the three paradigms, but when being lead by the research questions and the objectives of the research, it is consistent that this research is bound within the positivist paradigm and the associated ontological and epistemological and research strategy.

3.2.2 Positivism

The beginnings of the positivist paradigm reflects the emergence and growth of scientific thinking in the seventeenth and eighteenth century where science began to be used to explain the world by developing scientific laws to understand the ways in which things occurred (Henn *et al,* 2009). A lot of the early 'positivist' work has been attributed to August Comte (1798-1857) who was concerned with what Simpson (1982:69) cited in Crotty (1998), describes as an 'attitude of mind towards science and the explanation of man, nature and society', applying the scientific method to that of the social sciences, whilst at the same time warning against the over complication of mathematical understanding of these concepts (Crotty, 1998). Comte believed in the order that existed within the world that enabled laws to be established from scientific endeavour along with the identification of relationships that can be seen to exist between variables and that could be directly observed through scientific enquiry (Crotty, 1998). In this way Comte is viewed as a driver of the evolution of positivism and scientific enquiry. These developments enabled the Vienna Circle of Logical Positivists to philosophise the logic of scientific enquiry as applying the methods and exactness of mathematical understanding to the study of philosophy and build upon Comte's use of scientific enquiry in the social sciences, through the verification of scientific theory, fact and laws (Crotty, 1998; Henn *et al,* 2009).

A further important development in positivist thinking occurred with the contributions of Karl Popper. Popper had issues with the idea of verification being the central tenant of logical positivism and the scientific method. Popper argued that by engaging in observation and experiments, enquiry should not try to prove a theory, but rather falsify it (Crotty, 1998). This understanding of the development of theory according to Popper, would continually act to challenge the established theory and progress the pursuit of knowledge (Henn *et al,* 2009). In changing the understanding of the scientific process Popper changed the formally inductive process of scientific enquiry to that of one that was considered to be a hypothetico-deductive process, which enabled hypotheses to be deduced and proposed from theory and then tested (Crotty, 1998). It is this understanding of positivism and scientific enquiry that is contemporarily viewed as the positivist paradigm.

Positivism is closely linked with the natural sciences as they both carry the belief in the progression of knowledge and scientific discovery, as it is contended that there is a reality that exists and as such researchers are able to study, capture and understand it (Denzin and Lincoln, 2005; Guba and Lincoln, 2005). This is achieved through presenting

explanations of covering laws that express the relationships between variables and explore the empirical sequence of events. There is a confidence in the scientific method that comes from the belief that the 'discovered' knowledge is accurate and certain, as well as being objective (Crotty, 1998). This is in sharp contrast to the opinions, beliefs and feelings that are gained via non scientific lines of enquiry, which is not viewed with the same level of confidence or rigour, as it is the principle of objectivity that is seen to be important in the scientific acquisition of knowledge (Crotty, 1998). As being able to 'discover' (scientifically) the meaning of an object, not assign a meaning to an object, is seen as the key and by believing that objects have a meaning to be discovered, means that objects already have an inherent meaning, which as Crotty (1998) expresses is the embracement of the epistemological positioning of objectivism. Therefore this research utilises economic theory as an attempt to produce a generalised understanding that relates to social behaviour, in the case of this research travelling to and attending major sporting events, whilst using the tools of economics, econometrics and regression analysis, to assess rational choice and courses of action (Downward *et al,* 2009a). In offering this understanding of behaviour, economics purports to offer "covering laws" to explain phenomena, with the core assumption of rational behaviour (Downward *et al,* 2009a:4). A fuller discussion of the philosophy of science and econometrics and its application to this research is entered into in section 3.4.2 of this chapter.

3.2.3 Methodological Considerations

Methodological considerations are what ultimately shape the choice and use of particular research methods (Crotty, 1998). A nomothetic approach to methodology prioritises research based on systematic protocols and techniques such as testing hypotheses and quantitative analyses (Sparkes, 1992). In contrast the ideographic approach emphases the need to understand the social world through firsthand knowledge of the subject under investigations (Sparkes, 1992). The methodological concerns of how the research is conducted are based around the dichotomy of quantitative and qualitative research methods (Blaikie, 2000; Bryman, 2008; Bryman and Bell, 2007; Crotty, 1998; Denzin and Lincoln, 1994; 2005; Gratton and Jones, 2004; Guba and Lincoln, 2005). Bryman (2008) sees the distinction between quantitative and qualitative research as useful for classifying different methods of social research as the terms can act as a form of 'umbrella' that covers a range of different issues in the application of research. In its basic form the distinction between quantitative and qualitative research can be simplistically shown to be that, quantitative research employs measurement and quantification of variables often with the

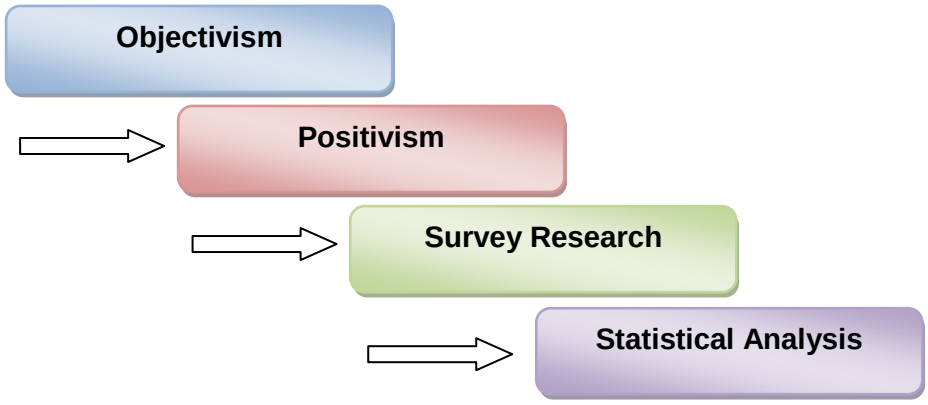
aim of uncovering causal relationships (linked to positivism), whereas qualitative research attempts to capture meaning and accounts for events, experiences and occurrences in a natural setting (linked to interpretivism) (Bryman, 2008; Denzin and Lincoln, 2005). From this it can be seen how these two forms of research method are often regarded as fundamentally polar opposites. Quantitative research methods are associated with either administered or self administered surveys (Gratton and Jones, 2004). The data collected by surveys is numeric in nature, directly measurable and can be statistically analysed (Gratton and Jones, 2004). Whilst qualitative research methods are associated with semi and unstructured interviews, focus groups and ethnography as methods that allow the researcher to explore and uncover meaning and explanation through interpretation of thoughts and feelings rather than collect measurements (Gratton and Jones, 2004). However, the differences between these two types of research run much deeper than those associated with data collection and analysis and are seen to be concerned with the ontological and epistemological underpinnings of research. Therefore the underpinning ontology and epistemology are the fundamental differences to quantitative and qualitative research as discussed above in Section 3.2.1(Bryman, 2008).

Crotty (1998) contributes to this debate and illustrates that it should be the research question that underpins the choice of the methodological approach adopted for the research, as all the elements within the research should be coherently linked together. Crotty thereby means that the philosophical underpinnings must be consistent with the research strategy, the methods of data collection employed as well as the research question that is under investigation. In acknowledging this in addition to the philosophical debate and the tenets of positivism, this positioning has to be applied to this specific research environment whilst taking into account the research questions and the aim of this research. As such, this research aims to econometrically model total spend and trip duration decisions of those individuals that travel to and attend major sporting events. Therefore the empirical framework employed by economists and applied to the economic analysis of sport is adopted. This empirical application is directly motivated by the methodological principals of economic analysis, which builds theories, which enables the generation of hypotheses which can be tested against the collected data. In using econometric analysis mathematical equations are central to this process.

Crotty (1998:27) and Table 3.1 above illustrates how positivism has an epistemological positioning of objectivism, as “objects within the world have a meaning prior to, and

independently of, any consciousness of them". This therefore enables the distinction to be formed and maintained between what can be objectively empirically verified and subjectively unverifiable information and knowledge. Crotty (1998:6) illustrates the process by which the scientific method can be used and applied within the social sciences as a step by step process shown in Figure 3.1. This figure therefore links objectivism, positivism, the method of survey research and the analysis of data by statistical techniques to the philosophical positioning of objectivism and positivism. This therefore enables research theory to be justified in an analysis of the theoretical assumptions that underpin research and determine the status of the research findings.

Figure 3.1: Ontological and Epistemological Positions of the Social Sciences Scientific Method



Source: Crotty (1998:6)

In utilising this schema, the remainder of this chapter looks at the research strategy and the methods employed by this research for the data collection and analysis phases of this research. The research strategy for this research is therefore framed within the positivist paradigm whereby hypotheses about reality can be observed and then tested as through the hypothetico-deductive process. This is illustrated to be the case within this research as the conceptual model, Figure 2.15, that was developed in Chapter Two has been deduced and proposed from existing theory and literature. This conceptual model has then been estimated as an econometric model that relates to the total spend and trip duration decisions of individuals that travel to and attend major sporting events. This research therefore aims to employs quantitative research methods and produces a descriptive and statistical analysis of the results, which are presented in Chapters Four and Five respectfully.

3.3 The Research Strategy and Research Methods

The literature review has shown, especially with regard to the Mashiach (1980; 1981); Delpy (1997); Delpy Nerotti *et al* (2001); Kim and Chalip (2004) and Breitbarth (2006) studies, that data for this type of research enquiry has predominantly been collected within a positivist framework that utilises a survey as its method of data collection which is followed by a quantitative (descriptive) presentation and discussion of the results. Therefore for this research to be able to comment on and contribute to the debate of understanding individuals that travel to and attend major sporting events, raised by authors such as Armstrong (2002); Gibson (1998); Preuss *et al* (2007) and Weed (2006), and extend the discussion beyond a descriptive account, this research needed to follow a similar form of research strategy and methods to that exemplified in the existing literature.

The data collection for this research had been led by the conceptual model that was conceived at the end of the Literature Review and it is this model that must be subjected to empirical scrutiny within this research. Therefore this section of the chapter examines how this conceptual model, Figure 2.15, is transformed into the basis for the data collection and the formation of the relevant variables. Bryman and Bell (2007) and Bryman (2008) see transferring the hypothesis of research, in this case the conceptual model, and translating it into an operational application as a skilful task to undertake. As this research has been shown to be positivistic in nature relying on economic theory, the method of data collection has to fit these philosophical underpinnings. The method with which the data was collected had to reflect the concepts that make up the hypothesis / conceptual model. In doing this, the data was collected for this research via a self-completion online survey. The online survey used is discussed in section 3.3.1, with the survey structure and formation being discussed in section 3.3.2. This section illustrates how the data was collected in each of the six areas identified by the conceptual model; demographics, event related motivations, major sporting event profile, sporting involvement, total spending and trip duration. This research therefore utilises Crotty's (1998) strategy illustrated by Figure 3.1, section 3.2.3 of this chapter, to position and collect the data for this research. The online surveys administration is then discussed in section 3.3.3. The results are then analysed empirically in both descriptive and inferential terms in subsequent chapters. The latter approach contributes to the literature in estimating the relationships that exists between the four sets of independent and two dependent variables of the conceptual model.

Before discussing the way in which the data was collected for this research a note on sample size is needed. Sample size calculations can be entered into to determine the how many people would need to be sampled in order to reflect the target population. This also means that the level of precision within the sample can also be calculated. Therefore for this research, the commercial company that gave access to their client lists indicated that there were 5000 individuals on their client lists at any one time. This was therefore the target population for this research. The commercial company however, did note that there was the possibility of double counting within this population figure as individual clients may have requested to receive information on more than one type of major sporting event. From this information it can be calculated that with a population size of 5000, a confidence level of 95% and a margin of error of 5%, the sample size needed to reflect the population would be 357 usable responses. Section 4.1.1 of Chapter Four will demonstrate the actual sample size, and margin of error that was experienced within this research.

3.3.1 The Research Survey

This research aimed to gather data on a number of different major sporting events, in doing this, this research moves away from the current situation in the literature, where typically only one major sporting event is the focus for the research. This therefore illustrates how this research is contributing to the expansion of the understanding of individuals that attend major sporting events through its sampling of multiple major sporting events. To be able to collect data on a number of different major sporting events, several issues had to be resolved, with how the data would be collected and which major sporting events would be sampled, being central to this. There have been a number of studies that have evaluated different individual major sporting events, the six key studies identified by the literature review in Table 2.18, illustrate that travelling to and attending major sporting events have previously sampled only the Olympic Games and the Football World Cup. Preuss *et al* (2007) sampled the attendees at the Commonwealth Games and noted that there have been numerous investigations in to small and medium sized sporting events, but less attention has been afforded to other sporting events. Therefore the lack of investigations regarding the attendees of a range of major sporting events provides a significant gap that this research has sought to fill by sampling a range of major sporting event travellers and attendees.

The sampling was undertaken by working with a commercial company whose business is selling travel and tickets to major sporting events[6], which enabled this research to have access, via the current client / interested parties list, and visitors to their website, to a range of individuals that had previously travelled to and attended major sporting events. The involvement of the commercial company also enabled this research to sample a range of major sporting events that the commercial company handled the travel and ticketing for. The major sporting events sampled to test the conceptual model for this research were therefore able to be the Olympic Games, Winter Olympics, Commonwealth Games, Football World Cup, Rugby World Cup, Test Match Cricket, International Tennis, World Championships (any sport) and other major sporting events, as the commercial company was involved in the selling of the travel to all of these major sporting events. These events can be classified within the UK Sport major sporting event typology as illustrated in Figure 3.2.

Table 3.2: Major Sporting Events Fit with the UK Sport Classification

Type	Description	Major Sporting Event
Type A	Irregular major international events that are seen to be of high economic importance	Olympic Games; Winter Olympics; Commonwealth Games; Football World Cup; Rugby World Cup
Type B	Regular major spectator events, that are seen to be of high economic importance	Test Match Cricket; International Tennis; Other Most Recent Event
Type C	Irregular major international spectator/competitor events, that are seen to generate limited economic activity	World Championships - Any Sport; Other Most Recent Event
Type D	Major competitor events that are of low economic importance	Other Most Recent Event
Type E	Minor competitor / spectator events that generate limited economic activity that attract no media activity and are part of an annual cycle of domestic sporting events	-

Modified from UK Sport (1999); Wilson (2006)

Type A events, Olympic Games; Winter Olympics; Commonwealth Games; Football World Cup; Rugby World Cup, were all selected as they form a quadrennial cycle of international sporting events that are major spectator events that can generate significant economic impact and have all been sampled in the literature individually. Type B events Test Match

[6] The commercial company is currently the official ticket and tour operator for several European sport and event associations.

Cricket; International Tennis and any Other Most Recent Event are seen to be regular major spectator events that again can generate significant economic impact. These events have also been sampled for generic spectator demographic profiling in the literature. The type C and D events, World Championships - Any Sport and any Other Most Recent Event can be seen to be irregular events which can attract large numbers of spectators and, or, competitors. This category of events has been less prevalently sampled in the literature. By the definition of category E events this research did not look to sample such events and therefore is not within the bounds of this research. However it must be noted that Other Most Recent Events were classified as both type B, C and D as it allowed respondents to identify and report on events that they saw as significant and that did not fit the other event descriptions, typically the events reported on were Rugby Internationals, important horseracing and eventing, basketball matches, and professional golf tournaments.

The research survey was distributed with the commercial company's newsletters and publicity material[7]. This meant that the data had to be collected in an accessible format that could be easily responded to by the company's client base. It was established that there were two possible routes for gaining the required information, either a paper based or an online survey. Yun and Trumbo (2000) advise the use of online surveys when resources are limited and the target population suits the use of the survey. Similar research has utilised the research method of online surveys to collect data from individuals that have travelled to and attended major sporting events. Two of the six key studies identified in Table 2.18 of Chapter Two, utilised an online survey for their data collection method.

Online surveys have been shown by Best and Krueger (2005); Bryman (2008) Lee, Fielding and Blank (2008); Vehovar and Manfreda (2008) and Williams (2007) to be currently having an increasing impact on research methods and data collection, with the use of the internet for research taking on a more common and highly international, academic characteristic. This has led to a range of social science research enquiry being attracted to utilising online research methods for data collection and research (Lee *et al,* 2008). Consequently there has been a steady rise in the number of researchers opting to collect data using online survey tools. Kim and Chalip (2004) and Breitbarth (2006) both successfully utilised online surveys to collect data for their Football World Cup travel and attendance research in 2002

[7] Initially the questionnaire information was sent out to clients / interested parties that had registered for priority information for travel and or tickets to the 2008 Beijing Olympic Games, with additional monthly follow up prompts (beginning of December 2006, January 2007, February 2007 and March 2007) to client groups.

and 2006 respectfully. In addition to this online surveys have been used as a method of collecting data from individuals that attend lower level sporting events, see Bodet and Bernache-Assollant (2009); Crawford (2001); Wakefield and Wann (2006) and Wolfson, Wakelin and Lewis (2005). Sportswise (2008) also see the internet and internet based surveys as a valid tool for sports research, as internet usage amongst sports fans is higher than the national average and as such Sportswise has used online surveys for a number of years to collect data for their own contract research projects. This use of online surveys has been conducted with those individuals that attend UK domestic sport with the Premier League, Football League and the Rugby Union Premiership Supporters' Surveys all being administered online, with collectively nearly 80,000 fans logging on and responding to the Premier League and Football League surveys in 2008 (Sportswise 2009). Therefore, due to the flexibility that an online survey afforded this research this was the method of data collection that was thought most appropriate for use in this research.

Utilising an online survey was also thought to be more appropriate as the research wanted to sample nine different major sporting events by utilising a specific population that had previously attended major sporting events. It was also felt that there may be administration issues with a paper based mail survey as question logic and order could not be controlled and applied as it could be with a computerised online survey. Further, the commercial company primarily conducts its business via the telephone or their website and contacts their clients and potential clients by email, depending on the individuals requested contact method. Consequently, this seemed to be an appropriate data collection method as the commercial company's remote interaction with their client base justifies the use of an online survey to sample this population of major sporting event attendees.

Online surveys are shown by Bryman (2008); Lee *et al* (2008) to command the benefits of 'traditional' self completion surveys, such as telephone and postal surveys, as respondents are able to control the completion with an increased sense of privacy and the absence of an interviewer, which can contribute to higher data quality (Bryman 2008; Vehovar and Manfreda 2008), as well as being lower cost and having the potential for error reduction. This error reduction can be commonly seen with online survey responses as they are immediately stored in a database and are ready for further processing and the transferring of data from paper copies to statistical software for analysis is avoided (Bryman 2008; Vehovar and Manfreda 2008). In addition to this, online surveys can be technically set up in a way that skips questions depending on the answers given to previous questions

(computer logic), therefore tailoring and occasionally shortening the online survey, whilst preserving the look and feel of the online survey for the respondent (Best and Krueger 2008; Vehovar and Manfreda 2008). Despite all these apparent advantages however, Lee *et al* (2008) report that one of the main drawbacks to utilising online surveys is the reach of the survey. Not all the potential population under investigation may have access to the survey due to their lack of access to the internet and it is noted that the characteristics of those that have internet access as opposed to those who do not, is significantly different; less affluent, less educated and older (Couper 2000; Lee *et al* 2008). However, Bryman (2008) notes that by April 2006, 57% of all UK households could access the internet from home and comments that as internet usage grows it is probable that these biases will lessen. Vehovar and Manfreda (2008) also note that one of the drawbacks to online surveys as is the case with telephone and mail surveys is that the response rate can be low. Göritz (2004) cited in Vehovar and Manfreda (2008) and Best and Krueger (2008) have found that in an attempt to overcome this factor, offering an incentive to complete the questionnaire along with multiple follow ups will act to increase the response rate of the survey. The issues that are highlighted here are addressed in turn as this strategy and research methods section of the chapter moves forward. Section 3.3.2 now discusses the structure of the online survey with respect to the conceptual model.

3.3.2 Survey Structure and Formation

The Literature Review and the conceptual model noted in Figure 2.15, have both shown the range of information that is needed to be collected within this research; the Literature review provides areas for enquiry whist the conceptual model brought the relationships together. Here each six areas of the conceptual model are discussed in relation to the data collected via the online survey, with the survey being presented in Appendix 1.

1. Event Related Motivations

   In establishing the motivations to be investigated by this research the Literature Review synthesised a number of findings as they relate to those that travel to and attend major sporting events and identified the key dimensions to be investigated. Taking this into account, this research investigates 19 different motivations as to their impact on the total spend and trip duration decisions associated with travelling to and attending at major sporting events. The 19 motivations are detailed in Table 3.3 and make up the Event Related Motivation variables for the conceptual model.

2. Major Sporting Event Profile

Within this section of the conceptual model are variables that relate to the locations of the event, the number of major sporting events previously attended, where the events were located, the primary purpose of the trip, travelling companions as well as the planning associated with travelling to and attending major sporting events as they are part of the event experience. These variables have been included in the analysis as they were found to be present and to have been tested within previous studies such as Breitbarth (2006); Delpy (1997); Delpy Neirotti, Bossetti and Teed (2001); Downward *et al* (2009b) Kim and Chalip (2004) and Mashiach (1980; 1981). The full complement of event profiling variables to be contained in the model can be seen in Table 3.3.

3. Sporting Involvement

Armstrong (2002) and Gibson (1998) in the literature review illustrated the importance of building as complete a profile of those individuals that travel to and attend major sporting events as is possible. In addition to supplying a major sporting event profile of the individuals that travel to and attend major sporting events, their sporting involvement profile should also be considered. Sporting involvement may be argued to carry over into an individual's sporting spectatorship through similar preferences. Therefore collecting data on the individuals sporting involvement would enable a more holistic understanding of those that travel to and attend major sporting events to be established. The sporting involvement variables within the model document the involvement in sport from watching sport, live or via the television, to volunteering in sport as well as participating in sport. Family involvement in sport and volunteering is also included as a variable within the model. All of the sporting involvement variables can be found in Table 3.3.

4. Demographics

From the Literature Review it can be seen that the majority of the literature reports on the basic demographic information of their respondents. Typically profiles and information as to the age and gender of respondents form the basis for this segmentation. To be able to comment on and compare and contrast these findings this research also needs to collect demographic information regarding its respondents. In this way this information can be utilised to benchmark its findings against that of other

studies and allow for the descriptive characteristics of the sample to be demonstrated. Demographic characteristics of the respondents', such as income levels, also need to be collected to expand the analysis of the data regarding individuals that travel to and attend major sporting events. Income has been show by Downward *et al* (2009b) to be influential when estimating an econometric model for cycling tourism. Therefore information such as the respondent's age, gender, income level, employment status and ethnicity (Table 3.3) are included as demographic variables within the model.

5. Total Spending

As one of the dependent variables of the conceptual model, the total spending component of the model will collect information solely on the total spending reported for travel and attendance at a major sporting event.

6. Trip Duration

The other dependent variable recorded is the length of trip to travel to and attend a major sporting event. The length of a trip has in the literature been related to total spending and previously been used by Downward *et al* (2009b) as a dependent variable in a cycling tourism study. In following that rational this research investigates whether trip duration is associated to total spend and the factors that act to impact trip duration decisions. The actual method of travel is not considered within this research. Trip duration therefore focuses on the days taken to travel to and be in attendance and return home from the major sporting event.

The variables that are included within Table 3.3 and their measurement have all arisen from the findings of the Literature Review and through the conceptual model have been conceived as being useful to this enquiry into individuals that travel to and attend major sporting events. The fourth column of the table also includes a reference to where the questions can be found in the research questionnaire (Appendix 1).

Table 3.3: Key Variables for Data Collection

Conceptual Model	Variable Type	Question relating to...	Survey Section	Unit of Measurement
Total Spending	Dependent	Total spending at the major sporting event	Event Page Q4	**Ordinal** Under £1000, £1000-£2000, £2000-£3000, £3000-£4000, £4000-£5000, £5000-£6000, £6000-£7000, £6000-£7000, £7000-£8000, £8000-£9000, £9000-£10000, £10000-£11000, £11000-£12000, £12000+
Trip Duration	Dependent	Length of trip to attend the major sporting event	Event Page Q1 (Q2 on other most recent event page)	**Cardinal** 1 day, 2 days, 3 days, 4 days, 5 days, 6 days, more than 6 days
Demographics	Independent	Gender	Tell us about you page Q1	**Nominal** Male, female
		Age	Tell us about you page Q2	**Ordinal** 18-24, 25-34, 35-44, 45-54, 55-64 65+
		Employment status	Tell us about you page Q3	**Nominal** Full time, part time, not working due to long term illness, unemployed, retired, student, homemaker, prefer not to say
		Ethnicity	Tell us about you page Q4	**Nominal** Bangladeshi, Black African, Black Caribbean, Black other, Chinese, Indian, Mixed, Pakistani, White, Asian other, other ethnic group please specify, prefer not to say
		Income level	Tell us about you page Q5	**Ordinal** Under 5K, 5-10K, 10-15K, 15-20K, 20-25K, 25-30K, 30-35K, 35-40K, 40-45K, 45-50K, 50-55K, 55-60K, more than 60K, prefer not to say
Event Related Motivations	Independent	Once in a life time opportunity Cultural experience Historical significance Prestige of the event Educational experience Location of the event Tourist attractions other than the event itself Escape everyday life	Q2 on each specific event page (Q3 on other most recent event page)	**Ordinal** Likert scale very important – unimportant Please indicate how important each factor was in influencing your decision to travel to and attend the major sporting event

		Enjoy travelling Enjoy the excitement and the atmosphere Enjoy the competition and the sport Good source of entertainment Relative of a competitor Visit family and friends Availability of tickets Availability of accommodation Overall cost of trip Business/networking opportunities Other reasons		
Major Sporting Event Profile	Independent	Number of major sporting events attended	Introduction page Q1	**Nominal** 1 event, 2 events, 3 events, 4 events, 5 events, 6 events, 7 events, 8 events, 9 events,10 events, more than 10 events
		Location of attendance	Welcome page Q1	**Nominal** International, domestic, both
		How far in advance did you plan your trip?	Event page Q3 (Q4 on other most recent event page)	**Ordinal** Less than 2 weeks, 3 weeks–2 months, 3-6 months, 7-12 months, 13-18 months, more than 18 months
		Last event attended	Last event attended page Q1	**Nominal** Olympic Games, Winter Olympics, Commonwealth Games, Football World Cup, Rugby World Cup, Test Match Cricket, International Tennis, World Championships-any sport, Other
		Would you have visited the area without this event	Last event attended page Q2	**Nominal** Yes, no
		Was your trip to the event and additional activity beyond your normal travel plans?	Last event attended page Q3	**Nominal** Yes, no
		Primary purpose of travel	Last event attended page Q4	**Nominal** Sole reason for the trip? An important part of a trip that was already planned? One activity among many on a more general trip?
		Travelling companions	Last event attended page Q5	**Nominal** With family, with partner and friends, with friends and family,

				with work colleagues
		Future intentions to travel to and attend major sporting events	Future Intentions page Q1	**Nominal** Summer Olympics, Winter Olympics, Commonwealth Games, Football World Cup, Rugby World Cup, Cricket World Cup, Test Match Cricket, International Tennis, Motor sports – F1, Major Gold Tournaments World Championships, Other significant event – please specify, None
Sporting Involvement	Independent	spectates live at sporting events spectates via the TV, participates now, used to participate, currently volunteers, Used to volunteer, Someone in the family currently or used to participate or volunteer	Sporting involvement page Q1	**Ordinal** Aerobics, Athletics, Badminton, Cricket, Cycling, Football, Golf, Go to the Gym, Martial Arts, Jogging/Running, Rugby Union, Rugby League, Skiing, Squash, Swimming, Tennis, Walking, Weight Training, Other Sports.

In bringing all of this information together into the online survey for this research a number of issues still had to be addressed; concerning the layout and the reliability and validity of the online survey. Gratton and Jones (2004:272) define reliability to be the extent to which the results would be the same should the research be repeated which is connected to the consistency of the results collected. With validity being seen as the extent to which the results represent the phenomena under investigation. Although they are separate concepts the reliability and validity of a piece of research are linked and measures that are valid and reliable are to be strived for (Gratton and Jones 2004). In achieving this, this research has to ensure that the data collection would illicit the same results if they were asked at different times. Therefore this online survey must still be subject to the same rigorous considerations that have to be addressed when designing any other form of survey, such as the testing of the question comprehension and the ease of the survey use (Bryman 2008). The survey for this research has used methods that have been found to be both reliable and valid by other researchers in the area. Breitbarth (2006) and Kim and Chalip (2004) both utilised an online survey to evaluate travel and attendance to major sporting events, with Breitbarth sampling respondents from a client list of the New Zealand Football Association. Furthermore, Bodet and Bernache-Assollant (2009); Crawford (2001); Sportswise (2009); Wakefield and Wann (2006) and Wolfson *et al* (2005) use online surveys to sample attendees at smaller scale sporting events. Joinson (2000) illustrates

that there is also evidence that online surveys can provide a more candid account of the area under investigation, as respondents are more likely to disclose truthful information about themselves, in accordance with the research topic compared to paper-based versions of the research survey.

There is one further issue that is faced by this research that can affect its reliability and validity. This concerns the way in which the data for this research has been collected. The data has been collected from an interested parties / client list which means that the data collected is a Harvested / Unrestricted Self Selected sample (Fricker Jr 2008), which is a non random sample. However it can be seen to be the case within the literature that using data collected in this way is acceptable and produces usable data that is suitable for statistical analysis (see Bodet and Bernache-Assollant (2009); Crawford (2001); Wakefield and Wann (2006) and Wolfson *et al* (2005)). Kim and Chalip (2004) used a harvested email list collected from football clubs to elicit responses to their online Football World Cup survey and then went on to perform a regression analysis on the data. As this study specifically focuses on a major sporting event, it most closely matches the use of the data for this research. Crawford (2001) acknowledges the use of non random data from sending information about his survey out with the ice hockey team's newsletter and in an attempt to overcome the issue, Crawford also embeds the online survey into the ice hockey team's website, with their cooperation. This research also therefore made its online survey available via the commercial company's website. However Crawford notes that although this provides an opportunity for random completion of the survey, it does not allow any distinction to be made between those that completed the survey because of the publicity information sent to them or if they independently accessed the website and responded to the survey.

With regard to the layout of the survey a number of issues had to be addressed, as the survey needed to promote independent use, otherwise this may act to decrease the response rate (Best and Krueger 2005; 2008). Therefore the layout, choice of font, font size and the appearance of the online survey took on more importance than in a paper based survey as all of this may impact the download times and perception of the respondent to the survey (Best and Krueger 2005; 2008). Because of this, conscious decisions were made as to avoid obscure fonts that were non san serif. Therefore, Arial font size 12 was used as this font has been shown to be a backwards compatible standard font which is one of the most widely used on the internet with it also acting to ensure higher

levels of readability whilst being compatible with numerous internet browsers (Bernard and Mills 2000). Text choice is seen as an important issue for online surveys as the readability and comprehension of the survey are crucial in reducing the measurement error (Best and Krueger 2008). In addition to reducing the measurement error, a compatible text can also act to reduce the time taken to read and complete the survey, thereby reducing the completion times and potentially increasing the survey response rates (Best and Krueger 2008).

The issue of the presentation of the survey also had to be addressed and this encapsulated the 'look and feel' of the survey. Central to this issue was whether there should be either one question or multiple questions per page. Best and Krueger (2005; 2008) suggest caution when formatting the pages of online surveys, as having questions in a list requiring the respondent to scroll through them may be prohibitive to some people. However, in providing all the questions at once, the control of the question order may be lost. In addition to this, having a long page with all the questions visible may decrease the response rate and increase roll-off levels, whereby, people may see the survey length and exit the survey before responding to all the questions (Best and Krueger 2008). To try and combat some of these problems it was decided that this online survey would group similar or related questions together and have between one to six related questions per page. In administering the survey in this way more control could be kept over the order in which the respondents answered the questions. The response formation to the questions then had to be established. In an attempt to try and keep people's attention, a number of response types and formats were used, with the same type of question consistently using the same format to avoid confusion amongst respondents. The choice of response style consisted of how best to format the closed questions. Best and Krueger (2005; 2008) illustrate that the options for online survey responses can include, plain text typed, typed entry boxes, radio buttons, check boxes, pull down menus or graphical rating systems. For this online survey it was thought that the options of radio buttons best suited the Event Related Motivation and Sporting Involvement questions due to the matrix format of these questions, with the remaining questions using check boxes and drop down boxes. Where the survey asked respondents to specify an 'other' reason, for example, a typed entry box was used for them to freely type the response. These different question response formats can be observed in the research survey in Appendix 1. The survey took the following structure;

- Welcome/instruction page, 1 question
- Introduction questions, 2 questions

- Specific Event page, 4 questions for up to two major sporting events
- Last major sporting event page, 5 questions
- Individual sporting profile, 1 question
- Future event attendance, 1 question
- Tell us about you, 5 questions
- Prize draw details

The order of the questions was such that the initial welcome page of the survey introduced the survey to the respondent giving information on the purpose of the survey and informing the respondent of how to answer and submit the survey. Best and Krueger (2005; 2008) illustrate that this is a crucial part of an online survey that can act to increase participation and response rates, as detailed instructions to the survey are often appreciated by respondents. This page in addition to the survey instructions asked the respondent about their past location of major sporting event attendance.

The introduction page of the survey asked the respondent two questions. Firstly it asked the respondent to indicate how many major sporting events they had attended in the past ten years and then secondly to indicate two of the major sporting events they had previously attended. This second question was loaded with computer sequencing logic to present the responses in a random order, so that each respondent did not see the major sporting events in the same list order. This response randomisation was applied to the question to avoid a response bias that favoured major sporting events that were located at the beginning of the list. The major sporting event(s) indicated by the respondent for this question then became the subject of the following page of questions as the respondent was asked a series of questions that related to their travel and attendance at the major sporting event(s) that they had selected. This meant that if the respondent had selected two events they experienced the same questions for two different events[8]. Applying computer logic sequencing to the online survey in this way meant that the online survey could be constructed in a way that changed the survey experience of the respondent depending on the answers given by the respondent (Best and Krueger, 2005; 2008; Vehovar and Manfreda, 2008).

[8] This initially was three events but due to comments from the pilot survey this was reduced to two events.

The survey then directed respondents onto the last major sporting event travel page where the respondent was asked to identify which of the two event(s) that they had just told us about was the last event that they had attended. Respondents were asked to indicate the location and the year of this event and answer specific questions about their travel and attendance at this specific event. The survey then moved on to collect information regarding the respondents sporting involvement and subsequently their future intentions to travel to major sporting events. Both of these questions were separate pages within the survey. The survey then concluded its questions asking the respondent to tell us about themselves and provide demographic information such as gender, age and income. The final page of the survey allowed the respondents to supply their name and address if they wished to enter the prize draw associated with completing the survey and to submit their completed survey. The incentive of event tickets for the 2008 Beijing Olympic Games was provided by the commercial company as a way of incentivising people to respond to the online survey, which has been discussed previously as being important in increasing the response rates to online surveys (Göritz, 2004 cited in Vehovar and Manfreda, 2008; Best and Krueger, 2008).

Before the online survey went 'live' it underwent a serious of test submissions in order to pilot the survey and establish any problems with the software, order of the questions and the general 'feel' to the online survey to check the reliability and validity of the survey. This pilot was carried out by emailing the link to the survey web link to a range of 50 people[9] within the Department of Sport and Exercise Science. Those that received the link were asked to access and complete the survey and provide comments and notes regarding any problems or issues that they had encountered in completing the survey. From this pilot the survey was changed to only ask the respondent about two major sporting events, rather than the three as it had initially been set up to collect data on. Pilot respondents felt that reporting on three major sporting events made the survey too long with regard to answering the same set of questions for three different major sporting events (repetition of event page). Small typographical changes were also made to some of the questions to aid respondent understanding. Once these changes were made, another pilot survey was conducted in the same way with a different, but smaller and equally diverse sample of individuals. From this second pilot the survey was deemed to be ready to 'go live'. In each pilot the data collected by the survey was exported from the survey software into SPSS and the frequencies of the data were run. This testing of the data ensured that there were no

[9] The people that piloted the survey were both academic and non academic university staff, with ranging educational levels, of different ethnicities and with varying age and English language levels.

problems in accessing the pilot data and that the data aligned as it should into the SPSS file. Piloting the survey in each of these ways has been shown by Gratton and Jones (2004) to be essential to all survey based research in order to increase the face and content validity as well as the reliability of the research. Conducting a pilot can therefore act to increase the response rate of the survey as respondents are less likely to experience problems when responding to the survey and it is seen as a way of improving the consistency of the results obtained (Gratton and Jones, 2004). This was seen as a key process for this online survey as the survey was a self completion survey that required the respondent to access the survey and complete it with no administration help from the researcher.

The awareness of the possibility of multiple submissions within this research also had to be considered due to the bias this could have had on survey results. Therefore strategies for the management of the submissions were employed when the data was imported to SPSS and cleansed and checked for errors. The survey had the capability of capturing the respondents' IP address, which enabled the occurrence of any multiple entries to be identified, and could be traced back to the respondents' survey submission. This 'security' issue is discussed by Bryman (2008) as something that required attention due to the impact this could have on the reliability of the data. Once the data had been collected and the data was screened using the IP address and prize draw information, it was found that there were no duplicate submissions. This is important because it meant that all of the submitted surveys could be included in the analysis and that no submitted surveys had to be eliminated from the sample due to duplicate entries.

3.3.3 Survey Administration

As previously noted this survey could not sample the entire population of individuals that travel to and attend major sporting events therefore a sample of this population had to be taken. Due to the involvement of the commercial company this sample has been shown by section 3.3.2 to be a non-random sample. The way in which the survey was distributed to interested parties via publicity material and through the company's website, meant that potential respondents had the choice to respond to the survey as they had to 'opt in' by clicking on the survey link to respond to it (Best and Krueger, 2005; Fricker Jr, 2008; Vehovar and Manfreda, 2008). However, the administration of the survey in this way does not allow the researcher to know who did not choose to respond to the survey, nor does it

allow for the recording of how the respondent came to access the survey (publicity link or webpage). As this survey collects data from a harvested sample the results should not be generalised to a larger population, but can be generalised to the wider population of those that travel to and attend major sporting events with commercial companies. With the results being useful to commercial events companies and research community as they can be the basis for further testing of the resulting research findings and model (Berson, Berson and Ferron, 2002; Best and Krueger, 2005).

Initially the data from the online survey was analysed using the SPSS (Statistical Package for the Social Sciences) software. Once the respondent submitted the survey their responses were held on the survey server, which when the survey closed, enabled the data to be downloaded directly from the server and imported into SPSS. To ensure this was a smooth transition, Best and Krueger's (2005) call for attention to detail in setting up online surveys was heeded. Therefore, it was ensured that the data collected by the survey was compatible with, and had already been coded to map into SPSS easily. The data at this point was also screened for multiple submissions, which has been discussed earlier. The data was then screened, checked and cleansed for any apparent errors, such as errors in the mapping and import processes, for example, to ensure that the answers to the questions aligned into the correct columns in SPSS. As these cleansing processes did not encounter any problems or require any corrective action the data was ready for analysis using SPSS.

The survey link and information distribution was handled directly by the commercial company. This was due to Data Protection legislation and control, therefore the dissemination of the survey information was outside of the control of the researcher. However, all the information and literature regarding the survey was designed by the researcher and then passed on to the commercial company for dissemination. The commercial company disseminated the survey information to different client groups depending on their contact preferences. The company contacted individuals registered with them by either mail or email. Each of these forms of communication directed the recipient to the company's website for further information on the major sporting event that they were being contacted about and informed them of the survey that was taking place, its link and

information on the incentivised prize draw associated with the survey[10]. The initial publication of the survey information was sent to those individuals that had registered with the company for information on priority booking for the 2008 Beijing Olympic Games took the form of a letter[11] detailing the priority registration details for travel and attendance to the 2008 Beijing Olympic Games, with the details of the survey web link. This was sent out at the beginning of November 2006. Subsequent email alerts were then sent to different client groups[12] at the beginning of December 2006, January 2007, February 2007 and March 2007.

It must be noted here, about the stage of the major sporting event cycle, when the survey went 'live' and when the information was disseminated by the commercial company to its clients and interested parties. As the major sporting event cycle may have affected the responses of particular major sporting events. The major sporting event cycle was at the point where the summer Olympic Games was mid way through its quadrennial cycle of Games, with the Winter Olympics and the Commonwealth Games having taken place in Turin Italy and Melbourne, Australia respectfully, earlier in the year before the research survey went live. There was a similar situation for the Football World Cup as the Championships had been hosted by Germany four months before the survey went live. The Rugby World Cup however, had entered the countdown to the event being hosted in France; eleven months after the survey went live. The programme of annual major sporting events was towards the end of its annual cycle. It may be found that the positioning of the survey going live affected the response rates for some of the major sporting events, as one event over the others may feature heavily once the data has been collected[13]. However, to try to counter act this, the survey was set to be active over four months with the commercial company scheduling a variety of major sporting event mail outs over that period of time.

3.4 Data Analysis

The data analysis of this research has been carried out in two distinct ways. Initially this section of this chapter discusses the descriptive analysis of the results. It reports on how

[10] Once the survey had closed and all the survey information had been downloaded. The contact information supplied by respondents for the prize draw was exported from the survey files and given to the commercial company to conduct the prize draw. The commercial company conducted the prize draw and contacted the winning entrant.

[11] Or Email depending on the contact preferences logged by the interested party with the commercial company.

[12] These were determined internally by the commercial company and not made available to the researcher.

[13] This is a feature of the survey that is re-visited and discussed within section 6.2.5 of Chapter Six.

the data was analysed and any issues that arose, with the actual descriptive results being reported on and discussed in Chapter Four of this thesis. Section 3.4.2 of this chapter then moves on to discuss the statistical analysis that is undertaken within this research in order to develop the results from a simple descriptive account of those that attend and travel to major sporting events. Econometrics and specifically regression analysis is discussed in depth here along with all the issues that may arise and things that have to be taken into account when estimating the conceptual model. The actual forms of regression analysis undertaken shall be finally discussed within the actual findings of the statistical analysis being reported on and discussed in Chapter Five of this thesis.

3.4.1 Descriptive Analysis

The data was initially analysed within SPSS using frequency counts as nominal and ordinal data which provided a descriptive account of the data. Cross tabulations were also employed. The data has been presented for discussion in relation to the existing literature in Chapter Four using table and graphs to aid the understanding of the results and the relationships present in the data (Bryman and Cramer 2005). These descriptive results form the basis for further enquiry and lead into the econometric analysis of the results.

3.4.2 Statistical Analysis; Applied Philosophy of Science

Within the 20th Century, Hoover (2005) has shown there to be have been lots of discussions as to the methodological positioning of econometrics. However Hoover (2005) also notes that after World War II a lot of the discussion in the field of econometrics centred on the development of methods and their technical development, rather than that of larger conceptual methodological issues. These technical developments in the area came after the conscious decision that econometrics was a separate area of economics resulting in the Econometric Society being founded in 1933 and defining econometrics as, “economic theory in its relation to statistics and mathematics” and its object as the “unification of the theoretical-quantitative and the empirical-quantitative approach to economic problems” (Frisch, 1933:1 cited by Hoover, 2005:4). This definition is identified by Hoover (2005) as the problem that has faced econometrics since as to how to combine economic theory, mathematics and statistics.

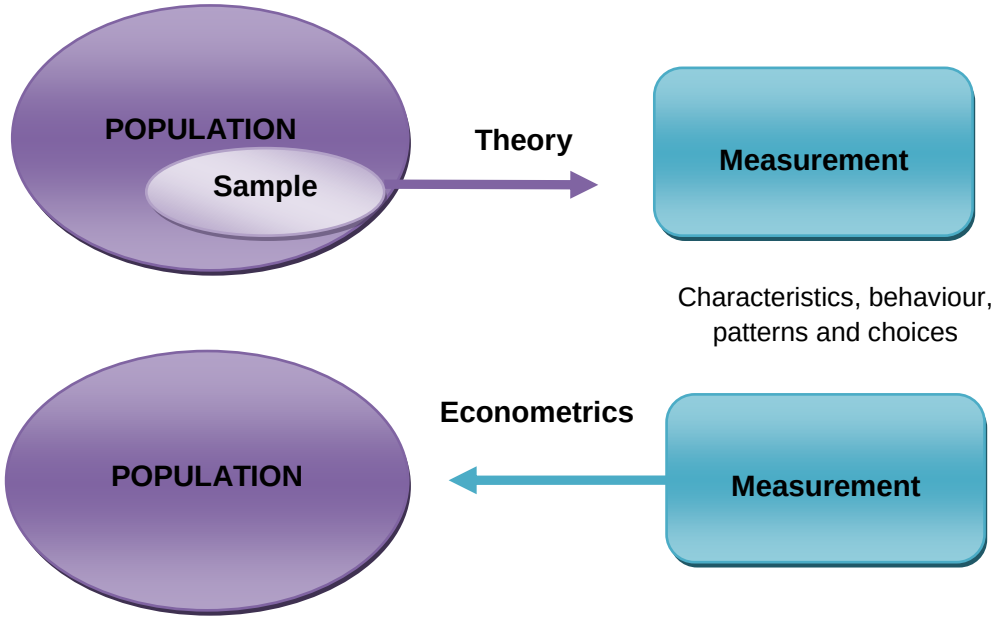
One of the central issues within the philosophy of science is the relationship between theoretical understanding and empirical evidence, as previously discussed in section 3.2.1. Econometrics is shown by Hoover (2005:7) to be at the 'evidential end' of this relationship and he sees econometrics as having four main roles;

- Testing theory implications
- Measure unknown values of theoretically defined parameters
- Predict the value of a variable
- Characterise relationships

From this it is clear to see that econometrics can be used as a source of evidence which enables theory and relationships to be questioned which fits within the scientific method of investigation and in this way it can be seen that econometrics is a variant of positivism (Hoover, 2005). This research therefore has used econometrics with the philosophical background of positivism to develop the econometric conceptual model that is to be estimated with respect to the relationships of total spending and trip duration for those individuals that choose to travel to and attend major sporting events. In aiming to achieve this, the four roles of econometrics set out by Hoover (2005) will become the focus for Chapter Five where the results of the econometric estimation are presented and discussed.

In order to estimate the model for this research the methods of analysis to be used firstly have to be discussed and understood as well as how they relate specifically to this research. Therefore the estimation aimed to sample a specific population, those that travel to and attend major sporting events and use the data collected to characterise and detail the relationships of total spending and trip duration and infer the results back on to the original population, this situation can be explained by Figure 3.3. However, as previously discussed in section 3.3.2 of this chapter, as this research has employed a non-probability sampling method the results can only be inferred back on to the population of the commercial company's clients and those that have registered interest with them and travel to major sporting events via them, rather than the wider population of all individuals that travel to and attend major sporting events.

Figure 3.2: Use of Econometrics



The remainder of this chapter now discusses the technicalities and the methods of analysis that are employed in order to estimate the conceptual model that has been proposed for this research. The results of the estimation are then presented within Chapter Five of this thesis. The technicalities that are discussed here relate specifically to regression analysis and the application of different forms of regression analysis that have been employed within this research.

3.4.3 Multivariate Analysis

Econometric models can be viewed as a sub set of multivariate statistical techniques. Multivariate analysis means the testing of the relationship between two or more variables and can refer to a range of statistical techniques such as factor, cluster and regression analysis. This means that two or more variables can be simultaneously analysed. Within this thesis we are concerned with the technique of regression and particularly multiple regression analysis, as the conceptual model hypothesises that there are two dependent variables, total spending and trip duration, which require analysis (Gujarati, 1995; 2006; Hair, Black, Babin, Anderson and Tatham, 2006).

The analysis that has been undertaken for this research has been conducted by initially using the SPSS file from the descriptive analysis of this research and importing that file into STATA v10[14].

3.4.4 Regression Analysis

Regression analysis is shown by Gujarati (2006) to be a heavily utilised and common tool of econometric analysis. Regression analysis allows the relationship between one dependent variable and one or more independent variables to be studied (Gujarati 2006; Hair *et al* 2006). Multiple regression analysis has the objective of being able to use the independent variables, of which the values are known to predict the dependent variable value (Hair *et al* 2006). This type of analysis is commonly used when there appears to be an underlying theory that specifies why we would expect one variable to be dependent on others, as implied above. Although regression analysis implies a relationship between variables, causality is not explicit. This therefore does not mean that independent variables are the cause and the dependent variable is the effect, the element of causality has to come from the underlying economic theory (Gujarati 1995; 2006). Gujarati (2006) shows that regression analysis is commonly used when the analysis has one of the following objectives,

1. Estimate the mean or average of the dependent variable with given values of the independent variables
2. Test a hypothesis about the nature of dependence, which is underlined by economic theory
3. Predict or forecast the mean value of the dependent value given the independent variables beyond the sample range
4. One or more of the above objectives combined

In this research the primary objective is, 2; to test a hypothesis, about the nature of dependence, which is underlined by theory. For this research the hypothesis is the conceptual model that was proposed and developed from literature and economic theory, it is this model that is to be estimated using regression analysis.

[14] Different statistic packages have been utilised due to the different analysis functions that they offer. For example STATA presents many more diagnostic tests of the econometric model, as well as more appropriate estimators, such as Two-stage Least Squares to cope with the simultaneity between variables if this was found to be present in the model.

With a multiple regression analysis, more than one independent variable is modelled to influence the dependent variable. The aim is to determine which part of the change in the average value of the dependent variable, Y, (in this case total spending or trip duration) can be attributed to each of the independent variable, X_i, variables. This is the most common form of regression analysis as there are few economic phenomena that can be explained by a single variable (Gujarati, 2006). Typically the multiple regression model is expressed as,

$$Y_i = B_1 + B_2X_{2i} + B_3X_{3i} + u_i$$

Equation 3.1

$$\hat{Y}_i = E(Y_i) + u_i$$

Equation 3.2

Where the dependent variable Y_i is modelled as a function of the independent variables, X_i corresponding parameters, B and an error term u_i. The parameter B_1, is known as the intercept, and is the average value of Y if all of the values of X are equal to zero. B_2 and B_3 are the partial slope regression coefficients, indicating that the average unit change in Y following a unit change in the relevant X_i. This modelling is achieved either through the application of Ordinary Least Squares or Maximum Liklihood methods (discussed later) which enable the estimation to give a "best fit" for the data (Gujarati, 2006). The error term u_i is treated as a random variable and represents unexplained variation in the dependent variable (Gujarati, 2006), which may be as a result of a number of different forces and is a critical part of, and is used to refine and control the number of variables within, the regression model (Gujarati, 1995). The subscript i is used to denote the ith observation, as we are using cross sectional data[15]. A number of assumptions need to be met to justify the use of multiple linear regression models as shown by Gujarati (2006),

1. The regression model is linear in the parameters and is correctly specified.
2. X variables are uncorrelated with the disturbance term u_i. (However if X_2 and X_i are nonstochastic (not random – fixed number in repeating sequence) this assumption is automatically filled).

[15] The data used in this thesis is classified as cross sectional data, as it was collected at a specific point in time. Within multivariate analysis cross sectional data carries some unique features which can affect the analysis. Gujarati (1995) illustrates that such types of data can encounter problems with heterogeneity, and because of this, the data's heterogeneity will be discussed later in the chapter along with the strategies employed to combat this issue within the data.

3. The error term has a zero mean value; $E(u_i) = 0$
4. Homoscedasticity occurs, meaning that the variance of u is constant; $var\,(u_i) = \sigma^2$
5. There is no autocorrelation that exists between the error terms; $cov(u_i u_j) = 0 \quad i \neq j$
6. No exact collinearity (no multicollinearity) exists between X_2 and X_i; that is, there is no exact, linear relationship between independent variables[16].
7. For hypothesis testing, the error term u follows the normal distribution mean zero and (homoscedastic) variance σ^2; $u_i \sim N(0, \sigma^2)$

Due to the nature of any data, not all of these assumptions are satisfied at sometime within this analysis; however, ways of dealing with each of these non-satisfied assumptions are detailed later within this chapter.

3.4.5 The PRF and the SRF

Equation 3.1 has described a Population Regression Function (PRF), which is a line that passes through the conditional means of Y. As the PRF equation gives the conditional mean value of Y, this is conditional on the basis of the fixed/given values of the X variables. Therefore, multiple regression analysis is a conditional regression, where the average/mean value of Y is obtained for the fixed values of the X variables (Gujarati, 2006).

The stochastic (statistical) PRF states that any individual Y, value can be expressed as the sum of two components,

1. A systematic/deterministic component ($B_1 + B_2X_2 + B_3X_3$), which is its mean value $E(Y_i)$ (the point on the population regression line)
2. u_i, which is the non-systematic/random component, determined by factors other than X variables.

However, it must be noted, that although the primary objective of a regression analysis is to estimate the stochastic PRF, the PRF is a theoretical concept as we only have a sample of the population to work with and from. This requires the Sample Regression Function (SRF) to be employed. The SRF is therefore based upon the PRF,

[16] If two variables are collinear and have an exact linear relationship, then estimates of the partial regression coefficients cannot be estimated, however in practice perfect collinearity is rare, but near perfect is acceptable and is discussed later in the chapter.

PRF, $$Y_i = B_1 + B_2X_{2i} + B_3X_{3i} + u_i$$

Equation 3.3

SRF, $$Y_i = b_1 + b_2X_{2i} + b_3X_{3i} + e_i$$

Equation 3.4

Where b_1, b_2, b_3 are the estimators of B_1, B_2, B_3 and e_i is the estimator of u_i.

Therefore as the PRF cannot be directly observed we are estimating the PRF on the basis of the SRF, as we are sampling part of the given population of individuals that travel to and attend major sporting events. There are two issues with this process; how to estimate the PRF and how to find out if the estimated PRF (SRF) is a 'good' estimate for the true PRF.

3.4.6 Estimation

The traditional method for estimating the SRF is the method of Ordinary Least Squares (OLS). OLS chooses the values of the unknown parameters in such a way that the residual sum of squares (RSS) ($\sum e_i^2$) is as small as it can possibly be. It is in this sense that a model of best fit is produced. The minimisation of the RSS is achieved through solving two simultaneous equations called the Least Squares Normal Equations that estimate the smallest values for the parameters b_1, b_2, b_i (Gujarati, 2006). Other estimation methods exist, such as the Maximum Likelihood Method[17].

As the SRF is being used to find an approximation of the PRF, measures to check how good a fit the SRF is have to be entered into. In doing this it has to be recalled that Y_i depends on both X and u. As the X values are known and are therefore given, the analysis is a conditional regression analysis (Gujarati, 2006). It is a conditional regression analysis as it is conditional on the basis of the X values being known, because of this, these values

[17] The method of Maximum Likelihood (ML) is another point estimation method similar to OLS, but with what is felt to be some stronger theoretical properties as it is a more involved estimation method (Gujarati 1995). Generally, as the OLS estimation method with the assumption of normality of u_i has all the necessary information for both estimation and hypothesis testing, this tends to be the method most commonly used, as this avoids the slightly more complex mathematical issues involved with ML (Gujarati 1995). The preference of OLS over ML is not a serious issue as when normal distribution is assumed for u_i, the ML and OLS estimation of the parameters in multiple and simple regressions are identical. For a further discussion of this see the Appendix of this thesis, or Gujarati (1995) Appendix 4A pp 110 – 113.

are therefore treated as nonstochastic (not random). As u is a stochastic (random) term, but but when u is added to nonstochastic X term to generate Y_i, Y_i becomes stochastic (random) (Gujarati, 2006).

When deriving the OLS estimators, there has been no mention of how u_i is generated. To be able to test the statistical hypothesis that are based on the SRF, assumptions have to be made about how u_i is generated (Gujarati, 2006). These assumptions for multiple regression models are collectively known as the Classical Linear Regression Model (CLRM) and are illustrated by Gujarati (2006:168);

1. The regression model is linear in the parameters, and may or may not be in the variables.
2. Independent variables X are uncorrelated with the disturbance term u. Nevertheless, when the X variable is nonstochastic, this is already fulfilled.
3. Given the value of X_i, the expected, mean, or value of the u_i disturbance term is zero,
$$E\ (u|X_i) = 0$$
4. The variance of each u_i is constant or homoscedastic (equal variance) in a way that,
$$var(u_i) = \sigma^2$$
This assumption is that the conditional distribution of each Y population corresponding to the given value of X (each points on a scattergraph) has the same variance; each point has a spread around the mean value with the same variance. If this is not the case, then there is heteroscedasticity (an unequal variance).
5. There is no correlation between the error terms, meaning that there is an assumption of no autocorrelation as the error terms are random. As the u's are uncorrelated the Y's are also uncorrelated
$$cov(u_i u_j) = 0 \quad i \neq j$$
6. The regression model is correctly specified, as there is no specification bias or specification error in the model used for empirical analysis. This assumes that all variables that affect a particular phenomenon are included.
7. In the PRF $Y_i = B_1 + B_2 X_i + u_i$, the error term u_i follows normal distribution with mean zero and variance σ^2, in that $u_i \sim N(0, \sigma^2)$.

These assumptions of the CLRM allow estimates of the variances and standard errors of the OLS estimators to be established. OLS estimators are random variables and their

values change from sample to sample and give us information regarding the sampling variability. Sampling variability is measured by the variances of the estimators, or their *standard errors* (se), which are the square roots of the variances. Standard errors are needed for two main reasons, to establish intervals for the true parameter values and to test statistical hypotheses.

Gujarati (2006) illustrates that OLS is not only used for its ease of use, but also for its strong theoretical properties that Gujarati shows to be summarised by the Gauss-Markov Theorem. This theorem states that given the CLRM assumptions, OLS estimators have a minimum variance in the class of linear variance and they are therefore, Best Linear Unbiased Estimators (BLUE) (Gujarati, 2006). Gujarati (2006) shows that having BLUE properties means that,

- b_1 and b_2 are linear estimators, they are linear functions of the random variable Y.
- They are unbiased; $E(b_1) = B_1$ and $E(b_2) = B_2$, which means in repeated applications, on average b_1 and b_2 will coincide with their true values B_1 and B_2.
- OLS estimator of the error variance ($E(\hat{\sigma}^2) = \sigma^2$) is unbiased, so in repeated applications, on average, the estimated value of the error variance will converge to its true value.
- b_1 and b_2 are *efficient* estimators, in that, var(b_1) is less than the variance of any other linear unbiased estimator of B_1 and the var(b_2) is less than the variance of any other linear unbiased estimator of B_2. This means they will be able to estimate the true value of B_1 and B_2 more precisely using OLS estimators of the parameters (compared with other methods).

To be able to derive the sampling distributions of the OLS estimators b_1 and b_2, Gujarati (1995; 2006) shows that the seventh assumption of the CLRM is key. Gujarati (2006:177) discusses how this additional assumption comes from the Central Limit Theorem (CLT), which states that 'if there are a large number of independent, identically distributed random variables, with few exceptions, the distribution of their sum tends to be distributed normally, as the number of such variables increases indefinitely'. This means that, with this assumption the error term u, with all that it represents[18], is normally distributed. With this assumption Gujarati (2006) goes on to show that OLS estimators b_1 and b_2 are normally

[18] u represents all forces that affect Y, but are not specifically included in the regression model, as their force may be too small despite the potential for there to be a large number of such forces.

distributed as they are linear functions of u, which is normally distributed. This normal distribution of b_1 and b_2 denotes that their means are equal to the true value of B_1 and B_2 of the PRF. With these two sets of assumptions, CLRM and BLUE, each regression coefficient estimated by OLS is linear, unbiased and on average coincides with its true value, as OLS estimators have the least possible variance which allows for the true parameters to be estimated more accurately, which means the estimators are therefore more efficient (Gujarati, 2006).

A formal measure of the 'fit' of the SRF to the data can be derived from a value know as R^2 which is the Multiple Coefficient of Determination. This indicates the proportion of variation in the dependent variable around its mean, which can be attributed to the variation in the independent X variables around their mean and uses the script y and x. Formally, Equation 3.5 indicates how this can be written.

$$\sum y_i^2 = b_2 \sum y_i x_{2i} + b_3 \sum y_i x_{3i} + \sum e_i^2$$

Equation 3.5

$$TSS = \quad ESS \quad + \quad RSS$$

$$\text{Total Sum of Squares} = \text{Explained Sum of Squares (all X variables)} + \text{Residual Sum of Squares}$$

Which results in,

$$R^2 = \frac{b_2 \sum y_i x_{2i} + b_3 \sum y_i x_{3i}}{\sum y_i^2}$$

Equation 3.6

$$R^2 = \frac{ESS}{TSS}$$

Gujarati (2006) shows that typically, if the chosen SRF fits the data well, the ESS should be much larger than the RSS, as if the ESS is relatively larger than the RSS the SRF will explain a substantial proportion of the variation in Y. However, if the SRF fits poorly, the opposite will transpire as the RSS will be much larger than ESS, with the SRF only explaining some of the variation of Y. In the extreme case that, all the Y values lie on the fitted SRF, the ESS will be equal to TSS and then the RSS will be zero, and in the

alternative extreme case where X explains no variation at all in Y then ESS will be zero and RSS will be equal to the TSS (Gujarati, 2006). Whilst these extreme observations are rare, typically, neither ESS nor RSS will be equal to zero. The R^2 however, will range from between 0≥ and 1≤ (Gujarati, 2006).

3.4.7 Hypothesis testing

Although R^2 is seen as an overall measure of good fit, R^2 cannot tell us whether the estimated partial regression coefficients are statistically significant or not. Therefore observing the numerical R^2 results of the regression analysis output and basing decisions to reject or accept the hypotheses on the basis of this is seen as not justifiable enough. This is due to the potential for fluctuations between samples of the same population (Gujarati, 2006). This is where the more defensible procedures of confidence intervals and test of significance approaches become useful in regression analysis. However, to be able to comment on the statistical significance of R^2, we have to make a note of some other important implications. To be able to test a null hypothesis such as, $H_0: B_2 = 0$, with the aim of establishing whether there actually is a relationship between the dependent Y and the independent X variables[19]. The sampling distribution of b_2, the estimator of B_2 has to determined. As we are assuming that the error term u is normally distributed, then due to this CLRM assumption it can be proven that the partial regression coefficients (i.e. b_2), have normal distributions and means equal to the regression coefficients (B_2). However, when the unobservable true variance σ^2 is replaced by its estimator $\hat{\sigma}^2$, the OLS estimators have to follow the t distribution and not the normal distribution[20]. This can then be used to establish test statistics and confidence intervals to test null and alternative hypotheses.

In this research the test of significance approach to inference is used. To test the null hypothesis by the test of significance approach the test statistic, t value, has to be computed and a level of significance, α which is traditionally either at the 0.05, or the 0.01,

[19] Gujarati (2006) discusses that if the variable X belongs to the regression model then it is fully expected that the null hypothesis would be rejected in favour of an alternative hypothesis (H_1) that would state that B_2 the partial regression coefficient would not be equal to zero ($H_1: B_2 \neq 0$).

[20] See Gujarati (1995, 2006) for a full explanation as to how it is plausible to use the estimator $\hat{\sigma}^2$ in this case, which causes the type of distribution to change from normal, to that of the *t* distribution.

percent level has to be specified[21]. In addition to this, it must be specified whether the test is one-tailed or two-tailed as this allows the actual critical value(s) of the test statistic at the chosen level of significance to be established. With this information the t value can then be compared to the critical values to see whether it falls within or beyond the critical value(s) and depending on this, the null hypothesis can either be accepted or rejected. If the test statistic is greater in absolute terms than the critical value, then the null hypothesis is subject to an α chance of making an error (a type 1 error). If this is not the case then the null hypothesis is accepted, subject to a Type 2 error, that the null hypothesis is actually wrong. If it is the case that the null hypothesis is rejected it can be said that the findings are statistically significant (Gujarati, 2006). Alternatively, there is another statistical method that can be used, whereby the p value, which is the exact significance level, of the test statistic is computed and usually the null hypothesis can be rejected if the p value is smaller than the chosen α value (Gujarati, 2006). However, although this is an alternative method, it is generally seen as an accepted method of good practice to compute the p value of the t value to show the exact level of certainty in accepting or rejecting hypotheses (Gujarati, 2006).

So far the test of significance approach discussed here has tested hypotheses applying to *individual* regression coefficients ($H_0: B_2 = 0$). This is useful for this research as it allows us to be able to test the individual component parts of the regression and form ideas about the effect each independent variable has on the dependent variable and allows the model to be suggestively put together. However, to develop the multiple regression and relationships we are interested in investigating as shown at the end of Chapter Two, and in Figure 3.2, we need to be able to test a *group* of independent variables via their corresponding partial regression coefficients to achieve any meaningful results. Therefore testing a joint hypothesis such as Equation 3.7 is very important and allows this to be achieved.

$$H_0: B_2 = B_3 = 0$$

Equation 3.7

Such a null hypothesis states that the independent X variables together have no influence on the dependent Y variable (Gujarati, 2006) and as such needs to be employed within this

[21] In specifying α, the probability of committing a type I error is also specified. If the hypothesis is two-tailed, the risk of committing a type I error has to be equally divided between the two tails of the t distribution, giving two critical regions, however if the test is one-tailed then the risk of the error is applicable to only one tail giving one critical region of the t distribution.

research. Gujarati (2006) shows that this is the same as saying if Equation 3.7 applies to all of the coefficients than the intercept

$$H_0: R^2 = 0$$

Equation 3.8

This can be seen to be the case as the X variables explains none of the variation in the dependent variable Y. These two equations are therefore equivalent to each other. Testing either one of these joint hypotheses is understood to be testing the overall significance of the estimate multiple regression (Gujarati, 2006) and establishing whether the dependent Y variable is linearly related to the X variables. To be able to test this hypothesis, analysis of variance (ANOVA) has to be used, as the t test used and discussed previously is only valid for the testing of the individual regression coefficients and not a joint hypothesis (Gujarati 2006)[22]. Gujarati (2006) provides the mathematical proof[23] that with the assumptions of CLRM and the joint null hypothesis, follows the F distribution and therefore the ANOVA F ratio can be used to test the joint hypothesis that the X variables have no impact on Y. Typically if the variance of Y that is explained by the regression (by the X variables) is larger than the variance not explained by the regression then the F value will be greater than 1 (Gujarati, 2006). Therefore the larger the F value then the greater the evidence is to reject the null hypothesis that the X variables have no effect on Y. As with the t test value the F test value is computed and then should be compared against the critical F values (with the correct degrees of freedom[24]) at the chosen α levels (the probability of committing a type I error) and as with the t test, if the F value exceeds the critical F values then the null hypothesis can be rejected (Gujarati, 2006). Similarly if the F value does not exceed the critical values, the null hypothesis is not rejected as the independent variables are seen to have no impact on the dependent Y variable. Gujarati (2006) discusses using the F test in this way to test the joint hypothesis as being a useful tool, as when testing individual B_2, B_3 variables, they may not have much of an impact on the dependent variable alone. Therefore, they may not be statistically significant, but when grouped together their collective impact does have an effect on the dependent variable at a statistically significant

[22] Gujarati (2006) discusses the temptation to simply state that if a series of partial regression coefficients are proven to be statistically significant from zero then jointly they will also be statistically different from zero. However, this is not the case, due to the potential effect of multicollinearity, which is discussed in more detail later in this chapter.

[23] See Gujarati (2006:222-226) for the mathematical proof and further explanation of this.

[24] The degrees of freedom are calculated within the ANOVA where the sum of square is calculated. The general rule is that the numerator d.f. is equal to the number of partial slope coefficients in the model and the denominator is d.f. is equal to $n - the\ total\ number\ of\ parameters\ estimated\ by\ the\ regression\ model$ (Gujarati 2006).

level. However, this produces further problems with the occurrence of multicollinearity, which shall be discussed in section 3.4.8.

In using the F test ratio in ANOVA Gujarati (2006) demonstrates the following relationship to R^2,

$$F = \frac{R^2/(k-1)}{(1-R^2)/(n-k)}$$

Equation 3.9

with, n = number of observations, k = number of independent variables including the intercept as $R^2 = 0$ (no relationship between X and Y variables) F is also zero. Consequently this means that the larger the R^2 value, the greater the F value will be. This means that as the F test is a measure of the overall fit of the estimated regression line, it is also a test of significance of R^2, which has already been seen with the joint hypothesis equations.

Another important property of the R^2 value is that as the number of independent variables increase, the value of R^2 will also increase (Gujarati, 2006). However, this does not mean that to explain the variation in the dependent variable that independent variables should be continually added to the model to explain the variation but has implications when wanting to compare models with different numbers of independent variables. The problem has to do with the degrees of freedom calculated in the regression model (Gujarati, 2006). To account for this and to be able to produce a measure of good fit that allows comparisons between models with different numbers of independent variables the value of the *adjusted* R^2 ($\bar{R}^2$) is used. This $\bar{R}^2$ is a derivative of the conventional R^2. Gujarati (2006:229) shows that $\bar{R}^2$ has two main features,

1. If $k > 1$, $\bar{R}^2 \leq R^2$; that is as the number of independent variables increases in a model, the $\bar{R}^2$ becomes increasingly smaller than the unadjusted R^2.
2. Although the unadjusted R^2 is always positive, the $\bar{R}^2$ can on occasion be negative.

Therefore comparing models, based on their R^2, $\bar{R}^2$ and F value, with different numbers of independent variables but the same dependent variable can be easily achieved.

3.4.8 Multicollinearity within Multiple Regression Models

In forming our model, we have to be aware of the possibility of the occurrence of multicollinearity between the variables. Previously it has been assumed with the CLRM assumptions that, perfect multicollinearity[25], an exact linear relationship amongst independent variables; does not exist within in a multiple regression model. This assumption is implicit to CLRM as multicollinearity disrupts the estimation of the multiple regression model. Therefore when computing the regression, the statistical software is only able to obtain some and not all of the unknown parameters. This results in an incomplete regression analysis (Gujarati, 2006). However, Gujarati (2006) discusses that in practice, the situation of perfect multicollinearity is rarely experienced, but there are many cases where near or high multicollinearity can occur, as some X independent variables can be approximately linearly related to each other and it is this correlation of variables that we have to be aware of in our multiple regression model. In addition to the CLRM assumptions, it is recalled that in regression analysis OLS estimators are assumed to be BLUE. With multicollinearity, the OLS estimators are shown by Gujarati (2006) to retain their BLUE properties, as long as the multicollinearity is not perfect and no other assumptions are contravened.

In hypothesising the PFR, we are assuming that all the X variables within the model have a separate or 'independent' effect on Y, the dependent variable. However, it may be the case that even if the X variables are not linearly related in the population, they may be linearly related in the sample used to estimate the population. If this is the case then, this is the influence that the regression analysis will be unable to isolate. This is noted by Gujarati (2006) as a characteristic that is common with economic data, as a controlled environment cannot be achieved where somethings can be held constant and even isolated to remove the possibility of multicollinearity when collecting the data. This shows that therefore each data sample has to be assessed for multicollinearity on a sample by sample basis. If it is found, through the analysis, that multicollinearity is present within our data sample Gujarati (2006) states that it is likely that the data will face at least one or more of the following issues[26];

- The variances and standard errors of OLS estimators will be large. Consequently, if the standard error of an estimator increases, it becomes more difficult to estimate the true

[25] Multicollinearity is used in a generic sense to include single and multiple linear relationships. If observed, it will be made clear whether there is just one or more exact linear relationship occurring.

[26] The proofs of these issues can be found in Gujarati (1995).

value of the estimator, therefore this results in a fall in the precision of the OLS estimators.

- Because of the large standard errors the confidence intervals tend to become wider for the relevant population parameters.
- Insignificant t ratio's make the likelihood of accepting the null hypothesis more likely. This is because in the situation of high multicollinearity the estimated standard error increases dramatically, which makes the t value smaller. So when the estimated t value is compared to the critical t value it is likely that the null hypothesis will be accepted more than it should be because of the effect of multicollinearity in the sample.
- A high R^2 value but few significant *t* ratios, so on the basis of the F ratio the hypothesis is more likely to be rejected.
- Due to the effect of multicollinearity the OLS estimators and their standard errors tend to become unstable as they become very sensitive to small changes in the data
- The regression coefficients may have the wrong signs in terms of theoretical predictions.
- There may be a difficulty in assessing the individual contributions of independent variables to the explained the sum of squares (ESS) or R^2. In cases of high collinearity, it may prove futile to assess the contribution of each independent variable to the overall R^2 as it cannot be precisely determined.

As the practical consequences of having a sample that experiences multicollinearity are quite far-reaching the presence but also the severity has to be detected. Gujarati (2006) cites the warnings highlighted by Kmenta (1986) that,

1. Multicollinearity is a question of varying degrees and not a meaningful distinction between presence and absence.
2. As it refers to the condition of the independent variables that are assumed to be nonstochastic, multicollinearity is a feature of the sample and not the population.

Because of these warnings it can be seen that it is not correct to 'test' for multicollinearity, but to 'measure' the degree of multicollinearity within the sample that is being worked with. As the degree of multicollinearity has to be measured, there is no one specific test for multicollinearity, therefore a number of indicators have to be employed to provide clues about the existence of multicollinearity. Gujarati (2006) illustrates that these indicators are seen to include instances of,

- High R^2 values, with few significant t ratios

- High pairwise correlations among independent variables
- Examination of partial coefficients
- Subsidiary, or auxiliary, regressions
- The variance inflation factor (VIF)

As can be seen, there are various indicators of multicollinearity and there is no one single answer to identifying and resolving the multicollinearity issue. It must also be noted that as multicollinearity is sample specific and can occur in varying degrees its ease of detection can also vary from sample to sample. Multicollinearity will be measured in this research by specifically examining the R^2 values and the associated number of significant t ratios in addition to using subsidiary/auxiliary regressions. Stata v10, the statistical software programme used for the statistical analysis, will also indicate any presence of the most severe form of multicollinearity.

High R^2 values, with few significant t ratios are seen as the classic symptom in assessing the existence of multicollinearity. If the R^2 value is high, (in excess of 0.8), then F test, in most cases, will reject the null hypothesis. However, the individual t tests show that none or very few partial slope coefficients are statistically different from zero. In having a situation where there are high pairwise correlations amongst the independent variables in excess of 0.8, there is the possibility that significant collinearity exists. However, this is not always a reliable indicator as the correlations may be low, but multicollinearity may still be suspected due to few t test ratios being statistically significant. In the context of several independent variables, relying on the simple pairwise correlations as indicators of multicollinearity can be misleading. However the substitution of partial correlation coefficients (correlating variable 1 and 2 and holding constant variable 3) does not provide a definitive indicator for the occurrence/non-occurrence of multicollinearity, as it only provides another device to check the nature of the multicollinearity within the sample.

Gujarati (2006) discusses that subsidiary or auxiliary regressions are often the best way of finding out which X variable has a high degree of multicollinearity with other X variables in the model. In carrying out this method each individual X variable is regressed on the remaining variables in the model and the corresponding R^2 is computed. However, practically the application of this indicator may be limited due to it being rather time

intensive, depending on the number of X variables, although, with the use of computer packages it is now less of a burden.

If multicollinearity has been identified as being present, solutions need to be employed to reduce or even try to attempt to remove the multicollinearity from the sample. Again, as the multicollinearity is a feature of the sample and not necessarily the population, there is no set remedial measure that can solve the multicollinearity problem (Gujarati, 2006). Gujarati (2006) discusses that economic literature suggests that there are five main rules of thumb that can be tried along with some other remedies,

1. Dropping a variable from the model
2. Acquiring additional data or a new sample
3. Rethinking the model
4. Prior information about some parameters
5. Transformation of variables

In cases of severe multicollinearity dropping a variable from the regression model may be the simplest solution to the multicollinearity problem. However, this remedy can be considered worse than the initial problem (Gujarati, 2006). As when the model is constructed it is done so on the basis of economic theoretical considerations and dropping a variable in this situation may well lead to model specification errors, which produces a model that may be biased. Therefore Gujarati (2006) states that the best advice is not to drop a variable from an economically sound model, just because of a serious multicollinearity issue. Alternatively, it may be more appropriate to acquire another sample involving the same variables, as the multicollinearity may not be present to the same degree in another sample. But this then raises other more practical questions such as, how easy would it be to obtain another sample from the population, as this may prove costly and time consuming, and in the end not be a worthwhile option. The idea behind collecting more data and being able to increase the sample size is that, this often leads to a lessoning of the effect of the multicollinearity[27].

Gujarati (2006) discusses that the main reason for rethinking the model would be if the empirical model has not been thought through enough, as it may be the case that some

[27] Proofs of this are available in Gujarati (2006:381)

variables have been mistakenly omitted or its functional form may be incorrect. Occasionally data previously collected and reported on in previous research may prove invaluable in solving a multicollinearity problem. In certain situations prior research can provide knowledge as to the values of one or more parameters that can be applied to the current sample (Gujarati, 2006). Substituting in the knowledge and assuming that the information is correct, can result in only one independent variable value to find with the multicollinearity issue being resolved. Although this method seems to solve the issue, it needs extensive prior knowledge, which is just not always possible to obtain, along with relying on information from a different study, which may also be a serious stretch of an assumption for some variables. Being able to transform some variables included in a model can actually act to lessen or even sometimes solve the issue of multicollinearity in a sample (Gujarati, 2006).

3.4.9 Heteroscedasticity

As has been shown previously one of the central assumptions to the CLRM is that the errors in the PRF u_i are homoscedastic, meaning that they all have the same variance σ^2. However, practically there is no guarantee that this assumption will be fulfilled and on occasion it can be observed that the variance is heteroscedastic, (unequal or nonconstant) and the variance of u_i is noted as being σ_i^2 [28]. Heteroscedasticity can therefore be expressed as,

$$E(u_i^2) = \sigma_i^2$$

Equation 3.10

The issue of heteroscedasticity is being raised with respect to this research as Gujarati (1995; 2006) shows that heteroscedasticity can be found within cross-sectional data[29]. Therefore, as this research is using cross-sectional data the issues that surround heteroscedasticity have to be known so that they can be accounted for and controlled for

[28] The subscript on the σ^2indicates that the variance of u_i is no longer constant, but varies from observation to observation.

[29] Cross-sectional data generally samples individual members of a population at a given point in time, as was done with this research. Heteroscedasticity can also occasionally be observed in ARCH models using time series data.

within the analysis of the data. Gujarati (2006:397) shows that the following consequences are experienced with heteroscedasticity[30],

1. OLS estimators are still linear.
2. They are still unbiased.
3. They no longer have minimum variance – they are no longer efficient[31] (even in large samples). So, OLS estimators are no longer BLUE in small as in large samples.
4. The usual formulas to estimate variances of OLS estimators are generally biased. A positive bias will result if OLS estimators overestimate the true variances and a negative bias occurs if OLS underestimate the true variance.
5. The bias arises from the fact that $\hat{\sigma}^2$ the conventional estimator of true σ^2, namely $\frac{\sum e_i^2}{d.f}$ is no longer an unbiased estimator of σ^2 ($\hat{\sigma}^2$ enters the calculations of the variances of the OLS estimators).
6. Because of this, the usual confidence intervals and hypothesis tests based on t and F distributions are unreliable. In the presence of heteroscedasticity, the usual hypothesis testing routine is not reliable, raising the possibility of drawing misleading or wrong conclusions.

Heteroscedasticity is therefore a potentially serious problem as it disrupts the estimation and the hypothesis testing procedure. Practically however, it is not all that easy to detect heteroscedasticity, as with the previous discussions of multicollinearity it can be seen that, there is not one solution to detecting the presence of heteroscedasticity within a regression model. As with multicollinearity, Gujarati (2006), discusses that there are a number of tools that are available to detect heteroscedasticity within a sample such as,

- Graphical examinations of the residuals
- The Park Test
- The Glesjer Test
- White's General Heteroscedasticity Test

[30] For the proofs see Gujarati 1995.

[31] With heteroscedasticity the estimators are no longer efficient as in OLS the estimators are given the same weight, whether it comes from a population that has a large or small variance (this is best show graphically). Gujarati (2006)shows that this is not the most sensible situation and that ideally more weight should be given to observations coming from populations with smaller variances than those coming from larger variances, in order to more accurately estimate the PRF.

Gujarati (2006) shows that in regression analysis it is always good practice to examine the residual pots obtained from the fitted regression equation. The residuals can be plotted against the observation that they belong to or against other independent variables, or even against $\hat{Y}_i$. Examinations of such residual plots can give an indication as to whether the CLRM assumptions hold up for the regression analysis undertaken and can therefore give an idea as to whether heteroscedasticity is present and affecting the sample.

Gujarati (2006) shows that using the Park Test can determine the presence of heteroscedasticity, however, he urges caution in using this method. Gujarati (2006) points out that the results of this test are only suggestive and that caution should still be exercised as there still may be some heteroscedasticity present in the model. The Glejser Test is shown by Gujarati (2006) to be similar to the Park Test and that after obtaining the residuals from the original model, the Glejser Test advocates regressing the absolute values of e_i, $|e_i|$ onto the X variable that is thought to be closely associated to the heteroscedastic variance of σ^2. Again though, Gujarati (2006) advocates caution with this method as the error term v_i in the regression may be itself heteroscedastic as well as being serially correlated, but despite this it is still a useful diagnostic tool. White's General Heteroscedasticity Test is commonly used to detect the presence of heteroscedasticity however, Gujarati (2006) again advises caution in using this test as it may introduce too many terms into the regression.

These tests shown here are an indication as to the types of tests that there are available to indicate the presence of heteroscedasticity. This is by no way an exhaustative list and other tests do exist. Gujarati (2006) illustrates that with White's Heteroscedasticity-Corrected Standard Errors and t Statistic estimating procedure, the standard errors of the estimated regression coefficients take into account any heteroscedasticity. This results in the t and F tests being able to be used and this was the method that was employed in this research.

3.4.10 Simultaneous Equation Models

So far in this chapter, multiple regression models have been shown whereby the dependent variable has been expressed as a linear function of several independent variables. With any causality within the model running in a unidirectional form from the independent

variables, the X's to the dependent variable Y (if a relationship has been observed) (Gujarati, 1995; 2006). However, it may be shown that this is not always the case, as there may be a two way relationship present in the model (Gujarati 2006). This situation can occur if the Y is determined by the X's, but at the same time some the of the X's are in turn determined by Y (Gujarati, 1995). If this situation does arise then the unidirectional model cannot be sustained as there is a bi-lateral / feedback relationship in operation within the model. Gujarati (2006) states that, to take this bi-lateral relationship into account more than one regression equation will be needed as one simultaneous equation is needed for each jointly dependent / endogenous variable. This situation is theorised within the conceptual model, Figure 2.13 between the two dependent variables of total spend and trip duration. The objective is therefore to find out how total spend and trip duration are determined simultaneously as theorised in this research. As such the conceptual model produced two simultaneous equations; these equations are illustrated in section 3.5 of this chapter.

Simultaneity is a problem in regression analysis because, if the regression model is estimated and the possibility of simultaneity is ignored, then the estimators are not BLUE, consistent or efficient, which results in biased estimators (Gujarati, 1995; 2006). This is because on average the estimators will tend to over, or under estimate the true values of the parameters[32] and will not cover the true population values regardless of the population size. As one of the CLRM assumptions is that the stochastic error term u and the independent variables are not correlated, then when there is the possibility in simultaneous equations that the error term will be correlated to an independent variable, OLS cannot be used to estimate the regression. Therefore, there needs to be an alternative method of estimation, however, the problem of identification precedes the problem of estimation.

Simultaneous equations can suffer the problem of identification. This problem is concerned with whether or not numerical estimates of the parameters of the equation can be uniquely estimated (Gujarati, 1995; 2006). If numerical estimates can be achieved, then the equation is said to be either identified or if not then the equation is unidentified or underidentified. An identified equation may be either exactly or over identified. Equations can be exactly identified when there is an exact numerical value for the parameters, whereas if an equation is over identified there can be more than one numerical value achieved for some parameters (Gujarati, 1995). In the case of underidentification,

[32] For formal proofs of this see Gujarati 2006, Appendix 15A.

assuming the model is correct, the parameters cannot be identified and in this case there is nothing that can be done about the problem.

There are several methods available for the estimation of identified simultaneous equations models. Gujarati (1995) shows that the methods fall into two groups, single equation models, or system models and goes on to illustrate that, specifically, for the reasons of economy and specification errors single-equation model methods are the most popular estimation methods, OLS, Indirect Least Squares (ILS) and 2SLS. However, OLS can only be applied to recursive models, ILS can only be used for models that are exactly identified, whereas 2SLS can be used to estimate both exactly and over identified models (Gujarati 1995), therefore, the most applicable method would appear to be 2SLS.

The method of 2SLS involves the application of two successive OLS iterations using a proxy variable to remove the correlation. When an equation is identified and as there is a possibility that the Y variable is correlated to the stochastic error term u, then a proxy for Y needs to be used to allow OLS to be used to estimate the parameters (Gujarati 2006). 2SLS follows two applications of OLS in the following way to estimate the parameters. Firstly the correlation between Y and the error term u_2 has to be dealt with. To do this, Y is regressed on all predetermined variables in the whole model and not just those in the equation (Gujarati 1995; 2006), which gives,

$$Y = \hat{Y} + \hat{u}$$

Equation 3.11

This illustrates that Y consists of two parts, $\hat{Y}$, which is a linear combination of the predetermined variables and the stochastic error term, and due to OLS theory are uncorrelated (Gujarati, 1995; 2006). In the second stage of 2SLS, $\hat{Y}$ is used to replace Y in the identified equation and OLS can be applied to the equation to give constant, efficient estimates of the parameters (Gujarati, 1995; 2006).

Within this research a pragmatic approach to test for the presence of simultaneity was employed. In the total spend equation trip duration was regressed against total spend and in the trip duration equation total spend was regressed against trip duration. This allowed

each of the dependent variables to be regressed against the other to determine whether there was a bi-lateral / feedback relationship within the conceptual model.

This section of this Methodology chapter has outlined the econometric analysis that will be used in the statistical analysis of this research. This information will be used in Chapter Five of this research. The diagnostics that were employed within this research to measure the degree of multicollinearity, heteroscedasticity and simultaneity will be discussed at the beginning of Chapter Five.

3.5 Application to the Conceptual Model

The model proposed for testing in Chapter Two, Figure 2.13, conceptualised variables that were hypothesised to affect the total spending and trip duration of individuals that travel to and attend major sporting events. The conceptualisation presented represents the logic of the relationships as presented in Chapter Two. The arrows in the conceptual model (Figure 2.13) suggest the direction of the relationships present and it is seen that are two dependent variables, total spending and the trip duration, with each being determined by the independent variables but which are also potentially related and mutually determined, as discussed in section 3.4.10. Equations therefore have to be modelled for each of the dependent variables conceptual relationships. Modelling the variables in this way allows the estimation process to test for the presence of any feedback and simultaneity that may be present between the dependent variables, which as previously discussed may act to affect the results of the estimation and subsequent modelling. The proposed equations for estimation within this research are therefore Equation 3.12 for total spending and Equation 3.13 for trip duration. In order to estimate these equations and therefore the model a number of transformations have to be undertaken to ensure the data is suitable for analysis.

$$Y_{TS} = \beta_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_2 Y_{TL}$$

Equation 3.12

$$Y_{TL} = \beta_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 Y_{TS}$$

Equation 3.13

Where, X_2 = Demographics, X_3= Event related motivations, X_4= Major sporting event profile, X_5= Sporting involvement profile, Y_{TS} = Total spending, Y_{TL} = Trip duration

3.5.1 Statistical Software

Initially for this research the software package SPSS was utilised to generate the descriptive statistics of the data illustrated in Chapter Four. For the econometric analysis the software package STATA v10 has been used. STATA has a number of other advantages over other forms of data processing software like SPSS. The first advantage is that key diagnostic statistics are readily integrated into the software to allow for model evaluation which will aid the diagnosis of problems such as multicollinearity, heteroscedasticity and simultaneity. The second, and most important, advantage for this research is that it allows for cluster sampling in the analysis, which is directly relevant because the data set can contain more than one response from a given individual if they have reported attending more than one event.

In addition to this STATA was used due to the ability of the programme to estimate regressions with dependent variables that have unusual properties. In this respect interval regression will estimate the total spending model and Tobit regression will estimate the trip duration model. Both of these variations of regression analysis utilise the estimation method of Maximum Likelihood. Interval and Tobit regression have been used to better reflect the nature of the data that we are dealing with rather than using OLS regression which may compromise the data. Interval regression has been used to take account of the interval nature of the total spend data. The total spending data can be seen to be interval data as the respondents maximum total spend may lie anywhere between the lower and upper range in any given interval, and therefore for this reason total spending can be analysed by using parametric interval regression methods (Cameron and Huppert, 1989). O'Garra and Mourato (2007) show that the probability that the true total spend of a given respondent lies within the intervals $[BID_L, BID_U]$ and is given by $\Phi(BID_U|Y) - \Phi(BID_L|Y)$, and it is assumed that total spending follows a normal distribution. The interval regressions are estimated using the method of maximum likelihood[33]. O'Garrat and Mourato (2007) to state that for this type of interval data interval regression is favoured over OLS regression as the wider the intervals, the greater the chance of bias in the results if interval regression is not used. Similarly Tobit regression has been used to best estimate the trip duration

[33] See Appendix 2 for a fuller explanation of this estimation method.

model as trip duration is censored, that it has upper and lower limits. Recognition and acknowledgement of these regression issues have led to the decision to utilise interval and Tobit regression for the econometric analysis.

3.5.2 Data Transformations

Once the descriptive analysis of the data was completed there were a number of transformations that needed to be applied to the data to enable the data to be exported from SPSS and into STATA. Most importantly the total spending variable which had to be transformed from its interval banding, into 2 new variables, total spend 1 and total spend 2, in order for the interval regression analysis to be possible. Within interval regression the variable total spend 1 represents the lower spending interval ranges whilst the variable total spend 2 comes to represents the upper total spend ranges, so the two variables correspond with each other. The data transformation also affected some independent variables such as, income and age, which were re-coded to provide midpoints of the interval ranges. This transformation was considered necessary for the statistical analysis to be undertaken to help to identify the impact that variations in these variables had on the dependent variables. A number of dummy variables were also created for ethnicity and employment status. This mean the variables were changed to 0, 1 variables which in the case of ethnicity and employment was non-white and white, don't work full time, do work full time. The variables affected by the necessary transformations are shown in Table 3.4. It must also be noted that where the respondent had the option of 'prefer not to say' and responded with this, then the response has been re-coded as a missing value for the purpose of the statistical analysis.

Table 3.4: Variable Transformations

Variable	Transformation needed
Total Spend	Intervals have been changed into 2 different variables e.g. interval of £1 - £1000 changed into totalspend1 = £1, totalspend2 = £1000. Where the variables totalspend1 represents the lower interval boundary and totalspend2 represents the upper interval boundary
Age	Age ranges have been changed the midpoints of their interval ranges e.g. 18-24 was transformed into 21
Income	Income ranges have been changed to the midpoints of their interval ranges e.g. £30000-35000 was transformed into £32500
Ethnicity	Ethnicity was transformed from all the individual ethnicities to white, or non white, due to the prevalence of the white ethnicity as reported in the descriptive analysis
Employment Status	Employment status was changed to a series of dummy variables which reflected the positive and negative of each status ie don't work full time, do work full time, don't work part time, do work part time, not a student, is a student, not retired, is retired for each of the categories.

3.5.3 Estimation Strategy

Before estimating the total spending and trip duration models it has to be noted that to correctly estimate each of the models it is necessary to consider the data from respondents who provided information on more than one event[34]. As an individual could have provided data on more than one major sporting event, the data contained non-independent observations. Cluster samples therefore will have a different variance as the same person is being used to measure behaviour which will result in less variation than someone different being compared over the same event, so this has to be controlled for by each of the regressions by including a clustering element. In accounting for this, the regressions for total spend and trip duration includes a robust clustering on the respondent identifier, to account for a respondent reporting on more than one event and will account for any problems within the equation due to heteroscedasticity; as has been discussed in section 3.4.9 of this chapter, resolving this potential diagnostic problem.

[34] Respondents were asked to give details on up to two major sporting events that they had attended as has been previously discussed in section 3.3.2 of this chapter.

In estimating the conceptual model the initial estimation strategy was to regress spending and trip duration onto the independent variables, which are illustrated in Table 3.5, and then begin to excluding groups of variables. However in practice there were problems with the execution of this strategy. Difficulties were experienced with being able to include the necessary robust clustering as the models were unable to not converge, which lead to this strategy for econometric modelling to be abandoned. An alternative estimation strategy which enabled the robust clustering was adopted whereby all the variables in each of the two models were regressed against the dependent variable, but this time the independent variables were eliminated individually using Hendry's / LSE general-to-specific approach.

Table 3.5: Variables for Analysis

	Category	Variable Name	Reporting on
	Dependent Variables	triplength	Number of days
		totalspend1	Lower interval spending ranges
		totalspend2	Upper interval spending ranges
Independent Variables	**Sporting Involvement Profile**	livespectate	Spectates live at sporting events
		tvspectate	Spectates via the TV
		pnowspectate	Participate in sport now
		pusedtospe~e	Used to participate in sport
		cvolspectate	Currently volunteer in sport
		uvolspectate	Used to volunteer in sport
		family	Someone in the family currently/used to/participate in sport or volunteering
	Major Sporting Event Profile	sog	Attendance at summer Olympic Games
		fwc	Attendance at Football World Cup
		wo	Attendance at Winter Olympics
		cwg	Attendance at Commonwealth Games
		rwc	Attendance at Rugby World Cup
		tmc	Attendance at Test Match Cricket
		wcas	Attendance at World Championships
		it	Attendance at International Tennis
		numberofma~s	Number of major sporting events attended
	Motivations for attendance	lifetimeop	Once in a life time opportunity
		cultural	Cultural experience
		historical	Historical significance of the event
		prestige	Prestige of the event
		education	Educational experience
		location	Location of the event
		othertourism	Tourist attractions other than the event itself
		escape	Escape everyday life
		travel	Enjoy travelling
		excite	Enjoy the excitement and atmosphere
		enjoy	Enjoy the competition and the sport
		entertain	Good source of entertainment
		relative	Relative of competitor
		friendfam	Visit friends and family
		tickets	Availability of tickets
		accom	Availability of accommodation
		overallcost	Overall cost of the trip
		business	Business / networking opportunities
		other	Other motivations
	Demographic information	sex	Gender of respondent
		white	Ethnicity of respondent
		aged	Age of respondent
		workft	Work full time
		workpt	Work part time
		retired	Retired
		student	Student
		homemaker	Homemaker
		otherworks~s	Other work status
		totalincome	Income level of respondent

This particular estimation strategy was adopted for this research as one of the assumptions of the CLRM is that the model chosen for analysis is correctly specified. However, to get to a correctly specified model may take some time as well as further technical analysis (Gujarati, 1995), as the first attempt at estimation showed. Therefore, with the second attempt it was decided that the econometric modelling and statistical analysis would follow Hendry's / LSE approach to model selection and econometric modelling, often referred to as the general-to-specific approach (Downward *et al,* 2009a; Gujarati, 1995; Hoover, 2005). Hoover (2005) sees this approach as an important modelling method; whereby models begin with as broad a specification as possible which is then reduced down to form a model which is seen to contain the 'important' variables (Gujarati, 1995) and gives a parsimonious specification of the model (Hoover, 2005). This gave two models whereby total spending and trip duration were regressed upon all the demographic, event related motivations, major sporting event profile and sporting involvement variables illustrated in Table 3.5. As the conceptual model in Figure 2.13 suggests that there is a simultaneous / feedback relationship between the two dependent variables this also had to be evaluated. In doing so, in the general model for total spending that underwent interval regression analysis, trip duration was included as a regressor. In the same way the initial trip duration model that underwent Tobit analysis included total spend as a regressor. This was to test if there was any simultaneity / feedback between the two variables as the consequences of this would be seen within the estimation results.

From the initial regressions of the total spend and trip duration models individual variables could then be identified as to which variables could be excluded from the model. To exclude variables in the general-to-specific model and following the reasoning of Downward *et al* (2009a); Gujarati (1995) and Hoover (2005), the criteria for exclusion was established as those variables that reported to be statistically insignificant. With all the significant variables undergoing further estimations and eliminations until all the remaining variables in the model were significant at the specified levels. It is at this point that the econometric models for total spending and trip duration would be apparent. It is this approach that has been utilised and is illustrated and discussed in Chapter Five. Chapter Five also discusses and presents the estimated model.

3.6 Conclusion

This chapter has outlined the methodological approach that has been used to frame this research and guide the analysis of the data collected. Throughout the chapter there have been discussions as to the application of the framework and the underlying reasons for the position that its research takes as they relate to the research aims and objectives. The thesis now moves on to present the results of this research in the form of a descriptive statistical analysis in Chapter Four and a statistical econometric analysis in Chapter Five.

4 Chapter Four: Descriptive Analysis

4.1 Introduction

This chapter provides a quantitative descriptive analysis of the data that has been collected for this research. This broad descriptive analysis provides a profile of the respondents with respect to the conceptual model of this research. Similar broad profiles that specifically related to those that travel to and attend major sporting events are scarce in the literature and are frequently not found within the framework of a conceptual model as the literature review in Chapter Two has demonstrated. This research is therefore advancing the understanding of individuals that choose to travel to and attend major sporting events whilst addressing the research questions of whether individuals repeatedly attend major sporting events and what motivations are important for total spend and trip duration decisions when major sporting events. The data collected also provides a discussion that relates to the research objectives of providing information on nine different major sporting events, in order to facilitate a discussion of total spend, trip duration and event related motivations.

The results of the data are reported according to the independent and dependent variables of the conceptual model, Section 4.2 presents the descriptive findings of each independent variable in turn. Section 4.2.1 details the major sporting event profile of the individuals that have travelled to and attended major sporting events. Section 4.2.2 discusses the demographic information collected from the sample with section 4.2.3 providing the sporting involvement profile of those that travel to and attend major sporting events. Section 4.2.4 then moves on to discuss the characteristics of the event related motivations that are responsible for motivating individuals to travel to and attend major sporting events, with this discussion, the descriptive analysis of the independent variables concludes. The characteristics of the dependent variables total spend and trip duration are then presented and discussed in section 4.3. Each of these sections also links the findings back to the existing literature base. The chapter concludes by illustrating and describing the descriptive findings of the conceptual model. The descriptive findings demonstrate that individuals that travel to and attend major sporting events hold distinct characteristics.

4.1.1 Quantitative Descriptive Analysis

Overall the online survey collected 429 responses, with 331 (77.2%) respondents having attended one or more major sporting events, the remaining 98 respondents had not travelled to any major sporting event but want to in the future. As these respondents had not travelled to or attended any major sporting event these 98 responses were excluded from this analysis. This gave a usable sample of 331 that had reported on their previous travel to and attendance at major sporting events. This is the data which is the focus for the following analysis. The 331 respondents supplied this research with 547 event observations, as one or more (but no more than two) event related motivational information were supplied by each respondent. All percentages stated have been rounded to the nearest whole number. In the following sections data from the questions highlighted as contributing to this area in Table 3.2 in Section 3.3.2 of Chapter Three are presented.

Section 3.3 of Chapter Three discussed the ideal sample size for this research and illustrated that this should be 357 usable responses. Above it has been shown that this research collected 331 usable surveys and therefore the ideal sample size has not quite been achieved. The margin of error or the confidence interval of this sample size is calculated to be 5.21. This is only 0.21 above the margin of error for the ideal sample size of 357. With a margin of error of 5.21 one can be "sure" that if the research had asked the entire relevant population then the response would have been +/- 5.21 for any given response percentage. For example if 50% of the sample picked an answer, between 44.79% (50-5.21) and 55.21% (50+5.21) of the entire population would have also picked that answer. This illustrates that even though the ideal sample size was not quite achieved, the margin of error is only slightly outside the expected level.

4.2 Independent Variables

4.2.1 Major Sporting Event Profile

This section of the chapter reports on the major sporting event profile of respondents. The questions within the online survey all related to an individuals' previous attendance at major sporting events and directly relates to research question one in that it reports on the number of major sporting events attended, location of attendance; travel partners and the overall reason for travelling to the event.

Of the 331 respondents that had previous experiences of a major sporting event, the majority, 73% (n 242) had travelled domestically and internationally to attend major sporting events see Figure 4.1. This is in comparison to only 6% of respondents who have attended major sporting events domestically. The remaining 21% of respondents had only travelled internationally to attend major sporting events. In addition to this, and as can be seen from Figure 4.2, respondents are typically repeat major sports event attendees, with 85% (n 280) of respondents having attended more than 1 major sporting event, with 71% (n 233), having attended 3 or more major sporting events within the previous 10 year period (1996/7-2006/7). Furthermore this regular behavioural pattern is highlighted by the observation that 18% of the sample attended more than ten major sporting events in the previous ten years.

Figure 4.1: Location of Event Attendance

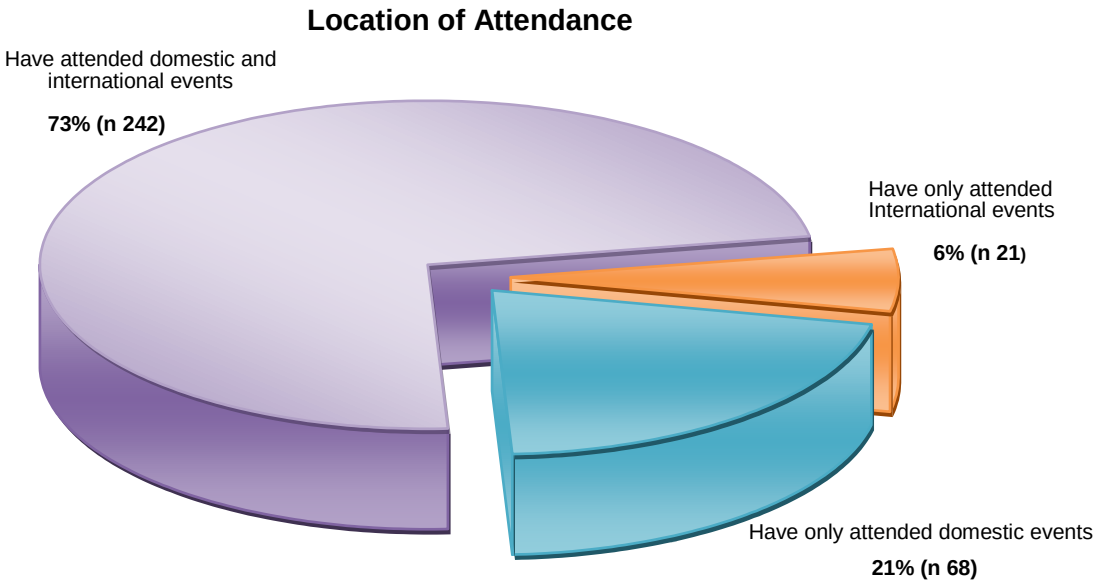
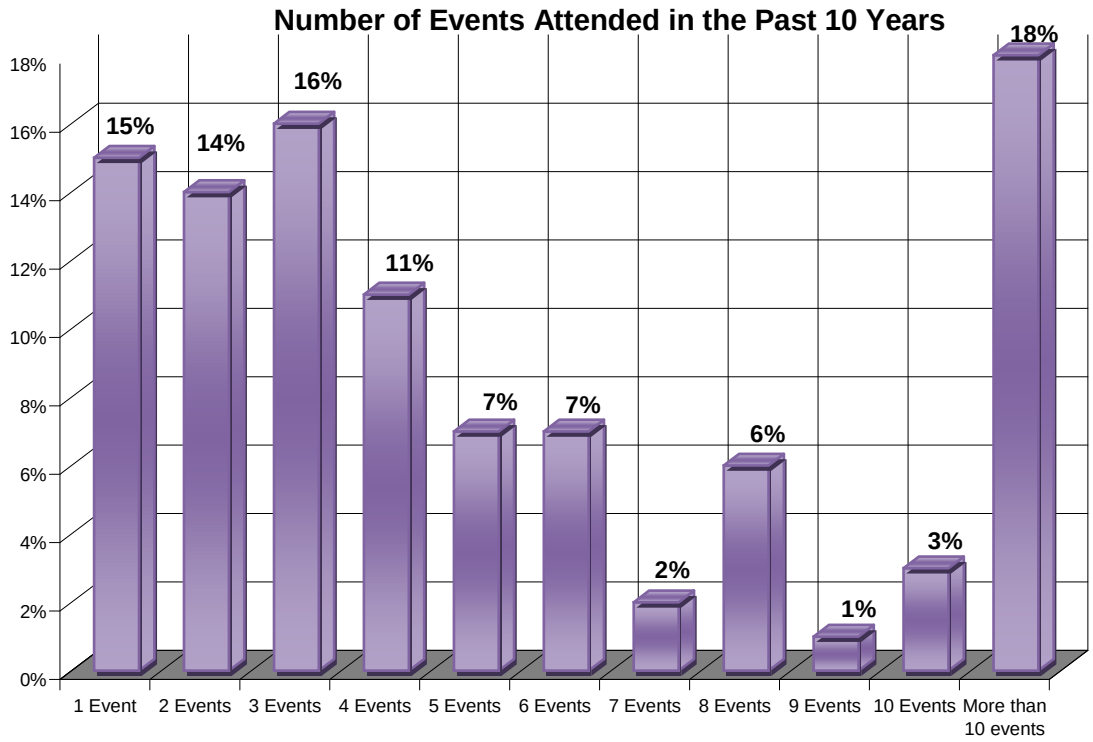


Figure 4.2: Frequency of Event Attendance in the Past 10 Years



This repeat behaviour for attending major sporting events is also highlighted in the existing literature by Kim and Chalip (2004) and Breitbarth (2006) but not to the extent presented here. Kim and Challis (2004) reported that 47.8% of their sample (n 556) had previously attended a Football World Cup event, whereas Breitbarth (2006) highlighted that 26.3% of his sample (n 44) had previously attended a Football World Cup, whereas 44.7% had travelled outside of Australasia to a major sporting event. The higher than previously reported levels of repeat behaviour may have been expected for this research due to the origins of the sample used, however, this confirms that there are groups of people that attend major sporting events as a matter of course and do so, on a regular basis. This is supported within this research with over half of the respondents (55% n 182) indicating that travelling to attending a major sporting event was not beyond their normal travel plans (Table 4.2).

When asked to provide information on the last event attended 83% (n 274) of all respondents provided these details. These events have been grouped into the categories used by the questionnaire and are shown in Figure 4.3. The events were attended between 1994 and 2007, with 87% (n 238) of respondents having attended their most

recent event between 2004 and early 2007. Respondents travelled to the 23 different countries as shown in Table 4.1, with most respondents travelling to events within the UK (n 112), Australia (n 43), Greece (n 37) and Germany (n 31) for their last event.

Figure 4.3: Last Event Attended

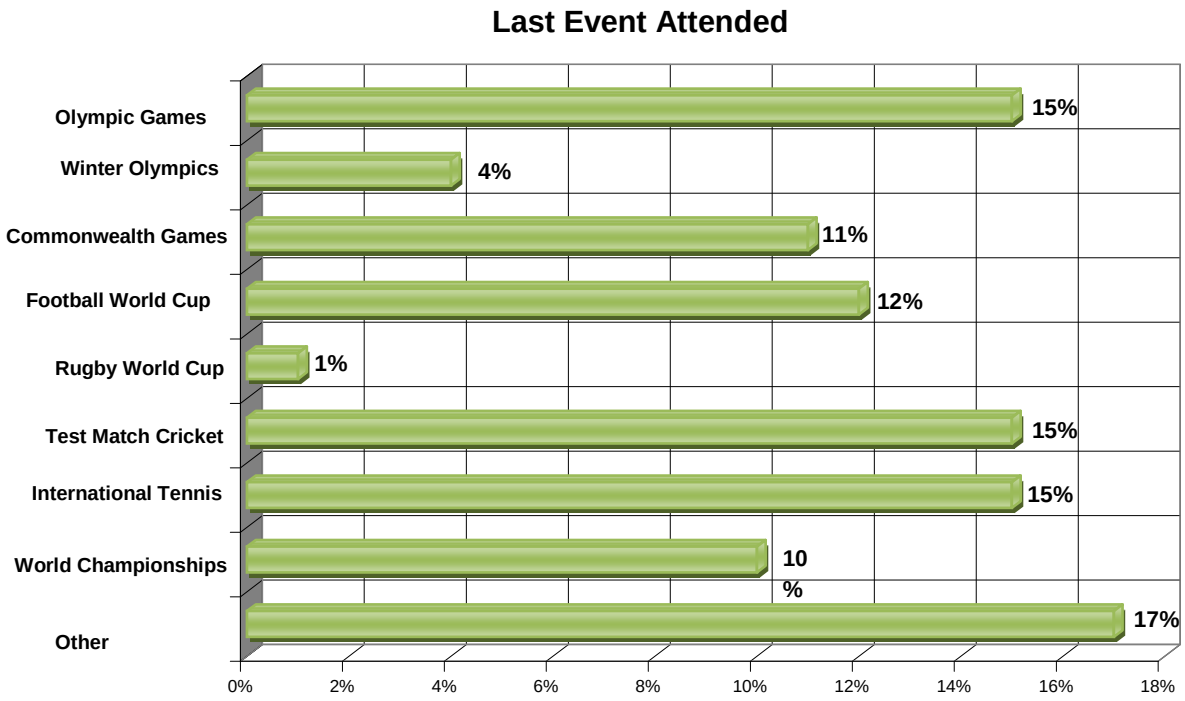


Table 4.1: Countries Travelled to for Last Event Attended

Countries Travelled To					
Australia	Canada	China	Czech Republic	Denmark	Egypt
Finland	France	Germany	Greece	Hungary	India
Italy	Malaysia	New Zealand	Russia	South Africa	South Korea
Spain	Sweden	UK	USA	West Indies	

To establish the reasons associated with travelling to these countries to attend major sporting events, this research indicates that 85% of respondents did so with attending the event as the sole reason for taking the trip, as shown in Table 4.2. The event motivations which underpin this reasoning are discussed in section 4.2.4 of this chapter. The data also

illustrates that 76% of respondents would not have visited the destination without the event being staged there, which obviously has destination marketing implications.

Table 4.2: Travel Decisions

	Percentage of Respondents	Number of Respondents (n)
Reason for Taking the Trip		
Event was the sole reason for the trip	85%	280
An important part of an already planned trip	12%	38
One activity among many on a more general trip	4%	13
	100%	331
Visiting the Destination without the Event Occurring		
Yes	24%	126
No	76%	421
	100%	331
Beyond Normal Travel Plans		
Yes	45%	149
No	55%	182
	100%	331
Travel Partners		
With friends	72%	239
With partner and friends	9%	31
With friends and family	16%	54
With work colleagues	2%	7
	100%	331

These results can be seen to be in line with Delpy Neirotti *et al* (2001) where only 1.3% of respondents were motivated to attend the event because it allowed them to visit the host city, Atlanta, USA. However, Mashiach (1980; 1981) reported that 27% of women from his sample used visiting the Olympic Games in Montreal as an opportunity to visit the host city for a vacation. This illustrates and provides supporting evidence that on their own major sports events are capable of attracting attendees to a destination and highlights major sporting events as being a pull product for a destination on which secondary products, services and infrastructure can capitalise. Creating such tourism cycles as shown in the Literature Review, can aid a destination in re-inventing and re-positioning their image on an international stage. This however is obviously dependent on the power and weight of the event that the destination hosts; as this seems to suggest that without the event the destination would not attract as many individuals. Hosting an Olympic Games is seen to provide more opportunities from a tourism re-generation perspective than hosting a Junior World Championship (UK Sport 1999). Moreover, these results indicate that the sample of respondents for this research are primarily sports event tourists and confirms their placement into the sports event and event visitor categories set out by Weed and Bull (2004) and Preuss (2005).

The literature has shown that one of the reasons for attending sporting events is that it is a form of socialisation and something that often involves groups of people. However, translating this literature and findings to that of major sporting events in a quantitative form and in relation to economic impact work is limited. Here the results have shown that over two thirds of respondents (72%) reported that they tended to travel to major sports events with their friends rather than attending with family or work colleagues. This supports previous literature by Breitbarth (2006), where 61% of respondents travelled to the 2006 World Cup in Germany with friends. This also implies that the 72% of respondent that travelled to and attended a major sporting event with friends were responsible for paying for their own individual travel and attendance and therefore the figures reported later in the chapter for total spending levels can be seen to be on an individual basis, not as an amount spent for a group of people.

In analysing the events that respondents had already attended, each respondent was asked to specify how far in advance they had organised their trip to a major sporting event. Overall for all major sporting events nearly a third of respondents arrange their trips 3 - 6 months in advance of the event, with 35% of respondents tending to book their trips 7 – 18

months prior to the event (Table 4.3). This is directly important for commercial companies such as the one that this research was carried out in conjunction with. Table 4.3 indicates the normal booking time for major sporting events. This suggests that the current priority booking service that the partnership commercial company enter into with their clients and registered parties may not be the best use of their marketing resources and that their policy of targeting potential clients and interested parties so far in advance of the event is not that effective. As the majority of individuals (55%) will only book and confirm their trip to a major sporting event during the year before the event is due to take place.

Table 4.3: Advanced Planning for all Major Sporting Events

	Percentage	Number of Events (n)
Less than 2 weeks	9%	47
3 weeks to 2 months	20%	107
3 - 6 months	31%	169
7 - 12 months	24%	130
13 - 18 months	11%	58
More than 18 months	7%	36
	100%	547

However, a difference in when respondents organised and booked their trip and the event they attended can be observed. For those that attended the Olympic Games, making the decision to attend and booking to attend the event is carried out well in advance of the event taking place, with over 40% of people attending the Olympic Games booking their trip more than a year in advance. Whereas, those attending events that occur more frequently, such as Test Match Cricket, International Tennis and World Championships rarely deciding to attend and booking to attend more than 6 months in advance of the event, only 3% of those people attending an International Tennis event booked more than a year in advance, as is presented in Table 4.4. This seems to indicate that trip planning is connected to the scale and the uniqueness of the event. This obviously has commercial implications for travel / tour operators that operate priority booking services to for those that wish to travel to and attend major sporting events. Providing priority booking services

so far ahead of the event may not actually be cost effective for some events as the research has shown that 84% of respondents are interested in booking a trip less than 12 months in advance with 60% booking a trip to a major sporting event within 6 months of the event taking place. However by breaking down trip planning and booking by the event attended as shown in Table 4.4 it can be seen that the planning and booking process occurs at different pre-event times depending on the event being attended.

Table 4.4: Event Specific Advanced Planning

	Less than 2 weeks	3 weeks to 2 months	3 - 6 months	7 - 12 months	13 - 18 months	More than 18 months	Number of Events (n)
Olympic Games	2%	6%	14%	31%	27%	21%	125
Winter Olympics	4%	26%	44%	9%	9%	9%	23
Commonwealth Games	4%	6%	42%	31%	10%	7%	71
Football World Cup	11%	18%	29%	27%	13%	4%	56
Rugby World Cup	7%	40%	33%	7%	7%	7%	15
Test Match Cricket	14%	22%	32%	32%	0%	0%	74
International Tennis	13%	26%	34%	23%	3%	0%	61
World Championship	11%	36%	37%	15%	2%	0%	62
Other Most Recent Event	15%	33%	38%	7%	7%	0%	60
Number of Respondents (n)	142	72	49	53	47	43	547

Only the Olympic Games have a high percentage of respondents planning and booking a trip well ahead of the event, with 48% of respondents indicating that they organised their trip to the Olympic Games more than 13 months prior to the event. Whereas for annual events such as the Test Match Cricket – Other Most Recent Event, there are very few respondents arranging to attend these events more than a year in advance. These results suggest that different decision making and planning goes into deciding to attend different major sporting events, again highlighting the different nature of major sporting events and the individuals that travel to and attend them.

Respondents were also asked about their future behavioural intentions to attend major sporting events. Table 4.5, illustrates that all respondents intend to attend future major sporting events (Don't want to attend any 0%), with almost all respondents (95% n 314) wanting to attend a future edition of the Olympic Games. This illustrates that whilst the Olympics is the major draw, respondents want to attend different combinations of events and it is shown that 80% of respondents actually intend to attend between 2 and 6 other major sporting events.

Table 4.5: Respondent Intentions

	Percentage of Respondents	Number of Respondents (n)
Future Event Attendance		
Olympic Games	95%	314
Winter Olympics	31%	104
Commonwealth Games	36%	118
Football World Cup	44%	147
Rugby World Cup	36%	120
Cricket World Cup	23%	75
Test Match Cricket	33%	109
International Tennis	32%	107
Motor Sports – Formula 1	21%	68
Major Golf Tournaments	20%	66
World Championships, Any Sport	30%	99
Other Significant Event	10%	32
Don't want to attend any	0%	0
Number of Events Actually Intend to Attend		
1 Event	8%	25
2 Events	20%	67
3 Events	18%	60
4 Events	16%	52
5 Events	15%	51
6 Events	11%	36
7 Events	4%	13
8 Events	4%	13
9 Events	1%	4
10 Events	1%	4
11 Events	1%	2
12 Events	1%	4
	100%	331

These results for the event and travel behavioural data are similar to the studies highlighted in the literature review, Mashiach (1980; 1981); Deply (1997); Delpy Neirotti *et al* (2001); Kim and Chalip (2004) and Breitbarth (2006) as can be seen from the summary in Table 4.6.

Table 4.6: Event and Travel Profile Comparison

	Mashiach 1980, 1981	**Delpy** 1997	**Delpy Neirotti, Bossetti & Teed** 2001	**Kim and Chalip** 2004	**Breitbarth** 2006	**This research**
Previous Attendance	-	-	30% had travelled to other major sporting events	-	44.7% had travelled to major events outside Australasia 26.3% had travelled to a previous World Cup	**77% had travelled to other major sporting events**
Attendance Reason	27% of women used visiting the event as an opportunity to visit host city for vacation	-	51% Event attendance	Previous event interest	-	**85% Event sole reason for trip**
Travel Partners	-	-	-	-	With friends 61.1%	**With friends** **72%**
Trip Decision Making	-	-	31% 6 months - 1 year	-	-	**31% 3 - 6 months**
Future Attendance	-	-	50% wanted to attend another Olympic Games	-	-	**100% want to attend more major sporting events**

4.2.2 Demographics

This section of the chapter reports on the demographic elements of the conceptual model. These questions within the online survey all related to the gender, age, ethnicity, employment and income levels of respondents. The demographic information is presented in Table 4.7 where it can be observed that the majority of the respondents were male (62%), with over half of the respondents (54%) being in the age range 25 – 44. The sample is also predominantly from a white ethnic group (91% white)[35]. Further data in Table 4.7 illustrates that the majority of respondents were in full time employment (75%), with notably only 8% earning less than £20,000, and over a third (35%) of respondents earning more than £20,000, but less than £40,000, whereas 21% of respondents reported belonging to the highest income bracket earning over £60,000. This is consistent with findings from the 1996 Atlanta Olympic Games where a World Travel Partner Study of Atlanta ticket holders, found that the economic status of attendee's was likely to be skewed in favour of those with higher incomes (in excess of $100,000) (Hartzer 1994 cited in Delpy 1997).

Table 4.7: Demographic Profiling Information

		Percentage of Respondents	Number of Respondents (n)
Gender			
	Male	62%	204
	Female	38%	127
		100%	331
Age			
	Under 18	1%	3
	18 – 24	11%	37
	25 – 34	29%	96
	35 – 44	25%	82
	45 – 54	19%	63
	55 – 64	12%	40
	65+	3%	10
		100%	331

[35] This figure is broadly in line with UK demographics as illustrated by the General Household Survey

Ethnicity

Black African	1%	2
Black Caribbean	1%	2
Chinese	2%	5
Indian	2%	5
Mixed	1%	4
White	91%	302
Asian Other	0%	1
Black Other	0%	1
Prefer not to say	3%	9
	100%	331

Employment

Work Full Time	75%	249
Work Part Time	7%	22
Unemployed	1%	2
Retired	7%	22
Student	8%	27
Homemaker	2%	5
Prefer not to say	1%	2
Other	1%	2
	100%	331

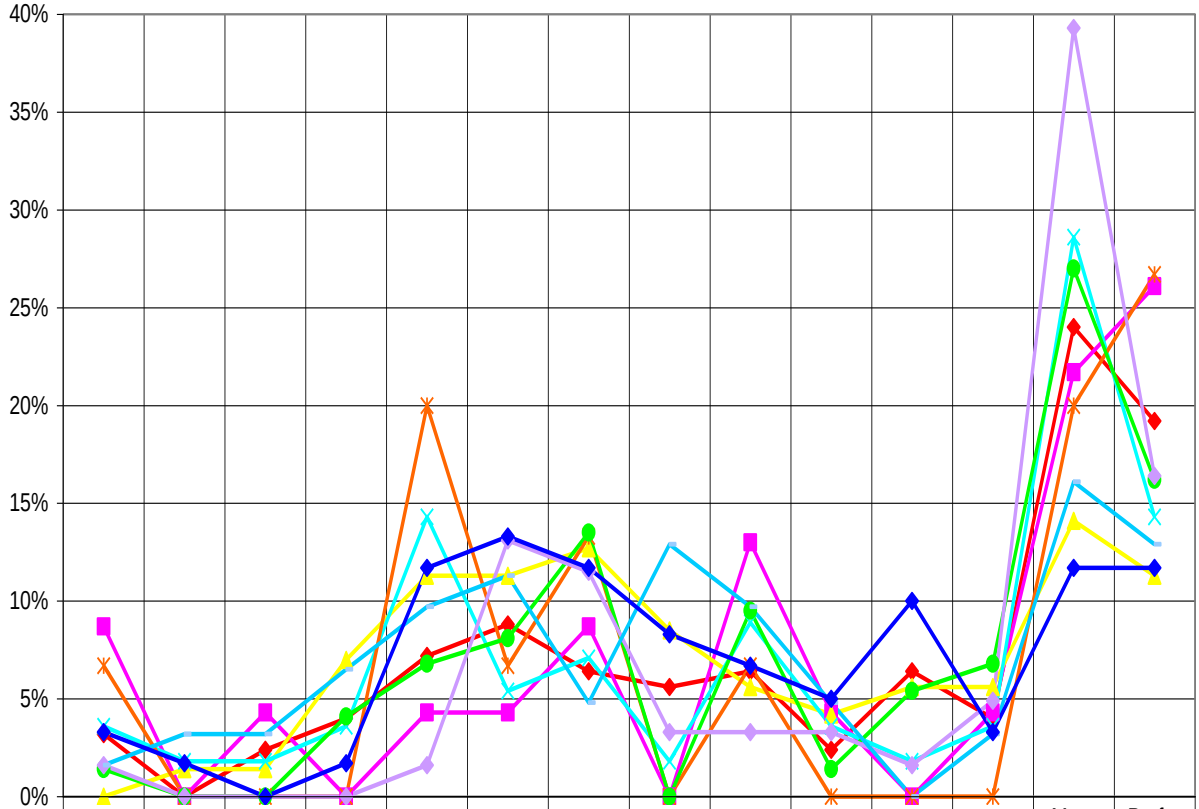
Income

Under 5000	2%	8
5 - 10K	1%	4
10 - 15k	1%	4
15 - 20k	4%	13
20 - 25K	9%	29
25 - 30K	11%	35
30 - 35K	10%	34
35 - 40K	5%	17
40 - 45K	7%	23
45 - 50K	3%	11

50 - 55K	5%	16
55 - 60K	4%	14
More than 60K	21%	68
Prefer not to say	17%	55
	100%	331

The income level results can be further analysed with a cross-tabulation showing income levels of individuals by the major sporting event they attended, the results of which can be seen in Figure 4.4. Figure 4.4 suggests that for all major sporting events attended higher incomes are suggested to be prevalent amongst those that travel to and attend major sporting events, as it can be seen that individuals that to travel to and attend major sporting events will typically earn over £20,000.

Figure 4.4: Income by Major Sporting Event Attended



	Under £5000	£5 - 10K	£10 - 15K	£15 - 20K	£20 - 25K	£25 - 30K	£30 - 35K	£35 - 40K	£40 - 45K	£45 - 50K	£50 - 55K	£55 - 60K	More than £60K	Prefer not to say
Olympic Games	3.2%	0.0%	2.4%	4.0%	7.2%	8.8%	6.4%	5.6%	6.4%	2.4%	6.4%	4.0%	24.0%	19.2%
Winter Olympics	8.7%	0.0%	4.3%	0.0%	4.3%	4.3%	8.7%	0.0%	13.0%	4.3%	0.0%	4.3%	21.7%	26.1%
Commonwealth Games	0.0%	1.4%	1.4%	7.0%	11.3%	11.3%	12.7%	8.5%	5.6%	4.2%	5.6%	5.6%	14.1%	11.3%
Football World Cup	3.6%	1.8%	1.8%	3.6%	14.3%	5.4%	7.1%	1.8%	8.9%	3.6%	1.8%	3.6%	28.6%	14.3%
Rugby World Cup	6.7%	0.0%	0.0%	0.0%	20.0%	6.7%	13.3%	0.0%	6.7%	0.0%	0.0%	0.0%	20.0%	26.7%
Test Match Cricket	1.4%	0.0%	0.0%	4.1%	6.8%	8.1%	13.5%	0.0%	9.5%	1.4%	5.4%	6.8%	27.0%	16.2%
International Tennis	1.6%	0.0%	0.0%	0.0%	1.6%	13.1%	11.5%	3.3%	3.3%	3.3%	1.6%	4.9%	39.3%	16.4%
World Championship	1.6%	3.2%	3.2%	6.5%	9.7%	11.3%	4.8%	12.9%	9.7%	4.8%	0.0%	3.2%	16.1%	12.9%
Other Recent Event	3.3%	1.7%	0.0%	1.7%	11.7%	13.3%	11.7%	8.3%	6.7%	5.0%	10.0%	3.3%	11.7%	11.7%

In examining Table 4.8 it can be seen that the demographic information presented compares favourably with the studies previously highlighted in the Literature Review, Mashiach (1980; 1981); Delpy (1997); Delpy Neirotti *et al* (2001); Kim and Chalip (2004) and Breitbarth 2006. The majority of previous studies' respondents were also, male, of a similar age group, relatively affluent, employed and of a similar ethic breakdown.

Table 4.8: Demographic Study Comparison

	Mashiach 1980; 1981	**Delpy** 1997	**Delpy Neirotti, Bossetti & Teed** 2001	**Kim and Chalip** 2004	**Breitbarth** 2006	**This research**
Gender Breakdown	No Male / female breakdown	-	53% Male	71% Male	>88% Male	**62% Male**
Age Range	Average age for Men 37 Women not stated	18-44	76% 18-44	-	Average age 42	**66% 18-44** **29% 25-34**
Income	Men $15-30K Women $5-15	Relatively affluent	-	$80-90K	39% NZ$120,000+	**21% >£60k**
Ethnicity	-	-	-	86.1% Caucasian	-	**91%** **White**
Employment	Men, professional occupations	-	-	-	61% employed full time	**75% employed full time**
Education	43% Men graduate education Women not stated	Well educated	-	>70% College educated	Well educated	**-**

4.2.3 Sporting Involvement

This section of the chapter reports on the sporting involvement variables of the conceptual model. These questions within the online survey all related to the individual respondents participation and involvement in sport and physical activity. This profile maps the respondents' established connections to sport within their everyday lives. It illustrates participation levels in related sports along with other sporting interactions such as with the

media's representations of sport through television. The role that sport plays in an individual's life has been shown to play a key role in sporting motivations. Reeves (2000) illustrated that an individual's motivations and engagement with sport are interrelated. Despite having an interest and pattern of attending major sporting events it can be seen that 79% of respondents did not spectate live at the nineteen sports and physical activities tested within this research. The majority of respondents 82% were television spectators with 51% of respondents indicating that this was for between 2 and 5 different sports, illustrating that respondents were interested in a range of different sports, Table 4.9. The respondents' interest in sport was not confined to their spectating of sport as 82% of respondents reported that they currently participated in a range of sports with 70% of respondents having also previously participated.

Table 4.9: Respondents Involvement with Sport

	0 Sports	1 Sport	2 Sports	3 Sports	4 Sports	5 Sports	6 Sports	7 Sports	8 Sports	9 Sports	10+ Sports
Spectate Live	79%	11%	4%	4%	2%	0%	1%	0%	0%	0%	0%
Spectate on TV	18%	9%	13%	13%	13%	12%	6%	6%	4%	1%	5%
Participate now	18%	18%	14%	12%	16%	6%	6%	4%	2%	3%	2%
Used to participate	30%	19%	15%	14%	11%	3%	4%	1%	2%	1%	0%
Currently volunteer	87%	10%	1%	2%	0%	0%	0%	0%	0%	0%	0%
Used to volunteer	81%	16%	2%	1%	0%	0%	0%	0%	0%	0%	0%
Someone in family participates/ volunteers	47%	16%	9%	7%	5%	4%	3%	4%	2%	1%	2%

In contrast with participation, the majority of respondents, 87% do not currently volunteer in any sports compared with only 10% of respondents that currently volunteer in one sport. In addition to this 16% indicated that they had previously volunteered in a sporting context.

Although these levels of volunteering can be seen to be low, volunteering levels within the general population are also low. In the Literature Review, section 2.5.2, it has been shown that the profile for people that tend to volunteer are 45-54 years of age, highly educated, high economic groupings, married or cohabiting, have children, access to a car and are from white backgrounds (Institute for Volunteering Research 2008). This profile has similarities to the profile of the respondents for this research and it may therefore have been expected that volunteering maybe more prevalent within this group of respondents.

In examining involvement with sport further, the data was analysed by each of the nineteen sports to see if there were any patterns between the sports and levels of interest and involvement. This data is reported in Table 4.10. Eleven of the nineteen sporting categories recorded their highest percentage response as '*not interested in this sport*' (colour coded blue). The seven other sports recorded their highest percentage response in either the, '*I spectate on television'* (colour coded yellow) or '*I currently participate'* (colour coded pink) in this sport categories. Respondents showed that they spectated via the TV, for athletics (41.1%), rugby union (42%), tennis (33.8%) and football (32.9%), with respondents currently participating in walking (46.2%), going to the gym (41.7%) and swimming (26.6%). These finding are consistent with the Office for National Statistics (ONS) data showing that the most popular leisure activity is watching television (ONS, 2008). This reflects the packaged nature of sport as previously highlighted in the Literature Review by Coakley (1994) cited in Crawford (2004), whereby sport has been packaged with the sole aim of selling the broadcasting rights. This can be seen to have happened in the case of both Rugby Union and to a greater extent with Football within the UK. The broadcasting of such a sporting contest is used by broadcasting companies as a focus for its marketing campaigns and for many individuals forms the highlight of their subscription television. Alternatively major athletics competitions (such as Olympic events and Grand Prix) and tennis competitions (such as Wimbledon) are both available to watch on UK free to air television, which may explain these results. According to the latest ONS figures for 2006/2007, the most popular sporting activity (excluding walking) has been shown to be swimming, going to the gym and for men outdoor football (ONS, 2008). This gives consistency with the current activities that respondents for this research currently participate in. Overall from this range of results it can be acknowledged that respondents for this research had relatively high levels of interest and involvement for certain sports.

Table 4.10: Respondent's Sporting Interests and Participation

	Olympic Games	Winter Olympics	Commonwealth Games	Football World Cup	Rugby World Cup	Test Match Cricket	International Tennis	World Championships	Other Events
Aerobics	No Interest in this sport **43%**	No Interest in this sport **57%**	No Interest in this sport **41%**	No Interest in this sport **54%**	No Interest in this sport **47%**	No Interest in this sport **50%**	No Interest in this sport **57%**	No Interest in this sport **48%**	No Interest in this sport **42%**
Athletics	Watch on TV **42%**	Watch on TV **35%**	Watch on TV / Used to participate **28%**	Watch on TV **41%**	Watch on TV / Used to participate **40%**	Watch on TV **55%**	Watch on TV **53%**	Watch on TV **44%**	Watch on TV **30%**
Badminton	No Interest in this sport **58%**	No Interest in this sport **61%**	No Interest in this sport **44%**	No Interest in this sport **61%**	No Interest in this sport **53%**	No Interest in this sport **53%**	No Interest in this sport **48%**	No Interest in this sport **53%**	No Interest in this sport **45%**
Cricket	No Interest in this sport **39%**	No Interest in this sport **70%**	No Interest in this sport **41%**	Watch on TV **30%**	Watch on TV / Used to participate / No interest in this sport **20%**	Watch on TV / Used to participate in **26%**	Watch on TV **28%**	No Interest in this sport **42%**	No Interest in this sport **35%**
Cycling	Watch on TV **34%**	No Interest in this sport **39%**	Watch on TV **32%**	Watch on TV **43%**	No Interest in this sport **33%**	No Interest in this sport **41%**	No Interest in this sport **33%**	Watch on TV **36%**	No Interest in this sport **43%**
Football	Watch on TV **39%**	Watch on TV **39%**	Watch on TV **41%**	Currently participate in / Used to participate in **23%**	Watch on TV **40%**	Watch on TV / Used to participate in **24%**	Watch on TV **43%**	Watch on TV **36%**	No Interest in this sport **32%**
Golf	No Interest in this sport **40%**	No Interest in this sport **61%**	No Interest in this sport **42%**	No Interest in this sport **41%**	No Interest in this sport **47%**	Watch on TV **34%**	No Interest in this sport **30%**	No Interest in this sport **39%**	No Interest in this sport **40%**

	Olympic Games	Winter Olympics	Commonwealth Games	Football World Cup	Rugby World Cup	Test Match Cricket	International Tennis	World Championships	Other Events
Go to the Gym	Currently participate in **40%**	No Interest in this sport **39%**	Currently participate in **51%**	Currently participate in **41%**	Currently participate in **53%**	Currently participate in **45%**	Currently participate in **39%**	Currently participate in **34%**	Currently participate in **40%**
Martial arts	No Interest in this sport **76%**	No Interest in this sport **78%**	No Interest in this sport **85%**	No Interest in this sport **77%**	No Interest in this sport **73%**	No Interest in this sport **78%**	No Interest in this sport **77%**	No Interest in this sport **82%**	No Interest in this sport **70%**
Jogging / Running	No Interest in this sport **35%**	No Interest in this sport **57%**	Currently participate in **42%**	Currently participate in **39%**	Currently participate in **47%**	No Interest in this sport **39%**	No Interest in this sport **44%**	No Interest in this sport **39%**	Currently participate in **38%**
Rugby Union	Watch on TV **46%**	No Interest in this sport **70%**	Watch on TV **48%**	Watch on TV **45%**	Watch on TV **53%**	Watch on TV **43%**	Watch on TV **39%**	Watch on TV / No interest in this sport **37%**	Watch on TV **37%**
Rugby League	No Interest in this sport **52%**	No Interest in this sport **83%**	No Interest in this sport **52%**	No Interest in this sport **57%**	No Interest in this sport **47%**	Watch on TV **57%**	No Interest in this sport **59%**	No Interest in this sport **60%**	No Interest in this sport **58%**
Skiing	Watch on TV **29%**	Watch on TV / Currently participate **26%**	No Interest in this sport **32%**	No Interest in this sport **39%**	No Interest in this sport **47%**	No Interest in this sport **41%**	Currently participate in **30%**	No Interest in this sport **29%**	No Interest in this sport **40%**
Squash	No Interest in this sport **56%**	No Interest in this sport **78%**	No Interest in this sport **52%**	No Interest in this sport **61%**	No Interest in this sport **60%**	No Interest in this sport **54%**	No Interest in this sport **49%**	No Interest in this sport **65%**	No Interest in this sport **68%**
Swimming	Currently participate in **24%**	Currently participate in / No interest in this sport **26%**	Currently participate in **30%**	Currently participate in **25%**	Currently participate in **40%**	Currently participate in **28%**	Currently participate in **33%**	No Interest in this sport **27%**	Currently participate in **30%**
Tennis	Watch on TV **36%**	Used to participate in /No Interest in this sport **26%**	Watch on TV **42%**	Watch on TV / Used to participate in **23%**	Watch on TV / No Interest in this sport **27%**	Watch on TV **37%**	Currently participate in **26%**	Watch on TV **29%**	Watch on TV **30%**

	Olympic Games	Winter Olympics	Commonwealth Games	Football World Cup	Rugby World Cup	Test Match Cricket	International Tennis	World Championships	Other Events
Walking	Currently participate in **44%**	Currently participate in / No Interest in this sport **44%**	Currently participate in **56%**	No Interest in this sport **55%**	No Interest in this sport **53%**	No Interest in this sport **45%**	Currently participate in **26%**	No Interest in this sport **29%**	Currently participate in **30%**
Weight Training	No Interest in this sport **68%**	No Interest in this sport **65%**	No Interest in this sport **56%**	No Interest in this sport **64%**	No Interest in this sport **53%**	No Interest in this sport **70%**	No Interest in this sport **71%**	No Interest in this sport **58%**	No Interest in this sport **60%**
Other sports	No Interest in this sport **64%**	No Interest in this sport **70%**	No Interest in this sport **68%**	No Interest in this sport **73%**	No Interest in this sport **67%**	No Interest in this sport **70%**	No Interest in this sport **72%**	No Interest in this sport **44%**	No Interest in this sport **62%**

4.2.4 Event Related Motivations

This section of the chapter reports on the variables measuring event related motivations for the conceptual model. Previously within this chapter, Table 4.2, it has been shown that the majority of respondents were motivated to travel to and attend the event with the primary purpose of attending a particular major sporting event. Here the motivations behind this attendance are uncovered. Respondents were asked to report the motivations that impacted their decision to attend a major sporting event and in supplying data for this profile, respondents were able to report their motivations for up to two events. This resulted in 331 individual respondents reporting their motivations for travelling to and attending 547 major sporting events. Table 4.11 illustrates the breakdown of respondents that reported motivations for travelling to and attending major sporting events. It can be seen that the most frequent reporting of motivations related to the Olympic Games (23%), Test Match Cricket (14%) and the Commonwealth Games (13%).

Table 4.11: Event Attendance

	Percentage	Number of Events (n)
Olympic Games	23%	125
Winter Olympics	4%	23
Commonwealth Games	13%	71
Football World Cup	10%	56
Rugby World Cup	3%	15
Test Match Cricket	14%	74
International Tennis	11%	61
World Championship - Any Sport	11%	62
Other Most Recent Event	11%	60
	100%	547

It is interesting to note from Table 4.11, that of the three most frequently attended events, two of the top three are multi sport events, the Olympic Games (23%) and the Commonwealth Games (13%). The number of World Championships and Other Most

Recent Event accounted for a significant number of responses with 11% of the sample reporting motivations for both forms of major sporting event. As respondents were asked to specify the name of the event they had attended a closer examination of these two categories was possible and this illustrated that respondents attended 23 different World Championships and 25 different Other Most Recent Events. The three most frequently reported World Championships attended were in the sports of Athletics (n 11), Rowing (n 7) and Swimming (n 5). In the Most Recent Other Event category 3 most frequently reported events were Six Nations Rugby (n 16), Horse Eventing competitions (n 5) and other International Rugby Union games (n 5), all of which may be considered to be major sporting events.

The main sports event tourism motivations that have been used in previous studies were set out in the Literature Review, Table 2.19, provided the basis for the motivations that were tested within this research. Nineteen motivations have been investigated within this research to reflect the emphasis of the Literature Review and Methodology chapters (Chapter Three, section 3.3.2 Tables 3.2). As illustrated in the Methodology Chapter (Table 3.2), respondents were able to rate the motivation's impact on their decision to travel to and attend a specific major sporting event using the scale 'Very Important' to 'Unimportant'. The overall results can be seen from Table 4.12. Of the nineteen motivations evaluated, around two thirds had their highest percentage responses within the 'Very Important' to 'Moderately Important' range of the scale. With the remaining third of the assessed motivations scoring their highest percentage response on the 'Of Little Importance' to 'Unimportant' end of the scale.

Table 4.12: General Motivations for Travelling to and Attending Major Sporting Events

	Very Important	Important	Moderately Important	Of Little Importance	Unimportant	Event Responses (n)
Once in a lifetime opportunity	36%	30%	19%	7%	8%	547
Cultural experience	13%	27%	29%	18%	13%	547
Historical significance of the event	18%	23%	21%	25%	14%	547
Prestige of the event	34%	38%	18%	6%	5%	547
Educational experience	6%	19%	22%	25%	27%	547
Location of the event	30%	34%	22%	9%	6%	547
Tourist attractions other than the event	10%	19%	27%	18%	26%	547
Escape everyday life	8%	21%	23%	18%	31%	547
Enjoy travelling	24%	27%	19%	13%	17%	547
Enjoy the excitement & atmosphere	50%	34%	11%	4%	2%	547
Enjoy the competition & the sport	63%	30%	6%	1%	1%	547
Good source of entertainment	35%	44%	14%	5%	3%	547
Relative of competitor	7%	4%	6%	6%	78%	547
Visit family & friends	6%	9%	11%	9%	65%	547
Availability of tickets	31%	29%	22%	7%	10%	547
Availability of accommodation	22%	24%	19%	9%	26%	547

Overall cost of trip	20%	27%	28%	13%	12%	547
Business / networking opportunities	2%	7%	10%	9%	72%	547
Other reasons	5%	4%	8%	5%	78%	547

From Table 4.12 the respondents' aggregate rating of their motivations is illustrated. This enables a ranking of the motivations to be constructed, in order of highest percentage response representing their level of perceived importance to respondents when travelling to and attending major sporting events. This can be seen by examining Table 4.13.

Table 4.13: Motivation Rankings

Very Important	Important	Moderately Important
Enjoy the competition and the sport 63%	Good source of entertainment 44%	Cultural experience 29%
Enjoy the excitement and atmosphere 50%	Prestige of the event 38%	Overall cost of the trip 28%
Once in a lifetime opportunities 36%	Location of the event 34%	Tourist attractions other than the event itself 27%
Availability of tickets 31%	Enjoy travelling 27%	

Of little Importance	Unimportant
Historical Significance of the Event 25%	Relative of Competitor 78%
	Other Reasons 78%
	Business / Networking Opportunities 72%
	Visit Family and Friends 65%
	Escape Everyday Life 31%
	Educational Experiences 27%
	Availability of Accommodation 26%

Table 4.13 illustrates that there are four 'very important' motivations, five 'important' motivations, three 'moderately important' motivations, only one motivation 'of little

importance' and seven 'unimportant' motivations when travelling to and attending major sporting events. These results are now discussed in turn.

The 'very important' motivations for major sporting event travel and attendance are 'enjoying the competition and the sport' (63%), 'enjoying the excitement and atmosphere' (50%), 'experiencing a once in a lifetime opportunity' (36%) and the 'availability of tickets' (31%). The motivations of 'enjoying the excitement, atmosphere, competition and sport' of major events are motivations that are featured in the literature review. Within this research these motivations were examined as 'enjoying the excitement and atmosphere' and 'enjoying the competition and the sport'. Delpy Neirotti *et al* (2001) found these to be important motivations for their respondents as 33.8% were motivated by the 'athletic competition' with the 'party atmosphere' motivating 14.1% of respondents travelling to and attending the Olympic Games. The motivation of 'once in a lifetime opportunity' is shown to be 'very important' despite it being previously illustrated in Figure 4.2 that the respondents of this research exhibited repeat major sporting event attendance. Because of this habitual behaviour it may have been expected that this motivation would have been seen as 'of little importance' / 'unimportant'. However, this seems to suggest that each major sporting event attended is viewed by its attendees as a unique edition of a major sporting event and experience to be acquired. In addition to being a 'very important' motivation to travel to and attend major sporting events, 'the availability of tickets' could also be seen as a factor that may act to constrain attendance. Kim and Chalip (2004) show that although individuals may have the desire to travel to and attend major sporting events, being able to obtain tickets in order to attend the event may actually constrain travel and attendance. Delpy Neirotti *et al* (2001) also found the 'availability of tickets' to be a motivation that impacted 8.4% of their respondents; this was Delpy Neirotti ***et al's*** (2001) third highest motivational consideration before deciding to attend a major sporting event.

The 'important' motivations for major sporting event travel and attendance are involved with being a 'good source of entertainment' (44%), 'event prestige' (38%), the 'location of the event' (34%) and the 'enjoyment of travelling' (27%). The motivation and the need to be entertained is claimed to be one of the biggest motivational factors for explaining attendance at sporting events (Wann, 1995; Wann *et al,* 2001) and this research supports this claim for major sporting events. The 'prestige of the event' is seen by respondents as an 'important' motivation and this may be for a number of different reasons, but probably

the most important reason being that, major sporting events are seen as the ultimate competition for any sport/event. The prestige of attending such events is shown in the literature as a way of gaining status and appearing to do something different (Weed, 2008). This result therefore shows that these results are consistent with that thinking and are supported by Mashiach (1980; 1981) findings that illustrated that for the men in his study, 27% thought attending the event gave them prestige in the eyes of others.

The location of the event being seen as an 'important' motivation contrasts with results presented previously in this chapter, specifically in Table 4.2, where it was presented that 76% of respondents would not have visited the location without the event being staged there. This finding was supported by Delpy Neirotti *et al* (2001) in that only 1.3% of their respondents were motivated to attend the event because of the chance to visit Atlanta, USA. However, 27% of the women sampled by Mashiach (1980; 1981) were also using the events as an opportunity to visit Montreal, the Games host city, for a vacation. Whilst this suggests some conflict over this point, nonetheless it remains that major sporting events are important pull products and are linked to 'good' destination images. As the majority of respondents would not have attended the location without the event occurring there, this may also suggest that the impact of place and location for those that travel to and attend major sporting events is not all that important and it is the event itself which attracts the attention and the location is very much a secondary consideration. This two-stage evaluation of motivations has been used by Delpy Neirotti *et al* (2001); however none of their original motivations that scored low, such as location were re-tested in the second decision stage of their study. This is therefore an obvious area for future research, in order to clarify the impact of location as a motivation for attending a major sporting event. Despite this current uncertainty, marketing and destination image implications are prominent, as destinations have to be aware of their image and the potential impact this can have on potential major sporting event attendee's. Connected to the location is the willingness to and the enjoyment of travelling. The concept of respondents travel habits have already been touched upon at the beginning of this descriptive analysis where Figure 4.1 illustrates that 73% of respondents had travelled to and attended major sporting events both internationally and domestically. In addition to this Table 4.1 illustrated that respondents were willing to travel to numerous countries (12 European and 11 long haul destinations) to attend major sporting events. Therefore it is logical to expect that respondents would see 'enjoying travelling' as an 'important' motivation.

The motivations that are seen as being 'moderately important' for major sporting event travel and attendance are involved with the 'cultural experience' (29%), 'overall cost of the trip' (28%) and 'tourist attractions other than the event' (27%). The motivation of the 'cultural experience' incorporates experiencing the host country's culture, in addition to experiencing any cultural programme associated with the major sporting event. This seems to suggest that respondents are not particularly concerned with the cultural aspects that are implicitly or explicitly associated with major sporting events. This lack of importance attributed to attending the event may be reinforced by the finding that 76% of respondents would not have travelled to visit the host destination had it not have been for the major sporting event being held there.

The motivation of 'overall cost' was seen as a 'moderately important' motivation may be viewed as a surprising finding. However, this finding indicates that there are more important motivations as evidenced here, that act to drive travel and attendance at major sporting events. Kim and Chalip (2004) reported that their respondents were 'strongly interested' in attending events, but felt that cost acted as a barrier to restrict their attendance, although this did not lessen their desire to attend. Kim and Chalip (2004) also highlighted that those respondents with higher incomes felt that they were less financially constrained by the overall cost of attending and men were less likely to see cost as constraining their travel and attendance. A similar attitude to the overall expense of travelling to and attending the Olympic Games was reported on by Delpy Neirotti *et al* (2001) whereby 5.3% of respondents found the 'overall cost of attendance' impacted their motivations to attend.

As we have already shown, 85% of respondents' trip to a major sporting event was primarily to travel to and attend the event (Table 4.2). Consequently, it may have been expected that the motivation of 'tourist attractions other than the event', would not be reported as that important to respondents. Because of this, respondents have indicated that 'tourist attractions other than the event' itself are only a 'moderately important' motivation. Even though the majority of respondents primarily travelled to the destination for the major sporting event, and 76% would not have visited the location had it not been for the event, this may suggest that there are different levels to motivations and this motivation may impact respondents after the decision to attend a major sporting event has already been made, as the motivation of tourist attractions other than the event, may only impact the individual at this stage.

The motivation of 'historical significance of the event' is reported by Table 4.13 as the only motivation to be seen to be 'of little importance' (25%). One explanation for this may be due to the length of time that the events have been in existence. Only the Olympic Games and Winter Olympics can be seen to have a significant historical element to them. As the Olympic Games in its current form has been in existence since the 1897 revival of the games in Athens, Greece, whilst a form of the Winter Olympics has been around since 1924 when it was staged in Chamonix, France, under the title of International Winter Sports Week (IOC, 2010). Other major sporting events have only come about more recently, such as the Rugby World Cup which was only first staged in 1987 (IRB 2008). Annual events may also be seen as 'less' important in historical terms due to their frequency. Historical significance as a motivation for attending the event was shown by Delpy Neirotti *et al* (2001) to be a motivation that affected impacted individuals after they had made the decision to travel to and attend a major sporting event. Only 10% of the Delpy Neirotti *et al* (2001) respondents indicated that the 'historical significance of the Olympic Games' motivated them to attend the event.

The motivations of 'relative of a competitor' (78%), 'other reasons' (78%), 'business / networking opportunities' (72%), 'visit family and friends' (65%), 'escape everyday life' (31%), 'educational experiences' (27%) and the 'availability of accommodation' (26%) have all been indicated to be 'unimportant' for major sporting event travel and attendance. This might support the finding that the respondents are primary sports tourists. The 'unimportant' rating for the motivation of 'other reasons' is a noteworthy result as it suggests that the majority of respondents did not feel that they were motivated to travel to and attend a major sporting event for other reasons, illustrating that the literature review for this research was comprehensive in putting together the motivations to be tested within this research. The rating of 'unimportant' with regard to the 'relative of a competitor' may have something to do with the scale of the major sporting events being sampled within this research (Table 2.9 Chapter Two and Table 3.2 Chapter Three). In sampling the nine events of this research, it is noted that these events attract very large number of spectators compared to the amount of competitors; therefore the 'unimportance' of this motivation was expected.

The motivation of using the event as an 'escape from everyday life' for our respondents was another 'unimportant' motivation for travel to and attendance at a major sporting event. This may be due to the nature of the sample as the majority of respondents, as

highlighted in section 4.2.1, are repeat visitors to major sporting events and don't see travelling to and attending major sporting events as anything out of the ordinary. Similarly the lack of importance attached to 'educational experiences' may be due to the habitual attendance that has been exhibited by this sample. In addition, this may have also been a logical finding as the educational programmes of major sporting events are not something that is widely promoted by major sporting events. However, the International Olympic Committee's does strongly promote its educational programme that accompanies each edition of the games. Alongside and in conjunction with the Olympic Games, the educational programme promotes Olympic education through research into Olympism and the ability to teach using the principals of Olympism (IOC 2010) and is promoted alongside the Olympic Games. The visibility of this programme may have been a contributing factor to this being seen as a specific motivation for attending the Olympic Games compared to other events. Delpy Neirotti et al (2001) results reported that only 3.8% of respondents saw the educational experience as a motivation to attend the Olympic Games. In addition to this, respondents have indicated that they travelled to the event with friends (72%, Table 4.2) rather than children or family, hence this would suggest that attendance motivations are not associated with educational aspects, due to the makeup of the travel groups.

The 'availability of accommodation' being an 'unimportant' motivation may be unique to this sample of individuals due to this research having sampled individuals that travel to and attend major sporting events with a commercial company, as they have the opportunity to purchase packaged accommodation, tickets and travel to major sporting events, therefore the commercial company provide accommodation options for the individual.

The examination of a range of motivations over a range of different major sporting events has not been carried out previously. As has been shown in the Literature Review, previous tests of motivations have been carried out for different levels of sporting events in isolation. Consequently from the results above it can be seen that there is a range of different motivational factors that have an effect on an individual's decision to travel to and attend major sporting events. However direct comparison with the existing literature because of this and because previous work has not indicated the level of importance attached to motivations. Delpy Neirotti *et al* (2001) published their raw data percentage responses for the motivations tested in their study, they illustrated that before the decision

to attend a major sporting event has been made the motivations of ‘once in a lifetime’ (29.7%), ‘available housing’ (11.3%) and ‘available tickets’ (8.4%) were the top three motivations. After the decision to attend a major sporting event alternative motivations to attend were tested and ‘athletic competition’ (33.8%), ‘party atmosphere’ (14.1%) and ‘cultural experience’ (10.6%) were the top three motivational factors. Although this is the case when the raw data scores from the Delpy Neirotti *et al* (2001) and Mashiach (1980; 1981) studies are compared as presented in Table 4.14. Delpy Neirotti ***et al’s*** (2001) top three pre-decision motivations correspond with very important or important motivations within our research and the post-decision top two motivations correspond with Mashiach’s grace / beauty and excitement motivations, which correspond with very important motivations from our research.

Table 4.14: Motivation Comparisons

Mashiach 1980; 1981 Men	**Mashiach** 1980; 1981 Women	**Delpy Neirotti, Bossetti & Teed** 2001	**This research**
Grace / beauty /best athletes in the world 34%	Grace / beauty /best athletes in the world 31%	**Before Decision to Attend**	**Very Important**
International excitement 44%	International excitement 45%	Once in a lifetime opportunity 29.7%	Enjoy the competition and the sport 63%
Cheer national team 45%	Cheer national team 43%	Available housing 11.3%	Enjoy the excitement and atmosphere 50%
Compete against the world & beat them 27%	Sporting activities of other cultures 35%	Available tickets 8.4%	Once in a lifetime opportunities 36%
Sporting activities of other cultures 35%	Sporting activities of other cultures 35%	Distance from home 7.5%	Availability of tickets 31%
See people who would not give up 37%	Olympic sprit 40%	Business opportunities 5.3%	**Important**
Prestige of attending 27%	Opportunity to visit Montreal for vacation 27%	Overall expense 5.3%	Good source of entertainment 44%
Closeness of the games to home town 33%		Available time 3.8%	Prestige of the event 38%
Olympic sprit 40%		Relative of participant / official 2.5%	Location of the event 34%
		Other 2.5%	Enjoy travelling 27%
		Visit Atlanta 1.3%	**Moderately Important**
		Security 0.9%	Cultural experience 29%
		No Response 21.6%	Overall cost of the trip 28%
			Tourist attractions other than the event itself 27%
		After Decision to Attend	**Of little Importance**
		Athletic competition 33.8%	Historical significance of the event 25%
		Party atmosphere 14.1%	**Unimportant**
		Cultural Atmosphere 10.6%	Relative of competitor 78%
		Historical Significance 10%	Other reasons 78%
		Business / networking 4.7%	Business / networking opportunities 72%
		Ceremonies 4.4%	Visit family & friends 65%
		Educational 3.8%	Escape everyday life 31%
		Other 2.8%	Educational experience 27%
		See celebrities 0.6%	Availability of accommodation 26%
		No response 15.3%	

In summary, the above discussion synthesises the motivations connected to travelling to and attending major sporting events. These motivations are further analysed within Chapter Five to examine whether they statistically contribute to either the total spend or trip duration decisions associated with travelling to and attending major sporting events. Currently the literature surrounding total spend and trip duration, as illustrated in Chapter Two, largely neglects the contribution that motivations can have on these decisions. Therefore this research looks to advance this understanding of motivations with respect to these two decisions. The dependent variables of total spend and trip duration is now discussed in relation to their descriptive results.

4.3 Dependent Variables

4.3.1 Total Spending and Trip Duration

This section of the chapter reports on the two dependent variables of the conceptual model, total spend and trip duration. The trip duration variable asked respondents to indicate the length of their trip and attendance to a major sporting event in number of days. This included the time taken to travel to and from the event. The total spend question within the online survey related to the money spent on travelling to and attending major sporting events. The total spend amount relates to the total amount of money spent on the trip and attendance, which includes accommodation, travel, tickets, merchandising, food and drink and any other major sporting event associated spend.

In examining major sporting event trip duration the analysis of the data indicates that the most frequent number of days spent at a major sporting event was, 1 day (26%) and more than 6 days (26%) as is illustrated by Table 4.15. Illustrating that the most frequent types of travel to and attendance at major sporting events are either day trips or prolonged stays at the major sporting event location.

Table 4.15: Trip Duration

	Percentage	Number of Events (n)
1 day	26%	142
2 days	13%	72
3 days	9%	49
4 days	10%	53
5 days	9%	47
6 days	8%	43
More than 6 days	26%	141
	100%	547

Events that are travelled to and attended as a day trip are events that occur on a more frequent basis. This is illustrated in Table 4.16 by Test Match Cricket (42%), International Tennis (53%), World Championships (24%) and other significant events (58%). Events that occur on a less frequent basis attract people to travel to and attend the major sporting event for a greater number of days as illustrated by 60% of Olympic Games, 40% of Rugby World Cup and 38% of Commonwealth Games attendees, who have a trip duration of more than 6 days. There is an anomaly with the Football World Cup, attended by 25% of the sample, where respondents reported only had a trip duration of two days.

Table 4.16: Trip Duration by Major Sporting Event

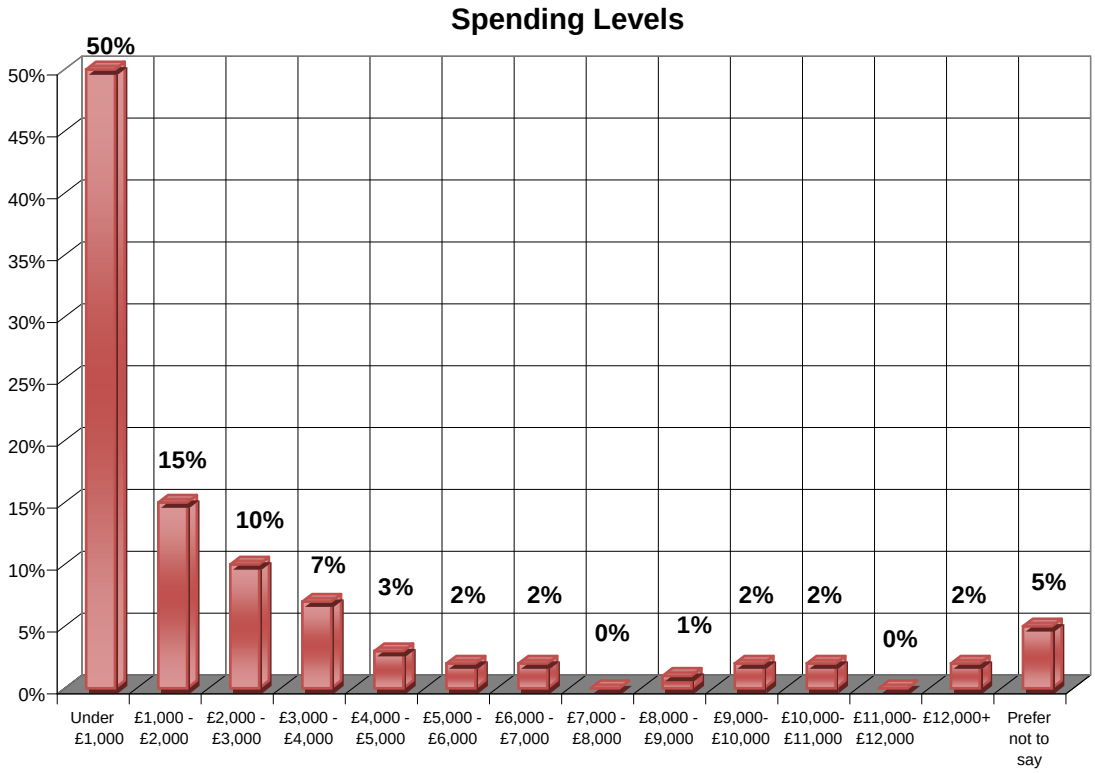
	1 day	2 days	3 days	4 days	5 days	6 days	More than 6 days	Number of Events (n)
Olympic Games	2%	6%	2%	10%	7%	13%	60%	125
Winter Olympics	13%	9%	13%	22%	13%	17%	13%	23
Commonwealth Games	21%	6%	7%	10%	7%	11%	38%	71
Football World Cup	14%	25%	11%	9%	13%	11%	18%	56
Rugby World Cup	7%	7%	20%	20%	0%	7%	40%	15
Test Match Cricket	42%	15%	12%	7%	7%	1%	16%	74
International Tennis	53%	23%	13%	7%	2%	3%	0%	61
World Championship	24%	15%	13%	16%	18%	5%	10%	62
Other Most Recent Event	58%	15%	7%	3%	10%	3%	3%	60
Number of Respondents (n)	142	72	49	53	47	43	141	547

Overall these findings are interesting within this context, but provide an important area for consideration within Chapter Five. Further statistical analysis of this relationship may well be apparent and further comments as to the relationship in action here may be able to be made within the discussion of the testing of the Trip Duration model in Chapter Five.

As previously illustrated in section 2.3 of the Literature Review, spending by major sporting event attendees are of significant interest with regard to the economic impacts of major sports events (Crompton, 2001; Gratton *et al,* 2000; Gratton *et al,* 2006; Preuss, 2005; Preuss *et al,* 2007). This research therefore has the purpose of modelling the relationship between spending and trip duration which could aid future economic analysis calculations. For total spending, from Figure 4.5, it can be seen that 50% (n 166) of all respondents spend up to £1,000 on attending a single major sporting event. With the majority of the sample, 82% (n 270) of respondents spending up to £4,000 on attending a single major sporting event. Those spending more than £10,000 on attending one major

sports event made up only 4% (n 16) of respondents. This illustrates that attending a major sports event requires a large financial outlay by individuals and therefore may form a barrier for those that would wish to attend major sporting events, but do not have the financial means or disposable income to do so. However, as previously indicated in section 4.2.4, the overall cost of the trip is only a 'moderately important' motivation for major sporting event attendance.

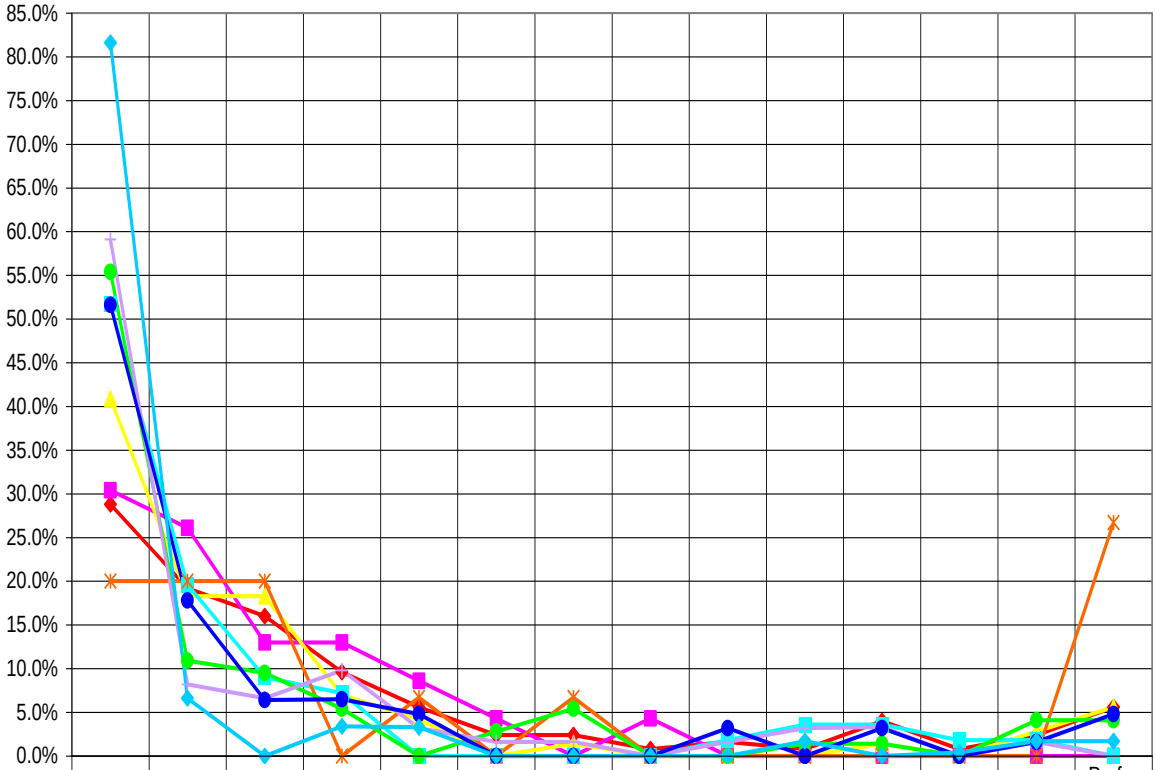
Figure 4.5: Respondents Spending Levels on a Single Event



The results presented here are comparable to the findings of Delpy (1997), where the majority of attendees at 1992 Olympic Games had spent an average of $500 (roughly £300) and Breitbarth (2006) who reported that on average attendees at 2006 Football World Cup had spent NZ$15,000 (roughly £5,200) which included NZ$700 on merchandising. Using these results in conjunction with our research illustrates that Preuss *et al's* (2007) claim that consumption patterns change depending on the event visited appears to be the case. This proposed relationship of spending being affected by the major sporting event attended will be investigated further in the econometric analysis

presented in section 5.2 of Chapter Five. Here however it can be illustrated by Figure 4.6 that a higher proportion of those that travel to and attend events reported to be attended for 1 day, so Test Match Cricket, International Tennis, World Championships and Other Most Recent Events (Table 4.16), spend less than £1,000 travelling to and attending the event. Whereas it can be seen that fewer individuals that travel to and attend major sporting events for more than six days, Olympic Games, Commonwealth Games and the Rugby World Cup (Table 4.16) will spend less than £1,000, 28.8%, 40% and 20% respectfully. Overall from Figure 4.6 the range of spending by individuals at each of the major sporting events can be seen.

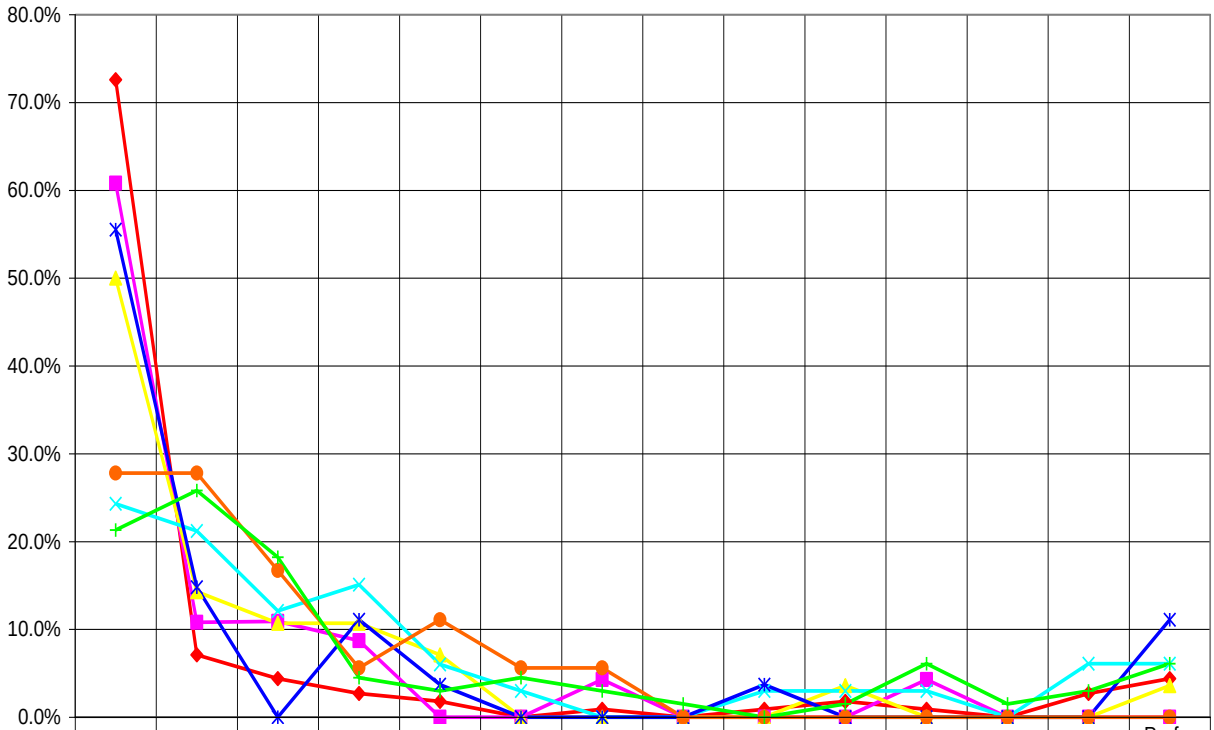
Figure 4.6: Spending by Major Sporting Event



	Under £1000	£1,000 - £2,000	£2,000- £3,000	£3,000- £4,000	£4,000- £5,000	£5,000- £6,000	£6,000- £7,000	£7,000- £8,000	£8,000- £9,000	£9,000- £10,000	£10,000- £11,000	£11,000- £12,000	£12,000 +	Prefer not to say
Olympic Games	28.8%	19.2%	16.0%	9.6%	5.6%	2.4%	2.4%	0.8%	1.6%	0.8%	4.0%	0.8%	2.4%	5.6%
Winter Olympics	30.4%	26.1%	13.0%	13.0%	8.6%	4.3%	0.0%	4.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Commonwealth Games	40.9%	18.3%	18.3%	7.0%	4.2%	0.0%	1.4%	0.0%	0.0%	0.0%	1.4%	0.0%	2.8%	5.6%
Football World Cup	51.7%	19.6%	9.0%	7.2%	0.0%	0.0%	0.0%	0.0%	1.8%	3.6%	3.6%	1.8%	1.8%	0.0%
Rugby World Cup	20.0%	20.0%	20.0%	0.0%	6.7%	0.0%	6.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	26.7%
Test Match Cricket	55.4%	10.9%	9.5%	5.4%	0.0%	2.8%	5.4%	0.0%	0.0%	1.4%	1.4%	0.0%	4.1%	4.1%
International Tennis	59.1%	8.2%	6.6%	9.8%	3.2%	1.6%	1.6%	0.0%	1.6%	3.2%	3.3%	0.0%	1.6%	0.0%
World Championship	51.6%	17.8%	6.4%	6.5%	4.8%	0.0%	0.0%	0.0%	3.2%	0.0%	3.2%	0.0%	1.6%	4.8%
Other Recent Event	81.6%	6.6%	0.0%	3.4%	3.3%	0.0%	0.0%	0.0%	0.0%	1.7%	0.0%	0.4%	1.7%	1.7%

Major sporting events, as defined within the UK Sport typology, that are held in the same place year on year will have a greater year on year impact on spending within the host economy as opposed to one off events. Therefore different spending for different types of major sporting events will potentially impact the host community in different ways, should that expenditure be transferred to the host economy. In linking this with the trip duration, the most frequent trip duration to a major sporting event has been shown to be either 1 day or more than 6 days, this may well be assumed to impact spending levels of those that travel to and attend major sporting events. Empirically here in Figure 4.7 it can be seen that 72.6% of individuals that travel to and attend a major sporting event for one day will spend under £1000, compared to 21.3% of those individuals that travel to and attend a major sporting event for more than six days and spend under £1000. In addition to this it can be seen that overall spending patterns change as the trip duration changes, although this seems an obvious and logical relationship and may well have been expected to be the case. However it must be noted that this suggested relationship is not necessarily a linear relationship. As the spending connected to a trip duration of four days is not equivalent to the spending of four, one day trips. This is an important issue to note, Downward and Lumsdon (2003) illustrate that it is the often the case that some surveys that focus on spending, 'multiply up' spend figures by the number of individuals in attendance or by the trip duration. Downward and Lumsdon (2000; 2003) argue that this is not an appropriate way to model spending. Therefore, Downward and Lumsdon (2003) argue that a more focused approach to total spending is needed and it is this relationship that is further analysed in section 5.2 and 5.3 of Chapter Five through econometric modelling. The econometric analysis that is entered into in section 5.2 and 5.3 of Chapter Five tests the relationships within the conceptual model. From this descriptive result it is suggested that the relationship that is theorised by the conceptual model between total spend and trip duration does occur. However, this descriptive analysis says nothing about the statistical significance or the importance of this relationship. Therefore this indicates the importance of employing an econometric analysis to develop the understanding of such significant relationships.

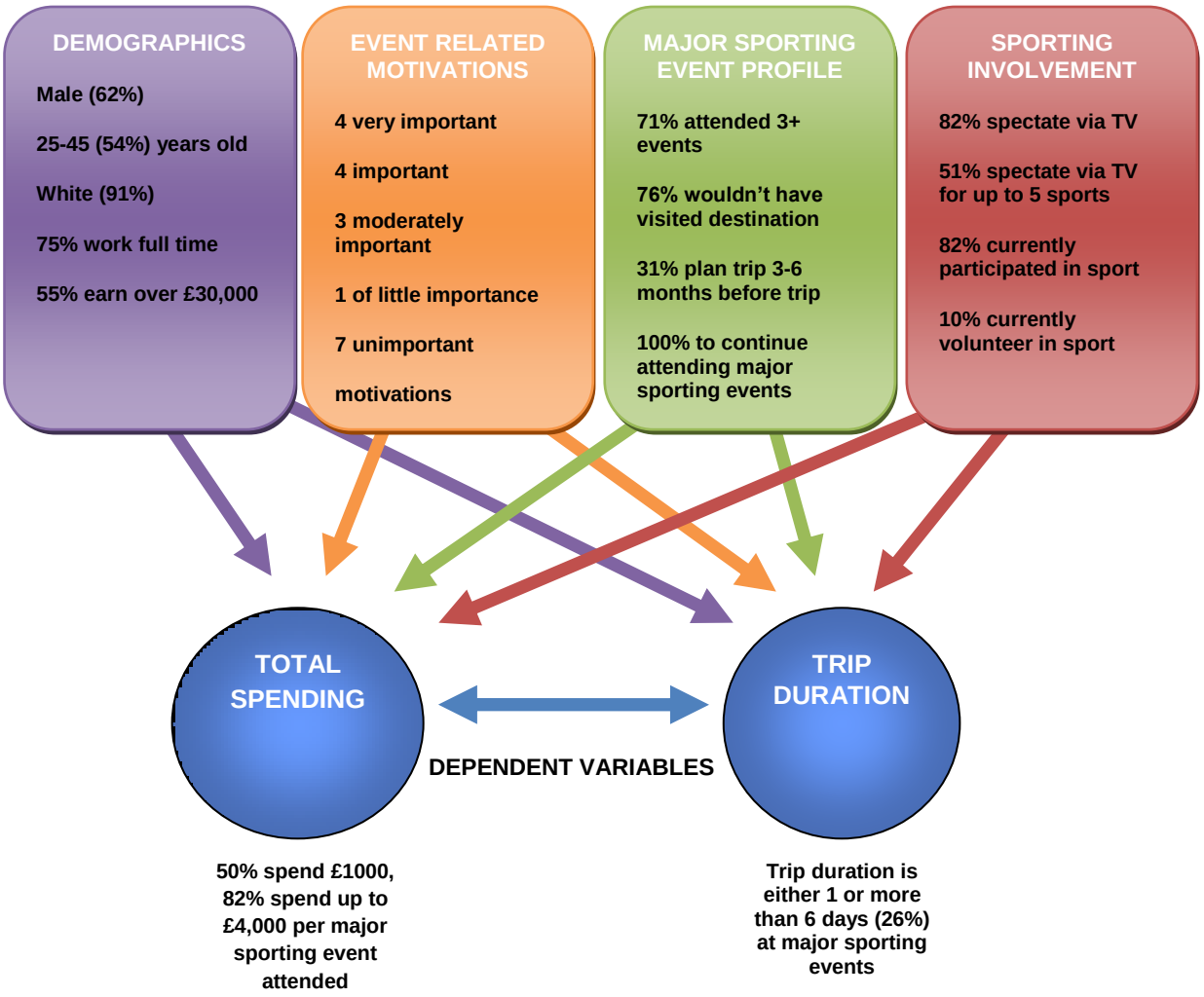
Figure 4.7: Spending by Trip Duration



	Under £1000	£1,000 - £2,000	£2,000- £3,000	£3,000- £4,000	£4,000- £5,000	£5,000- £6,000	£6,000- £7,000	£7,000- £8,000	£8,000- £9,000	£9,000- £10,000	£10,000- £11,000	£11,000- £12,000	£12,000 +	Prefer not to say
I Day	72.6%	7.1%	4.4%	2.7%	1.8%	0.0%	0.9%	0.0%	0.9%	1.8%	0.9%	0.0%	2.7%	4.4%
2 Days	60.8%	10.8%	10.9%	8.7%	0.0%	0.0%	4.3%	0.0%	0.0%	0.0%	4.3%	0.0%	0.0%	0.0%
3 Days	50.0%	14.3%	10.7%	10.7%	7.1%	0.0%	0.0%	0.0%	0.0%	3.6%	0.0%	0.0%	0.0%	3.6%
4 Days	24.3%	21.2%	12.1%	15.1%	6.0%	3.0%	0.0%	0.0%	3.0%	3.0%	3.0%	0.0%	6.1%	6.1%
5 Days	55.5%	14.8%	0.0%	11.1%	3.7%	0.0%	0.0%	0.0%	3.7%	0.0%	0.0%	0.0%	0.0%	11.1%
6 Days	27.8%	27.8%	16.7%	5.6%	11.1%	5.6%	5.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
More than 6 days	21.3%	25.8%	18.2%	4.5%	3.0%	4.5%	3.0%	1.5%	0.0%	1.5%	6.1%	1.5%	3.0%	6.1%

In summary, this chapter has represented the descriptive data in terms of the conceptual model that was proposed in Figure 2.13, Chapter Two. The main headline findings of the descriptive results can be seen in Figure 4.8. The model proposes that total spend and trip duration decisions comprise of an interconnected set of characteristics rather than discrete individual items. The results presented within this chapter support the linkage and identification to Weed and Bull's (2004) Sport Tourism Participation Model, Figure 2.3 Chapter Two, whereby the respondents for this research, fall into the regular committed and driven end of the Sports Tourism Participation model, but also occupy the intenders segment. This is due to their repeat major sporting event attendance behaviour and their intent to continue attending major sporting events.

Figure 4.8: Descriptive Findings of the Conceptual Model



The results presented here can be linked back to the tourism motivational theories presented in the Literature Review as the Travel Career Tapestry Theory discussed appears to match the characteristics of the respondent profile outlined in this analysis. The Travel Career Tapestry Theory allows for the acknowledgements of past event travel as well as future intentions for repeat travel. This career theory approach to travelling to and attending major sporting events views the holistic travel and attendance characteristics alongside the possibility for the individual to affect change over time in all elements of their profile.

4.4 Conclusion

This chapter has illustrated and empirically described the variables of the conceptual model. It has been illustrated that, those that travel to and attend major sporting events have distinct characteristics. In agreement with, Nogawa *et al* (1996) it has been illustrated that those that travel to and attend major sporting events cannot be treated and catered for by host communities as typical holiday tourists. Individuals repeatedly attend major sporting events and a range of motivations appear to have different importance levels for major sporting event attendance. This chapter has provided a discussion that related to the importance levels of different motivations, however the effect of these motivations on the total spend and trip duration decisions is presently unknown. The descriptive results have also suggested that there is a relationship between spending and trip duration, but the extent and statistical significance of this relationship is currently undetermined. It is for this reason that the conceptual model has to undergo econometric modelling to test relationships such as these. Therefore the findings of this research are now developed as the conceptual model undergoes econometric modelling in Chapter Five, to estimate and formally model the relationships between the dependent and independent variables of this research.

5 Chapter Five: Statistical Analysis

5.1 Introduction

This chapter presents the econometric results of this research and particularly focuses on answering research question three and four and research objectives five and six. The research questions have the focus of what factors affect total spending and whether there is any relationship between motivations, trip duration and total spending (expenditure). The research objectives that are to be addressed by this chapter are concerned with providing a micro level evaluation of total spending and trip duration for major sporting events and providing an extension of the analysis beyond that of a basic quantitative descriptive account to that of a more sophisticated statistical analysis.

This chapter econometrically models the data collected from individuals that had attended nine different forms of major sporting events, which extends the analysis presented in this thesis to one beyond that of a basic quantitative descriptive account and builds upon Chapter Four. The analysis undertaken in this chapter is guided by the conceptual model that was proposed from the literature and economic theory in Chapter Two and follows Hoover (2005). This chapter applies the statistical techniques discussed in section 3.4 and 3.5 of Chapter Three to the data collected and is structured in the following way. Section 5.2 of this chapter illustrates how the statistical diagnostics that are discussed in section 3.4 of Chapter Three affected this research. Section 5.3 illustrates how total spend and trip duration were estimated. Interval regression was utilised to estimate total whilst Tobit regression was used to estimate trip duration, with both regressions using the Hendry / LSE general-to-specific estimation strategy. The decisions for using Interval and Tobit regression analysis have been detailed in section 3.5 of Chapter Three. Section 5.4 of this chapter takes the regression results for total spend and trip duration individually and graphically presents the determinants of each dependent variable. Section 5.5 then brings together the findings from the individual total spend and trip duration to present the econometric model of this research. The chapter concludes with an overview as to the contribution that this research has made to the field of study.

5.2 Statistical Diagnostics

This section illustrates how the statistical diagnostics were dealt with when undertaking the regression analyses for total spend and trip duration. As already discussed in section 3.5.1 the choice of STATA v10 as the statistical software used for this research was important as it allowed for the issues of multicollinearity, heteroscedastic and simultaneity to be more easily evaluated. In the case of multicollinearity when running the regressions to estimate total spend and trip duration STATA v10 has the capacity to indicate that there is a problem with one of the variables and in order to estimate the model would drop the variable to complete the estimation. In this research, this situation was not experienced when estimating total spend and trip duration. However, to further check for multicollinearity the classic indicators highlighted in Section 3.4.8 of Chapter Three were looked for in the results. The classic multicollinearity symptom of high R^2 values and few significant t ratios were checked and were not found suggest high levels of multicollinearity. Therefore the final regression models for both total spend and trip duration were also checked for multicollinearity by re-introducing variables (eliminated insignificant variables) into the final model. This was done to check the effect this had on the significance and the sign of the significant variables within the total spend and trip duration models. This checking of the sensitivity of the variables parameters did not highlight any serious degree of multicollinearity within the total spend or the trip duration model as the significant variables in each of the models retained their significance and their sign (+/-). Corrective measures for multicollinearity were therefore unnecessary.

The data and the model estimations were also checked for the presence of heteroscedasticity. As discussed within section 3.4.9 of Chapter Three, heteroscedasticity has to be controlled for when using cross sectional data. Therefore in each of the regressions undertaken in this research a robust clustering element as discussed in section 3.5.3 of Chapter Three was employed to account for this. Simultaneity was also measured within each of the regression models. Section 3.5.3 of Chapter Three discusses the estimation strategy that was employed to evaluate the theorised feedback / bi-lateral relationship between the two dependent variables total spend and trip duration. Each of the dependent variables were included in the regression of the other dependent variable, as can be seen in equations 5.1 and 5.2 in section 5.3 of this chapter. Regressing each of the dependent variables against each other illustrated that they were insignificant variables and therefore not directly linked to determining each other. Therefore as there was no feedback / bi-lateral relationship between the two

dependent variables simultaneity does not exist and no corrective measured had to be employed.

The remainder of this chapter now estimates and then discusses the total spend and trip duration models before bringing the chapter together to present the econometric model that is the product of this research.

5.3 Estimating the Econometric Model

In estimating the model for total spending and trip duration decisions the theory presented by the conceptual model, Figure 2.15 and Equations 3.15 (total spend) and 3.16 (trip duration) are tested. In order to test the econometric model for the presented theory these equations have to be re-written to specify the econometric models, this is achieved by re-writing Equations 3.12 and 3.13 to give Equations 5.1 and 5.2.

$$Y_{TSi} = \beta_1 + \beta_2 X_{2i} + \beta_3 X_{3i} + \beta_4 X_{4i} + \beta_5 X_{5i} + \beta_2 Y_{TLi} + \upsilon_{TSi}$$

Equation 5.1

$$Y_{TLi} = \beta_1 + \beta_2 X_{2i} + \beta_3 X_{3i} + \beta_4 X_{4i} + \beta_5 X_{5i} + \beta_6 Y_{TSi} + \upsilon_{TLi}$$

Equation 5.2

In re-writing these equations into Equation 5.1 and 5.2, there are two changes to from Equation 3.12 and 3.13, the subscript "i" is now attached to each of the variables to indicate the index of observation to represent a particular observation or cases of values for each economic variable (Downward *et al,* 2009a). The terms υ_{TSi} and υ_{TLi} have also been added to the equations to signify the stochastic or random error terms that acts to make both Y_{TSi} and Y_{TLi} random variables. These changes enable the behaviour of Y to be systematically indicated by the independent variables and the random element (Downward *et al,* 2009a).

5.3.1 Interval Regression – Total Spending

As discussed in Chapter 3, section 3.5 the relationship between total spending and event related motivations, sporting profile, demographics and major sporting event profile as identified by the conceptual model was estimated by using interval regression. This was because the dependent variable does not record discrete values, but rather a range and is therefore represented by the dependent variables Total Spend 1 and Total Spend 2 (lower and upper interval ranges). Following Hendry's / LSE general-to-specific procedure for estimation as previously discussed in Chapter Three section 3.5.3, all independent variables and the other dependent variable from the conceptual model, trip duration, were used as regressors for the dependent variables total spend 1 and total spend 2.

The regression output tables that have been produced for the regressions within this chapter provide us with four columns of information. The first column indicates all the regressors contained within the regression with the second column providing the estimated coefficient (parameters) values of each of these regressed variables. This coefficient indicates the value of for example β_2 which is referred to as the partial slope coefficient or parameter and represents the relationship between Y and X_2. Specifically this depicts the slope that indicates how Y changes following a unit change in the value of X_2. If the sign of the coefficient is positive then this indicates that following a unit change of X_2 there will be a change in the value of Y by the value of β_2, *ceteris paribus*, with the opposite occurring when the sign of the value is negative. The value of β_1, the constant, or intercept of the equation, is also represented within this column. This value indicates the value of Y when each of the independent variables is equal to zero, as this is the point where the slope crosses the Y axis. Column 3 presents the estimated value of the coefficient in terms of the standard normal distribution which can be used to test the null hypothesis that the estimated coefficient is equal to zero or not, as detailed in Chapter Three. Column four gives the significance level of the decision to reject the null hypothesis based on the estimated z-ratio. Values in this column are indicated by either * to suggest significance at the 0.05 level or ** to suggest significant at the 0.01 level. The table also contains a test for the overall significance of the equation and this is indicated by the likelihood ratio (LR chi2) and the associated chi squared test (Prob>chi2) at the bottom of the table. This test indicates whether the inclusion of variables other than the constant adds to the explanatory power of the model. A significant chi squared test as the

one illustrated in Table 5.1 indicates that that all of the parameters other than the constant are zero and the null hypothesis can be rejected.

In running the first interval regression to estimate total spend and applying the necessary clustering needed because of the repeated observations within the model, as discussed in section 3.5.3 of Chapter Three, the model failed to converge and produce a usable output. Consequently, a basic form of estimation without the robust clustering element had to be employed for this initial estimation. This enabled the model to converge and produced the output shown in Table 5.1.

Table 5.1: Interval Regression Total Spending 1

	Interval estimated coefficient	z-ratio	P>z
triplength	112.37	1.67	0.10
numberofma~s	93.45	2.44	0.02*
livespectate	-118.01	-1.12	0.26
tvspectate	-21.79	-0.47	0.64
pnowspectate	-59.77	-1.17	0.24
pusedtospe~e	-92.10	-1.50	0.13
cvolspectate	-198.32	-0.96	0.34
uvolspectate	-166.78	-0.74	0.46
family	-3.87	-0.08	0.94
totalincome	0.04	5.20	0.00**
sog	795.72	1.53	0.13
fwc	963.48	1.85	0.07
wo	1019.64	1.42	0.16
cwg	694.64	1.36	0.17
rwc	441.27	0.50	0.62
tmc	263.59	0.53	0.59
wcas	364.65	0.73	0.46
it	817.63	1.65	0.10
lifetimeop	9.16	0.08	0.94
cultural	-116.17	-0.74	0.46
prestige	-191.95	-1.47	0.14
location	70.01	0.62	0.54
escape	23.93	0.22	0.83
travel	-95.51	-0.74	0.46
excite	-316.66	-1.73	0.08
enjoy	326.36	1.50	0.13
entertain	202.58	1.25	0.21
relative	8.37	0.07	0.94
friendfam	-194.16	-1.90	0.06
tickets	259.36	2.22	0.03*
accom	45.85	0.38	0.71
overallcost	-45.59	-0.36	0.72
business	-49.90	-0.39	0.70
historical	-307.02	-2.25	0.02*
education	228.47	1.81	0.07

sex	737.90	2.58	0.01*
white	-482.17	-0.88	0.38
aged	-3.97	-0.31	0.76
workft	-166.26	-0.07	0.95
workpt	657.15	0.26	0.80
retired	3057.38	1.20	0.23
student	1047.42	0.42	0.68
homemaker	-2091.81	-0.76	0.45
otherworks~s	223.36	0.07	0.94
othertourism	364.20	2.79	0.01**
_cons	-1499.22	-0.57	0.57
/lnsigma	7.75	222.88	0.00
sigma	2310.91		
LR chi2(44)	174.83		
Prob > chi2	0.00**		

* $P \leq 0.05$; ** $P \leq 0.01$ (reported to 2 d.p.)

Sample Size Observation Summary: 0 left-censored observations, 0 uncensored observations, 8 right-censored observations, 425 interval observations.

Overall this initial estimation of the model shows that as a whole the model is statistically significant, as indicated by the Prob>chi2 value at the bottom of the table. The model is seen to have produced six significant independent variables, numberofma~s (numberofmajorsportinevents), totalincome, tickets, historical, sex and othertourism. Under the Hendry's / LSE general-to-specific estimation strategy that has been employed by this research these six variables are taken to the next estimation iteration, with the insignificant independent variables being discarded from the model altogether. It is here noted that Table 5.1 reports that coefficient for the dependent variable triplength to be 112.37, with a significance level of 0.10. This therefore indicates that within this total spend model triplength is not a significant variable and therefore does not directly impact total spend decisions connected with major sporting event attendance. Importantly, this suggests that the potential problem of simultaneity identified in Chapter Three does not seem to exist and as such there is no simultaneity / feedback relationship between triplength and total spend. Triplength is therefore discarded from the model with the other insignificant variables whilst the six significant variables are taken to the next iteration of estimation, which is presented in Table 5.2.

Table 5.2: Interval Regression Total Spending 2

	Interval estimated coefficient	z-ratio	P>z
numberofma~s	83.36	1.53	0.13
totalincome	0.03	3.09	0.00**
tickets	318.52	2.66	0.01**
historical	-280.91	-2.24	0.03*
sex	960.61	3.35	0.00**
othertourism	406.46	3.42	0.00**
_cons	-1573.37	-2.29	0.02
/lnsigma	7.86	103.58	0.00
sigma	2602.46		
Wald chi2(12)	37.47		
Prob > chi2	0.00**		

$* P \leq 0.05;$ $** P \leq 0.01$ (reported to 2 d.p.)

Sample Size Observation Summary: 0 left-censored observations, 0 uncensored observations, 9 right-censored observations, 438 interval observations

For this stage of estimation the robust clustering was re-introduced to the regression analysis and the model converged and produced the output as shown in Table 5.2. It can be seen that the model as a whole is statistically significant as indicated by the significance level of the regressions chi squared test. However, it can be seen that five of the six independent variables are significant at the specified levels. These five independent variables, totalincome, tickets, historical, sex and othertourism, will be taken to the next iteration of estimation. The only insignificant variable, numberofma~s (numberofmajorsportinevents), was discarded from the model all together under Hendry's / LSE general-to-specific estimation strategy. The third estimation with the five significant variables is shown in Table 5.3.

Table 5.3: Interval Regression Total Spending 3

	Interval estimated coefficient	z-ratio	P>z
totalincome	0.03	3.32	0.00**
tickets	314.47	2.67	0.01**
historical	-300.06	-2.28	0.02**
sex	1040.13	3.60	0.00**
othertourism	429.86	3.57	0.00**
_cons	-1263.52	-1.94	0.05*
/lnsigma	7.87	101.83	0.00
sigma	2616.90		
Wald chi2(12)	36.25		
Prob > chi2	0.00**		

$* P \leq 0.05;$ $** P \leq 0.01$ (reported to 2 d.p.)

Sample Size Observation Summary: 0 left-censored observations, 0 uncensored observations, 9 right-censored observations, 438 interval observations.

From the output of this estimation it can be seen that as a whole the model is significant as indicated by the chi squared test, and that all the five variables tested within the model are significant at the specified levels. Therefore by utilising the general-to-specific model estimation method it is these five variables that are seen to make up the total spend model. Interval regression does not compute an R^2 or a pseudo-R^2, however, a rough measure of R^2 can be computed in STATA from this final interval regression output by computing the R^2 between the predicted and observed values as shown in Table 5.4.

Table 5.4: Computing R^2 in Interval Regression

	spend1	spend2	p
spend1	1		
spend2	0.9994	1	
p	0.3461	0.3474	1

. display 0.3461^2
0.119785

. display 0.3474^2
0.120687

By finding the square root of the p values of spend1 and spend2, as shown above, the R^2 can then through STATA be calculated. The values of 0.119785 and 0.120687 give a calculated value of approximately 12% for R^2 for the interval regression total spend

model. This suggests that a fairly low level of variance in spending is accounted for by the independent variables, however this is still a valuable model as it establishes which variables act to have an impact on an individual's total spending at a major sporting event.

5.3.2 Tobit Regression – Trip Duration

The data presented in tables 5.5, 5.6, 5.7 and 5.8 are presented in the same way as those of the interval regression results, with two notable exceptions. The test that is applied and reported on in column three of the table under Tobit regression utilises the t distribution and therefore reports the t test value, which similarly to the z-ratio, is an estimate of the coefficient in terms of standard t-distribution and which can be used to test the null hypothesis that the estimated coefficient is equal to zero. The fourth column indicates the significance level with which the null hypothesis can be rejected. Also Tobit regression tables instead of reporting the chi squared value of the likelihood ratio, reports an F test as to the probability that at least one of the slope coefficients are not equal to zero. The Prob>F value indicates the significance level of this.

As discussed in Chapter Three, as trip duration can be seen to be a censored variable with a lower limit of zero a Tobit regression analysis is used. Hendry's / LSE general-to-specific approach also has been employed with all the independent variables being included in the initial model and used as regressors for the dependent variable trip duration. The other dependent variable from the conceptual model, Total spend has also been included in this initial estimation to test for the simultaneity / feedback relationship between total spend and trip duration. The results of the initial estimation can be seen in Table 5.5, where the output for this Tobit regression reports on the Tobit estimated coefficients, t-ratio and the significance levels of the variables. Although this initial estimation was potentially misspecified, as STATA reported a missing F test (44, 388) for the model, however the model did converge and it can be seen that the variables of numberofma~s (numberofmajorsportinevents), sog, fwc, wo, cwg, rwc, travel, excite, enjoy, tickets, accom (accommodation), aged, workft and retired are significant at the specified levels.

Table 5.5: Tobit Regression Trip Duration 1

	Tobit estimated coefficient	t-ratio	P>t
triplength	0.00	1.47	0.14
numberofma~s	0.17	3.02	0.00**
livespectate	0.19	1.00	0.32
tvspectate	0.00	0.00	1.00
pnowspectate	-0.05	-0.56	0.58
pusedtospe~e	-0.13	-1.48	0.14
cvolspectate	0.02	0.07	0.94
uvolspectate	-0.62	-1.68	0.09
family	-0.09	-1.20	0.23
totalincome	0.00	-1.47	0.14
sog	4.89	6.21	0.00**
fwc	2.32	3.08	0.00**
wo	1.99	2.21	0.03*
cwg	4.29	5.31	0.00**
rwc	3.63	3.27	0.00**
tmc	1.09	1.41	0.16
wcas	1.33	1.77	0.08
it	-0.22	-0.29	0.77
lifetimeop	-0.08	-0.45	0.66
cultural	0.13	0.49	0.63
prestige	0.00	0.01	1.00
location	-0.17	-1.05	0.30
escape	0.06	0.32	0.75
travel	0.70	3.83	0.00**
excite	-0.81	-3.25	0.00**
enjoy	0.92	2.72	0.01**
entertain	-0.21	-0.89	0.38
relative	0.04	0.24	0.81
friendfam	-0.23	-1.45	0.15
tickets	-0.48	-2.63	0.01**
accom	0.70	3.89	0.00**
overallcost	-0.09	-0.44	0.66
business	0.33	1.62	0.11
historical	-0.15	-0.64	0.52
education	0.22	1.21	0.23
sex	0.31	0.71	0.48
white	-1.10	-1.23	0.22
aged	0.07	3.90	0.00**
workft	-2.83	-1.97	0.05*
workpt	-2.94	-1.87	0.06
retired	-4.38	-2.74	0.01**
student	-1.11	-0.75	0.46
homemaker	-3.39	-1.50	0.13
otherworks~s	1.28	0.68	0.50
othertourism	0.11	0.63	0.53
_cons	0.00	0.00	1.00
/sigma	2.95		
F (44, 388)	.		
Prob>F	.		
Pseudo R^2	0.19		

* $P \leq 0.05$; ** $P \leq 0.01$ (reported to 2 d.p.)

Observational summary: 114 left-censored observations at triplength<=1, 203 uncensored observations, 116 right-censored observations at triplength>=7

The initial estimation of this model shows that there are thirteen independent variables that are statistically significant and under the general-to-specific estimation strategy these thirteen variables will be taken to the next stage of estimation. However, these fourteen significant variables do not include the total spend variable. This also suggests a lack of simultaneity between the conceptual models dependent variables, trip duration and total spend. Consequently, the dependent variable total spend can be discarded from this model along with the other statistically insignificant independent variables. The next stage of estimation is reported in Table 5.6.

Table 5.6: Tobit Regression Trip Duration 2

	Tobit estimated coefficient	**t-ratio**	**P>t**
numberofma~s	0.17	3.74	0.00**
sog	4.65	9.96	0.00**
fwc	1.92	4.24	0.00**
wo	1.90	3.06	0.00**
cwg	3.73	7.03	0.00**
rwc	3.38	3.67	0.00**
travel	0.77	5.25	0.00**
excite	-0.74	-3.11	0.00**
enjoy	0.65	2.52	0.01**
tickets	-0.57	-3.72	0.00**
accom	0.60	4.47	0.00**
aged	0.05	3.15	0.00**
workft	-0.49	-1.05	0.29
retired	-1.39	-1.92	0.01**
_cons	-2.63	-2.10	0.04
/sigma	3.15		
F (14, 526)	17.05		
Prob>F	0.00**		
Pseudo R2	0.15		

* $P \leq 0.05$; ** $P \leq 0.01$ (reported to 2 d.p.)

Observational summary: 139 left-censored observations at triplength<=1, 261 uncensored observations, 140 right-censored observations at triplength>=7

The second Tobit estimation, Table 5.6, indicates that thirteen of the fourteen variables are significant at the specified levels. The remaining variable, workft was statistically insignificant in the model and was therefore discarded from the model. Following

Hendry's / LSE general-to-specific approach the thirteen significant variables of numberofma~s (numberofmajorsportinevents), sog, fwc, wo, cwg, rwc, travel, excite, enjoy, tickets, accom (accommodation), aged and retired were taken to a further round of estimation and the output is shown in Table 5.7.

Table 5.7: Tobit Regression Trip Duration 3

	Tobit estimated coefficient	t-ratio	P>t
numberofma~s	0.17	3.65	0.00**
sog	4.65	9.97	0.00**
fwc	1.89	4.18	0.00**
wo	1.85	2.96	0.00**
cwg	3.70	6.93	0.00**
rwc	3.35	3.61	0.00**
travel	0.76	5.26	0.00**
excite	-0.74	-3.08	0.00**
enjoy	0.65	2.44	0.01**
tickets	-0.57	-3.75	0.00**
accom	0.61	4.53	0.00**
aged	0.05	3.05	0.00**
retired	-0.96	-1.59	0.11
_cons	-2.90	-2.35	0.19
/sigma	3.16		
F (13, 527)	18.18		
Prob>F	0.00**		
Pseudo R2	0.15		

* $P \leq 0.05$; ** $P \leq 0.01$ (reported to 2 d.p.)

Observational summary: 139 left-censored observations at triplength<=1, 261 uncensored observations, 140 right-censored observations at triplength>=7

From this third Tobit estimation it can be seen that all but one variable, retired were significant at the 0.01 level. As this variable was statistically insignificant it was therefore discarded from the model. Following Hendry's / LSE general-to-specific approach the twelve significant variables of numberofma~s (numberofmajorsportinevents), sog, fwc, wo, cwg, rwc, travel, excite, enjoy, tickets, accom (accommodation) and aged were taken to a further round of estimation and the output is shown in Table 5.8.

Table 5.8: Tobit Regression Trip Duration 4

	Tobit estimated coefficient	t-ratio	P>t
numberofma~s	0.16	3.42	0.00**
sog	4.66	10.01	0.00**
fwc	1.94	4.26	0.00**
wo	1.90	3.07	0.00**
cwg	3.62	6.84	0.00**
rwc	3.38	3.59	0.00**
travel	0.76	5.23	0.00**
excite	-0.74	-3.09	0.00**
enjoy	0.66	2.48	0.01**
tickets	-0.55	-3.65	0.00**
accom	0.60	4.48	0.00**
aged	0.04	2.98	0.00**
_cons	-2.71	-2.25	0.03
/sigma	3.16		
F (12, 531)	19.67		
Prob>F	0.00**		
Pseudo R2	0.15		

From this fourth Tobit estimation it can be seen that all the variables in the model are significant at the 0.01 level. Therefore a twelve variable trip duration model is produced, that suggests that trip duration is related to the number of major events attended, which major quadrennial event attended, as well as a combination of event related motivations and age. The pseudo R^2 value for this model shows that the model can be seen to explain 15% of the variance of the model and again this is a fairly low level of variance explanation. However, it is advised that as Tobit regressions are not estimated using OLS interpreting, this statistic in the context of its OLS meaning (proportion of variance of the response variable explained by the predictors) should only be done with great caution (STATA 2010).

5.4 Econometric Modelling

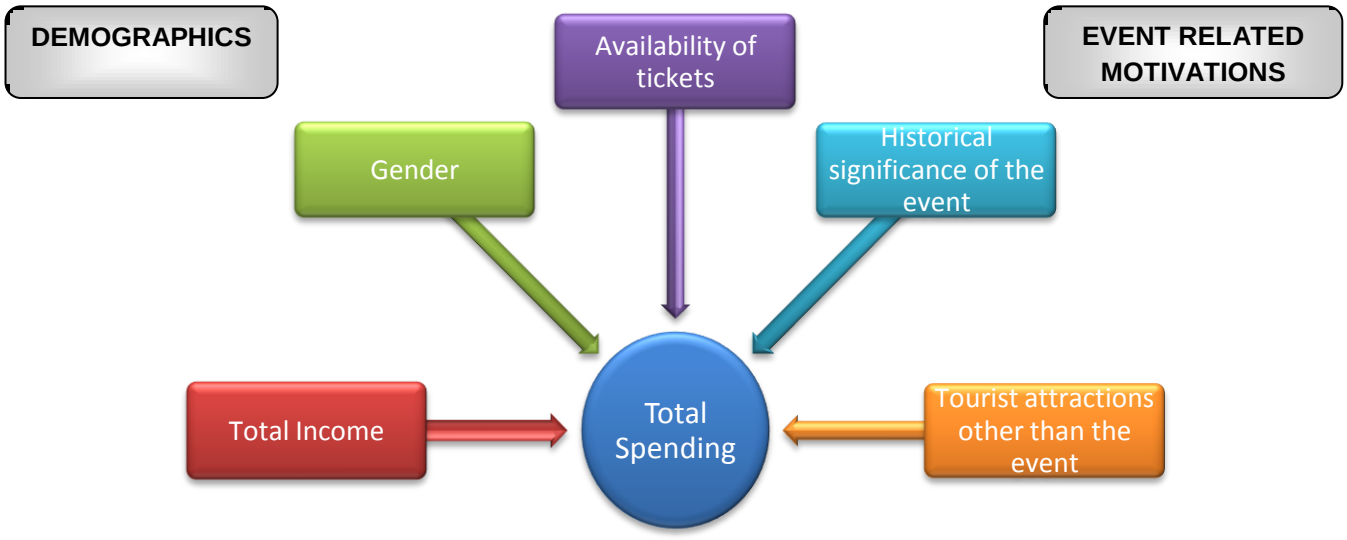
In order to fully understand each of the models estimated as a result of this series of regressions, this section now discusses each of the resultant models in more detail. Attention is given to the sign and magnitude of the coefficients that have been estimated. Where possible both the discussions are related back to the literature and the descriptive statistical analysis.

5.4.1 Total Spend Econometric Model

The Total Spending econometric model derived from Table 5.3 is represented in Equation 5.1 and illustrated by Figure 5.1. There are five variables involved in determining the total spending of sports spectators that travel to and attend major sporting events. This model shows that the variables involved in determining total spend have demographic and event motivational characteristics.

As expected by economic theory, as discussed in Chapter Two, section 2.4, the coefficient for the variable total income has a positive sign indicating that a rise in income, will act to rise spending by a factor of 0.03. This means that for every £1 rise in income this would lead to a £0.03 increase in spending. Economically the significance of this is low, but this finding is statistically significant within this model. Gender is also a significant variable (z-ratio=3.60, p=0.00) in this model and impacts the total spend at major sporting events. The results suggest that being male raises major sporting event expenditure by £1040.13. The availability of tickets (z-ratio=2.67, p=0.01) is also significant and has a positive effect on the model and naturally this suggests that spending at the major sporting event is linked to the access to the event. Therefore a one unit increase in the availability of tickets, on the scale used, will cause an increase in the total spend by £314.47.

Figure 5.1: Total Spending Econometric Model



$$\hat{Y}_{TS} = \beta_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 - \beta_5 X_5 + \beta_6 X_6$$

$$\hat{Y}_{TS} = 1263.52 + 0.03X_2 + 1040.13X_3 + 314.47X_4 - 300.06X_5 + 429.86X_6$$

Equation 5.3

Where, $\hat{Y}_{TS}$ = Total Spend, X_2 = Total Income, X_3= Gender, X_4= Availability of Tickets, X_5= Historical significance of the event, X_6 = Tourist attractions other than the event.

The motivation of historical significance (z-ratio=-2.28, p=0.02) is shown to be negatively associated with total spending. This negative relationship implies that visits due to the historical significance of the event are less likely to generate expenditure. This relationship is unexpected, however in revisiting the Tables 4.12 and 4.13 in Chapter Four it can be seen that 25% of respondents indicated that the motivation of historical significance to be of little importance to them. Therefore this model suggests that as historical significance motivations increase by one unit on the scale, total spending will fall by £300.06.

The motivation of other tourist attractions other than the event itself (z-ratio=3.57, p=0.00) is shown to have a significant positive impact on total spending. This suggests synergies are possible when other tourist attritions are close to or at the site of, a major sporting event. This obviously has economic impact implications; as the importance of tourist attractions increases by one point on the motivational scale, it is suggested that total spending will increase by £429.86.

In evaluating this total spending model for individuals that travel to and attend major sporting events it can be seen that there are five elements that contribute to the determination of total spending. Four of those elements will act to increase total spending with one decreasing total spending. This micro level analysis of major sporting event attendee's therefore has implications for the economic impact analysis, management and marketing of major sporting events. From a practical event management perspective this means that to maximise total spend from those individuals that travel to and attend major sporting events, targeting of the event should to be aimed at, men, those on higher

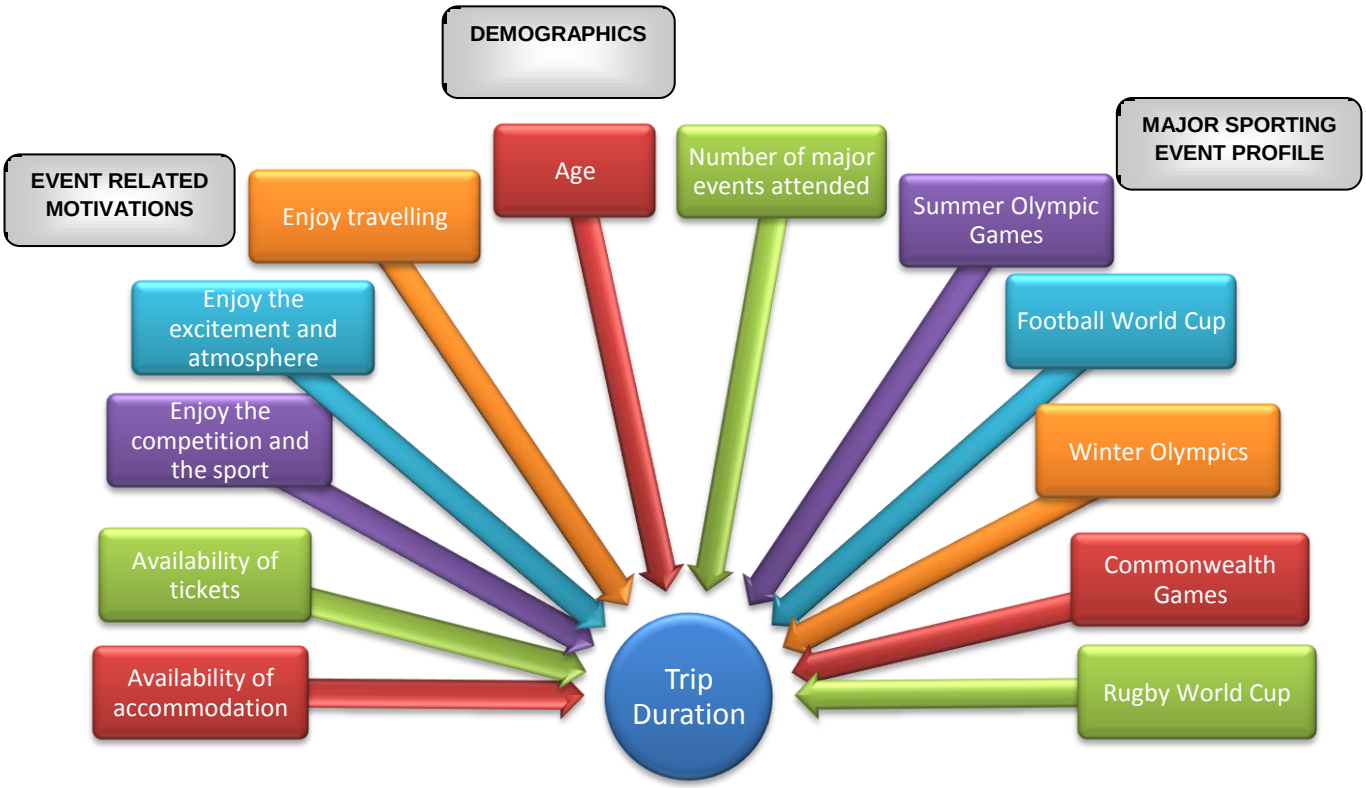
incomes in addition to promoting the opportunity to visit other tourist attractions and increasing the availability of tickets, in order to increase total spend levels. However, if the event is promoted in terms of the historical aspects of the event, for example, promoting an event solely on the basis of an event returning to its spiritual / historic home, such as the common Football's coming home slogan regarding Football and English bids for the World Cup / European Championships, this would act to decrease the total spend of individuals that travel to and attend the major sporting event.

Widening access to major sporting events is seen as a theme in the literature that events should be focusing on in an attempt to break down the perception that travelling to and attending major sporting events is seen as an experience that is to be reserved for a privileged few (Donihue *et al,* 2007; Eizen, 1996 and Thrane, 2001). However, this model goes against that thinking. The model suggests that to elicit the maximum total spend, specifically men and those on higher incomes should be actively targeted. Actively pursuing these strategies to maximise total spend will encourage attendance from a certain type of individual. These will be individuals with similar lifestyle choices, similar social backgrounds, sporting choices and ideologies and will not widen access to major sporting events, propagating the perception that major sporting events are to be attended by the few, not the many (Thrane, 2001).

5.4.2 Trip Duration Econometric Model

In contrast to the five variable Total Spending model, the Trip Duration econometric model is derived from Table 5.8. This indicates that ten of the twelve variables have a positive relationship and will increase the trip duration, whilst the remaining two variables have a negative relationship and will act to reduce the trip duration for a major sporting event.

Figure 5.2: Trip Duration Econometric Model



$$\hat{Y}_{TL} = \beta_1 + \beta_2 X_2 - \beta_3 X_3 + \beta_4 X_4 - \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \beta_8 X_8 + \beta_9 X_9 + \beta_{10} X_{10} + \beta_{11} X_{11} + \beta_{12} X_{12} + \beta_{13} X_{13}$$

$$\hat{Y}_{TL} = -2.71 + 0.60 X_2 - 0.55 X_3 + 0.66 X_4 - 0.74 X_5 + 0.76 X_6 + 0.04 X_7 + 0.16 X_8 + 4.66 X_9 + 1.94 X_{10} + 1.90 X_{11} + 3.62 X_{12} + 3.38 X_{13}$$

Equation 5.4

Where, $\hat{Y}_{TL}$ = Trip Duration, X_2 = Availability of Accommodation, X_3= Availability of Tickets, X_4= Enjoy the competition and the sport, X_5= Enjoy the excitement and atmosphere, X_6 =Enjoy Travelling, X_7 = Age, X_8 = Number of Major Events Attended, X_9= Summer Olympic Games, X_{10}= Football World Cup, X_{11}= Winter Olympics, X_{12} = Commonwealth Games, X_{13}= Rugby World Cup.

The results show that as the availability of accommodation (t-ratio=4.48, p=0.00) increases by one unit on the scale, trip duration will increase by 0.60 of a day. This may be seen as a logical relationship as the greater the availability of accommodation the longer a trip may be and vice versa. The availability of tickets (t-ratio=-3.65, p=0.00) has a negative relationship with trip duration. As the availability of tickets increases by one unit on the scale measuring their importance, this acts to reduce the trip duration by 0.55 of a

day. This suggests that as tickets become scarce the trip duration associated with a major sporting events becomes longer, this maybe perhaps associated with the type and quality of the event. The results also show that the motivation enjoy the excitement and atmosphere (t-ratio=-3.09, p=0.00) has a negative impact on trip duration, as a one unit increase on the scale acts to reduce trip duration by 0.74 of a day. This is perhaps an unusual result but could be explained by the length of a trip to a major sporting event not being about the immediate instant gratification that the major sporting event can provide for the individual in attendance, but rather that it could be linked to other factors. One might think that the excitement motivation is more important for event attendee's that are experiencing their first major sporting event but**,** as the majority of respondents in this research were habitual major sports event attendee's they have been to major sporting events before and know what attending major sporting events is all about.

The model also demonstrates that trip duration is positively affected by a further two event related motivations, enjoy travelling (t-ratio=5.23, p=0.00) and enjoy the competition and the sport (t-ratio=2.48, p=0.01). As enjoy travelling increases by one unit on the scale, this will increase the trip duration by 0.76 days, with a one unit change in the scale measuring 'enjoying the competition and the sport' acting to increase the trip duration by 0.66 of a day. The enjoyment of the competition and sport may be a counterbalance to the 'excitement and atmosphere' variable, whereby those individuals that attend major sporting events do so for the seriousness of the competition and the sport, therefore as the importance of the competition and level of the sport increases so will the trip duration in order to attend the event. The enjoyment of travelling is almost a necessary variable to be included in this model as many major sporting events are held purposely on different continents and in different countries from the last edition of the event. Therefore enjoying travelling seems a logical variable to be included in this trip duration model as something that positively impacts trip duration.

Previous attendance at major sporting events (t-ratio = 3.42, p=0.00) is a significant variable in the duration of the trip to a major sporting event. A one unit increase in previous attendance at major sporting events acts to increase the trip duration by 0.16 of a day, which suggests that trip duration, is a function of habitual behaviour. In Chapter Four, section 4.3, it was shown that for the majority of the sample, attending a major sporting event was not a one off occurrence, but a form of repetitive behaviour. Figure 4.2 has indicated that 100% of respondents had attended at least one major sporting

event with more than 70% having attended three or more major sporting events in the past ten year period. It is also indicated in Chapter Four by Table 4.5 that 100% of the sample intended to continue to attend major sporting events in the future.

It can also be seen from the trip duration model that the type of major event attended also acts to increase the duration of the trip. All of the event variables included in the model are quadrennial major events, the summer Olympic Games (t-ratio=10.01, p=0.00), Winter Olympics (t-ratio=3.07, p=0.00), Commonwealth Games (t-ratio=6.84, p=0.00), Football World Cup (t-ratio=4.26, p=0.00) and Rugby World Cup (t-ratio=3.59, p=0.00), which indicates that attending one of these events positively impacts the length of the trip taken and this may have been expected given the scale and duration of these major sporting events. This relationship was alluded to in Chapter Four by Figure 4.12 and 4.13 and their discussion, but here the relationship has been statistically tested and illustrates that the major sporting event attended does relate to the length of trip taken to travel to and attend the major sporting event. Attending the Olympic Games acts to increase the trip duration by over four and a half days (4.66), the Commonwealth Games acts to add over three and a half (3.62) days to trip duration, with the Rugby World Cup being seen to add just under three and a half (3.38) days to the length of a trip. The Football World Cup and the Winter Olympics can be seen to have a lesser effect on trip duration but both act to increase trip duration by nearly two days, 1.94 and 1.90 days respectfully.

The sole demographic variable included in the trip duration model and shown to positively impact trip duration is age (t-ratio=2.98, p=0.00). The results suggest that a one year increase in age leads to a 0.04 increase in days of the trip duration, or that an extra day in trip duration is associated with a difference in age of around 25 years. This suggests the possibility of age segmentation between young, middle aged and older. As illustrated by Table 4.7 in Chapter Four, its discussion and section 4.3 of Chapter Four the majority of respondents (54%) reported to be within the 25-44 age groups.

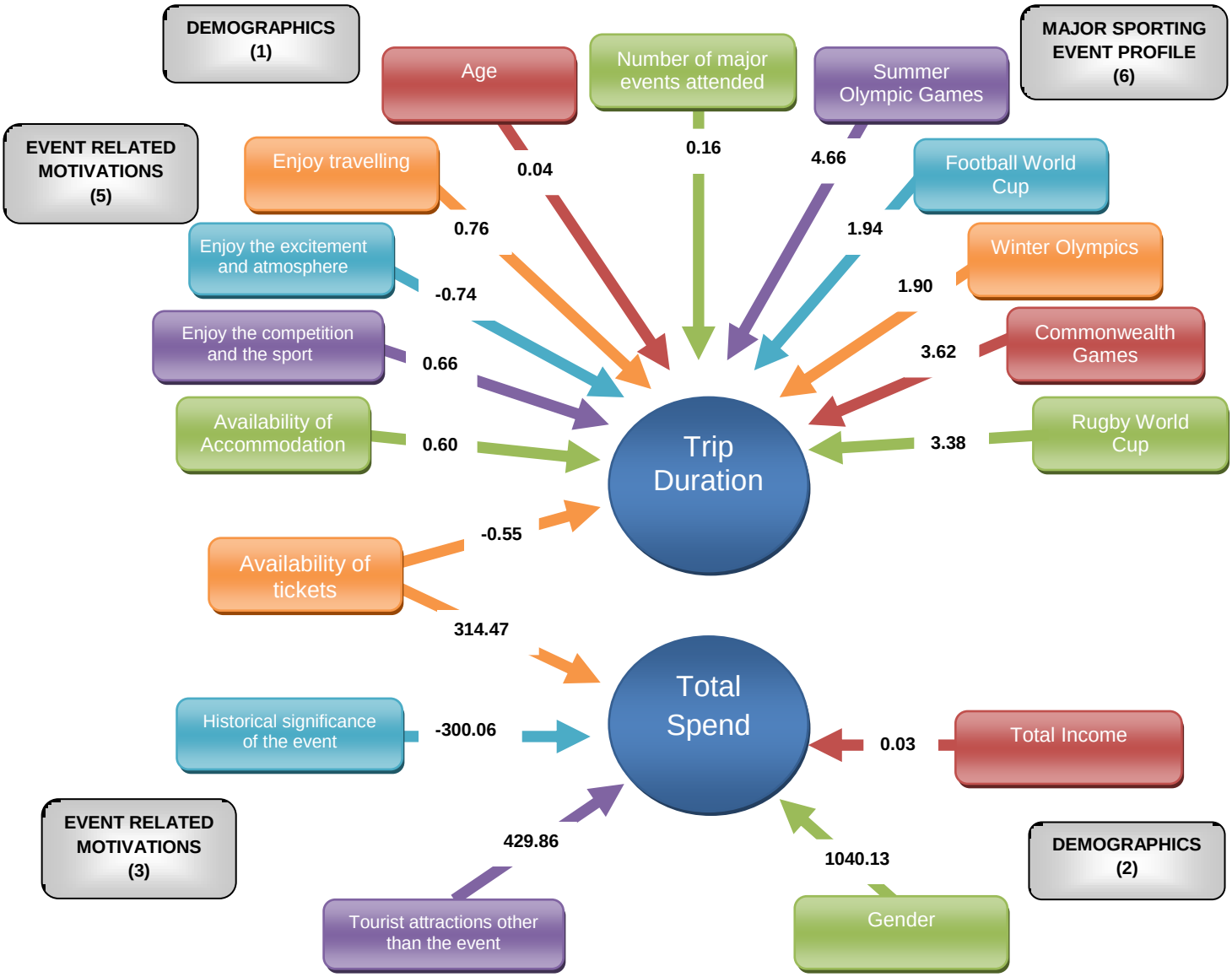
5.5 Statistical Analysis Summary

The analysis of the two individual total spend and trip duration models shows that there is no simultaneity present in the models and therefore no feedback relationships that could

act to undermine the models as is detailed within section 3.4.10 in the Methodology Chapter. Therefore it is possible to model the relationships as is presented in Figure 5.3. The direction of the arrows represents the theoretically assumed direction of the relationship with the negative relationships also being shown. The model summarises all of the results schematically and reveals that only the variable relating to the availability of tickets has a role in determining both the decisions relating to total spending and trip duration for those individuals that travel to and attend major sporting events.

The sixteen variables presented in Figure 5.3 are therefore the key important variables within this research, which are responsible for the total spending and trip duration decisions of individuals that travel to and attend major sporting events.

Figure 5.3: Total Spend and Trip Duration



Even though these variables all impact the total spend and trip duration decisions, not all of the variables impact the decisions equally. There are some variables that have a much larger impact on the decisions than others and so consideration should be given to these large impact variables. This can be seen from the coefficients that are illustrated within Figure 5.3. With respect to the variables that impact total spend the following variables can be seen to have the greatest monetary impact on total spend,

- Gender, £1040.13

- Tourist attractions other than the event, £429.86
- Availability of tickets, £314.47
- Historical significance of the event, £-300.06

Trip duration decisions can be seen to be impacted by the following variables, in order of number of extra days,

- Summer Olympic Games, 4.66 days
- Commonwealth Games, 3.62 days
- Rugby World Cup, 3.38 days
- Football World Cup, 1.94 days
- Winter Olympics, 1.90 days

From this it can be seen that four of the variables that determine total spend can impact the total spend in with a one unit change in the variable. This suggests event planners and marketers along with commercial companies that package travel and tickets to major sporting events in order to maximise total spend should be targeting men, advertising / selling other tourist attractions, making tickets readily available and not promoting the event on its historical significance. Whereas the significant impact factors for the trip duration model can be seen as the major sporting event that is being attended. These five quadrennial events can be seen to have a varying effect from over four and a half days to nearly two days on the trip duration meaning that attending one of these major sporting events will significantly increase the trip duration.

5.6 Conclusion

Through the sections of this chapter the estimation and the development of the econometric model, Figure 5.3, which is the product of this research has been possible. From Figure 5.3 the relationships between variables and their impact on the total spend and trip duration decisions as they related to travelling to and attending major sporting events with a commercial company can be seen. In producing this econometric model the research questions posed in Chapter One and at the beginning of this chapter have been answered. It can be seen that there is no direct relationship between total spend and trip duration but that there is a relationship between motivations and total spend as

well as between motivations and trip duration. Through the presentation of Figure 5.3 it is shown that the analysis of data from more than one major sporting event can be extended beyond a basic descriptive analysis and it is possible to provide a statistical analysis in order to develop the understanding of the decisions relating to total spend and trip duration that are entered into by individuals that travel to and attend major sporting events.

6 Chapter Six: Discussion and Conclusion

6.1 Introduction

The major contributions of this research to knowledge have been shown to come from the Total Spend and Trip Duration model, Figure 5.3. It has been shown by this model that there is evidence that there is no relationship between total spend and trip duration when travelling to major sporting events. In addition to this it has also been shown that the primary purpose of travelling to a major sporting event was for the sole purpose of attending the event.

In demonstrating these contributions this chapter discusses and draws together the previous chapters and illustrates how these are the major contributions to knowledge of this research. Section 6.2 briefly reviews each of the previous chapters to provide an overview of the research. The chapter then focuses on the main findings of this research in section 6.3. This section shows how answers to the following research questions that were established in Chapter One have been provided. Section 6.3.1 discusses the implications of the research findings along suggestions for future research. The implications for this research are presented with respect to the commercial company and the wider research community, which leads into future areas for research development. The chapter then discusses the strengths and limitations of the research in section 6.4 by reviewing the issues raised in section 3.3.3 of Chapter Three. Section 6.5 of the chapter then demonstrates how this research has satisfied its research objectives. The chapter concludes in section 6.6 by briefly summarising the main points that have arisen from this research as a whole.

6.2 Research Summary

> "The vast majority of research on major sport events has focused on the Olympic Games. However, there is a need to expand this view and broaden the analysis of major sport events – and, certainly, there is a dire need to improve our understanding of both spectators and visitors."

Preuss *et al* (2007:8)

The frame of reference for this research was identified in Chapter One as being Preuss's (2005) 'Event Visitor' segment. This specific segment of the market was identified by Preuss as being made up of individuals that travel to the host region with the purpose of attending a major sporting event. The partnership that was established with a commercial sporting event ticketing company, led this research to have the specific focus of developing an understanding of the spending and trip duration decisions of individuals that travel to and attend major sporting events with commercial companies. To understand the total spend and trip duration decisions Chapter One established a number of research questions and objectives that were to be answered by this research. To recap, the research questions are;

Do individuals repeatedly attend major sporting events?

- If so can a profile be established of repeat major event attendees?

What motivations are important for total spend and trip duration decisions when travelling to and attending major sporting events

Which variables affect total spending decisions?

Is there any relationship between motivations, trip duration and total spending (expenditure)?

- Do motivations impact an individual's total spending decisions when attending major sporting events?
- Do motivations impact an individual's trip duration decisions when attending major sporting events?
- Does trip duration affect spending decisions when attending major sporting events?
- Does spending affect trip duration decisions when attending major sporting events?

Chapter Two reviewed and analysed the existing literature which enabled the development of a conceptual research model to investigate the total spend and trip duration decisions of individuals that travel to and attend major sporting events. This review identified that there is a gap in the literature because only six studies examined travelling to and attendance at single major sporting events and predominantly offered

only a descriptive statistics. This highlighted the need to develop research findings beyond a descriptive account and for more than one major sporting event.

Chapter Three provided the philosophical and methodological discussions of how this research was approached. It was deemed appropriate that this research was underpinned by an ontology of objectivism and a positivistic epistemology. Having identified the philosophical positioning of this research, Chapter Three outlined the method of data collection as an online survey. This enabled the data collected to be reported on by utilising descriptive and econometric analysis. The econometric analysis enabled the conceptual model to be estimated through regression analysis. These two forms of analysis are reported on in Chapters Four and Five respectively.

Chapters Four and Five presented the empirical findings of this research. Chapter Four initially provides information on the size of the sample collected for this research and then continues to descriptively analyse the data. The descriptive results illustrated within this chapter demonstrate that the respondents exhibit repeat major sporting event attendance and demonstrated that a range of different event related motivations have different levels of importance attached to them. The results also showed that 82% of respondents spectated via the television and currently participated in sport. The descriptive results of the dependent variables indicated that respondents average trip duration to major sporting events was either one day or six days in length, and 82% of respondents spent up to £4000 for their trip to the major sporting event, these results were summarised in Figure 4.8. Chapter Five develops the analysis carried out in Chapter Four. Chapter Five achieves this by refining the relationships suggested within Chapter Four by statistically estimating the conceptual model. This statistical analysis tests for the significant variables that determine total spend and trip duration to produce the econometric model that is depicted in Figure 5.3.

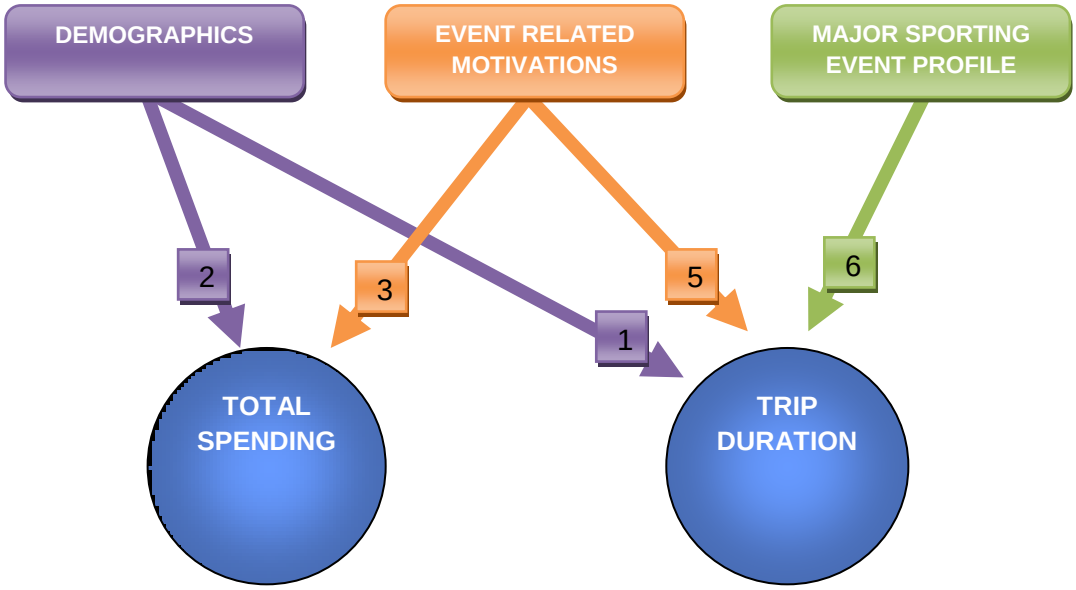
In summary this research answers the research questions as it can be seen that individuals do exhibit repeat major sporting event attendance behaviour and a profile of this has been established in Chapter Four Figure 4.8. The number of major events attended is also a significant variable that affects the trip duration decision of major sporting event attendance. The motivations of ‘enjoy travelling’, ‘enjoy the excitement and

the atmosphere', enjoy the competition and the sport', the 'availability of accommodation' and the 'availability of tickets' have all been shown to be important / significant motivations in the trip duration decisions of attending major sporting events. Whilst the motivations of the 'availability of tickets', historical significance of the event' and 'tourist attractions other than the event' are important / significant variables for total spend decisions of major sporting event attendance. These results indicate that there is a relationship between these motivations and total spend and trip duration decisions, but the econometric model (Figure 5.3) illustrates that there is no direct link between total spend and trip duration. The full econometric model that is the product of this research is presented in Figure 5.3 which presents all the significant determinants of the total spend and trip duration decisions for major sporting event attendance. This chapter now discusses the main research findings and implications of this research and suggests future research developments. The limitations of the research are then discussed before the research objectives are discussed and the chapter is concluded.

6.3 Main Research Findings

This section provides a formal discussion of the econometric model proposed in Figure 5.3, section 5.5 Chapter Five. The econometric model identified the statistically significant variables which determined the total spend and trip duration decisions associated with travelling to and attending major sporting events. The empirical econometric model was motivated by the conceptual model proposed in Figure 2.13, section 2.6 of the Literature Review, which was developed for this research from economic theory and from the literature base of sport, travel, motivations and major sporting events. The results illustrate that the conceptual model receives empirical support. In particular it was shown that there are three important types of variables when considering total spend and trip duration decisions for travelling to and attending major sporting events. These are demographics, event related motivations, and the individual's major sporting event profile. Total spend decisions have been shown to be constructed of three event related motivations and two demographic variables whilst trip duration decisions can be seen to contain one demographic, five event related motivations and six major sporting event profile variables, as schematically illustrated by Figure 6.1.

Figure 6.1: Econometric Model Summary



These are similar findings to those of Downward *et al* (2009b) who illustrated that within their expenditure and duration model there were three important variables related to expenditure and two important variables linked to the duration of the trip as can be seen in Figure 2.14 Chapter Two. Downward *et al* (2009b) model illustrates the important variables for total spending to be 'group size', 'trip characteristics' and 'income', whist trip duration is seen to consist of the variables 'trip characteristics' and 'route'. The trip and route characteristics variables are regarded by Downward *et al* (2009b:30) to measure 'motivations; that is preferences and tastes of cyclists'. In examining the regression tables their motivations seem to be more to do with the type of cycling trip the respondents had undertaken and not the specific motivations that underpinned the decision to take the trip[36]. These motivations can be seen to be distinctly different to the motivations that were sampled by this research and detailed in Table 3.3 and section 3.3.2 of the Methodology Chapter. Total spending in Downward *et al* (2009b) model can therefore be seen to be constructed of trip characteristics (motivations), group size and income levels. It is noted that this research has not investigated group size as this research was focusing on the individual and their total spend and trip duration decisions, not the collective total spend and trip duration of their travelling group.

[36] See Tables 1, 2 and 9 in Downward, Lumsdon and Weston (2009)

The econometric model in Figure 5.3 and the simplified version in Figure 6.1, both illustrate that the feedback relationship that was theorised in the conceptual model between the dependent variables, total spending and trip duration, does not exist. This specific finding is consistent with that of Downward *et al* (2009b) (Figure 2.12), who also found no link between total spending and the length of the trip taken despite also, theorising the link in their conceptual model (Figure 2.11). This link between total spending and trip duration has therefore been empirically investigated and tested in two different contexts, cycling tourism and travelling to and attending major sporting events. However, it can be observed, that there is a link between event related motivations and demographics and the total spending and trip duration models. Downward *et al* (2009b) also identified a similar finding as they note that total spending and trip duration are related through the motivations that groups had for different length of trips. Downward *et al* (2009b) highlights this as being regardless of the user segmentation or the purpose of the trip. This demonstrates that trip duration indirectly influences total spending, but the reverse is not possible. In examining the econometric model for this research it can be seen that a similar findings are evident. Event related motivations impact trip duration and likewise total spend. This relationship can be exemplified when examining Figure 5.3 and the impact that the event related variable, availability of tickets, has on both the trip duration and total spend decision. As previously discussed this variable within the trip duration decision can act to reduce the trip duration by 0.55 of a day, as if there are no tickets available individuals will not tend to stay at the event location for longer. Whereas for the total spend decisions the availability of tickets will act to increase total spend levels by £314.47. It may also be the case that the negative trip duration effect may be because tickets are less available for major sporting events that people take longer trips to, due to the demand.

Chapter Four, specifically section 4.2.1 and Table 4.2, demonstrates that 85% of the respondents indicated that the event was the sole reason for taking the trip and that 55% of respondents felt that travelling to and attending a major sporting event was not beyond their normal travel plans. In addition to this, Figure 4.2 illustrates that repeat attendance at major sporting events is prevalent within this sample as 70% of respondents indicated that they had attended three or more major sporting events in the past ten years. These findings and the supporting discussion has further weight added to it, as the econometric analysis of trip duration identifies that the number of major events attended was, a significant variable in the determining trip duration. This is illustrated in Figure 5.2 and discussed in section 5.4.2 of Chapter Five. Previous major sporting event attendance

increases trip duration by 0.16 of a day. However, despite this research finding, the existing literature does not widely acknowledge the impact of this variable. This is illustrated by Table 4.6 in Chapter Four where only two of the previous travel and attendance studies identified, had collected data on previous major sporting event attendance. Delpy Neirotti *et al* (2001) reported that 30% of their respondents had previously attended other major sporting events. Breitbarth (2006) reported that 44.7% of their respondents had travelled outside of Australasia to attend a major sporting event, with 26% travelling to and attending the Football World Cup. Both of these studies reported previous attendance as a descriptive statistic and unlike this research, did not statistically model the relationships within their results. It is also interesting to note that 100% of respondents, as illustrated by Table 4.5, wanted to continue to attend some form of major sporting event. Chapter Four argued that the respondents of this research were broadly consistent with the regular, committed driven segment of Weed and Bull's (2004) Sports Tourism Participation Model (Figure 2.3), but also that there was an intention to continue to attend major sporting events, which is not overtly appreciated within the Weed and Bull model.

The motivations associated with the total spend and trip duration decisions of travelling to and attending major sporting events are illustrated in Figure 5.3, and have been individually discussed in section 5.5 of Chapter Five. It can be seen that some of these motivations are consistent with the concepts illustrated in Figure 2.12, Breitbarth's (2006) sports travel representation. Breitbarth categorises motivations that act to 'push' individuals into wanting to travel to and attend major sporting events as push motivations. However, the motivations that have been shown to be statistically significant determinants of trip duration are; 'availability of tickets', 'availability of accommodation', 'enjoy the competition and the sport', 'enjoy the excitement and atmosphere' and 'enjoy travelling'. They can be seen to be similar to some of the push motivations detailed in Breitbarth's sports travel representation. However, as the econometric model has illustrated that not all of these motivations act to increase trip duration[37] and motivations such as the 'availability of accommodation' may be argued to be a 'pull' motivation. .

[37] Enjoy the excitement and atmosphere (-0.74) and the availability of tickets (-0.55) both act to reduce the trip duration (Figure 5.3, Chapter Five).

The motivations of 'historical significance of the event' and 'tourist attractions other than the event', that are identified as impacting total spend, have some similarity to the attractiveness pull factors identified by Breitbarth (2006)[38]. However, as has been discussed in Chapter Five, the location of the event within this research was not found to be statistically significant in both the total spend or trip duration decisions for travelling to and attending a major sporting event. This suggests that the attractiveness of travelling to and attending a major sporting event may not be about the attractiveness of the event destination, but the factors within the event location and the way in which the event is promoted. This suggests that the features of the destination, such as other tourist attractions, and not necessarily the image and reputation of the location are pull motivations for individuals that travel to and attend major sporting events. This indicates support for Weed (2008), that it is the local influences within the destination, rather than the pull of the destination itself, that is important. This contrasts with the Tourism Product Triangle as presented in Figure 2.8, section 2.5.1 of the Literature Review, where the destination is seen as the pull motivation for travel. The findings presented by this research suggest an alternative to this position with the individual having push motivational factors that induce them to attend the event and not the 'pull' of the destination.

The results also have implications for the Travel Career Tapestry approach discussed in Chapter Two, section 2.5.1 and Table 2.15. The econometric model has illustrated that multiple variables are associated with the total spend and trip duration decisions. The Travel Career Tapestry theory details that internal and external factors influence an individual and their decisions and this can be seen to be the case with the econometric model. The econometric research model indicates that internal motives such as the enjoyment of travelling, competition and sport are internal motivations whilst the availability of accommodation, tickets and other tourist attractions can all be seen to be external motivations that act on and impact the individual and their decisions when it comes to major sporting event travel and attendance.

It can be observed that the econometric model is not affected by the sporting involvement variables included in the conceptual model. Statistically the sporting involvement

[38] However, these motivations have been shown to affect total spend in opposite ways with historical significance acting to reduce total spend by £300.06 and other tourist attractions acting to increase total spend by £429.86 (Figure 5.3 Chapter Five).

variables tested within this research, do not impact the total spend and trip duration relationships that were being investigated within this research. This is notwithstanding, the descriptive findings reported in section 4.2.3, Table 4.10 illustrating that 82% of the respondents followed between 2 and 5 sports by spectating via the medium of television and that 82% of respondents actively participated in some form of sport or physical activity. However the inclusion of the variables to collect information on the sporting involvement of individuals that travel to and attend major sporting events followed the work of Armstrong (2002) who made the case for needing to include sporting involvement levels. Including these variables in the econometric analysis enabled the analysis of these variables to be advanced, rather than simply reporting the variables at a descriptive level. This situation illustrates one of the benefits of being able to statistically model data and variable relationships in order to empirically estimate theoretical propositions.

In summary this research has provided an econometric model to evaluate the decisions and consumption patterns of those individuals that travel to and attend major sporting events with commercial companies. The major finding from this model illustrates that there is no relationship between the total spend decisions and trip duration decisions when travelling to and attending major sporting events. Weed and Bull (2004) made the case that sport related tourism is concerned with the interaction of people, activity and place. However, for those that travel to and attend major sporting events it has been shown to be the case that the event is the primary important factor.

6.3.1 Research Implications and Future Research Developments

Preuss *et al* (2007) state that it is important to have econometric evaluations and models that consider the individual segments of the tourism flows that Preuss (2005) identifies as relevant for major sporting events, Figure 2.4, Chapter Two. It is also argued by the literature, demonstrated in Section 2.5.1 of Chapter Two, that there is a need to understand the travel behaviour of individuals that choose to travel to and attend major sporting events. This is argued by authors, such as Armstrong (2002); Holden (2005); James and Ross (2002); Kerstetter and Kovick (1997); Kim and Chalip (2004); Lascu *et al* (1995); Leiper (1979) and Weed (2008), so that the information collected can be used to better inform policy and planning in the area. This research has addressed both of these concerns by specifically econometrically modelling and illustrating the significant variables

that impact total spend and trip duration decisions of those individuals that travel to and attend major sporting events with a commercial company. These findings have implications for both commercial companies that package and sell tickets to major sporting events and major sporting event planners and marketers.

This research has indicated that there is a significant core of individuals within this market segment that are driven, committed and regular major sporting event attenders and that exhibit the characteristics of the Travel Career Tapestry. It is therefore apparent that those individuals that travel to and attend major sporting events via a commercial major sporting events company are an existing customer market for major sporting events. This has implications for commercial companies as it demonstrates that these companies are involved in packaging and selling major sporting event travel and tickets to an existing customer base that knows the product. The commercial company involved in this research should therefore be utilising the 16 key variables presented in the econometric model, Figure 5.3, to develop their products and services, in order to maintain their existing customer base, whilst maximising the total spend and trip duration of their clients.

The implications of this research for major sporting event planners and marketers rest within the development of this research. The development of this research is needed to fully appreciate and further test the econometric model. Further testing of the econometric model is appropriate in order to test the model with a random sample of data to extend the analysis beyond the population of those that travel to and attend major sporting events with commercial companies. This will enable the findings to be generalised to the wider population of all individuals that travel to and attend major sporting events. By achieving this, the econometric model developed within this research can be evaluated against the model developed from the random data sample. This will enable the results to be utilised more generally by major sporting event planners and marketers to better profile attendees of major sporting events and act to impact the economic evaluations of major sporting events. In such a way applying the econometric model from this research to a random sample of respondents would enable the findings to be used within Preuss wider tourism flow profile. Preuss *et al* (2007) states that this level of data is needed at the aggregate level for each of the segments of Preuss's (2005) Tourism Flow model, Figure 2.4. This research's contribution to Preuss' data segmentation is an indication that this level of data can be collected and econometrically modelled successfully. Contributing fully to Preuss ***et al's*** (2007) call could be achieved

by further testing of this research's methods and econometric model using future data samples and then applying the total spend and trip duration findings to Preuss's (2005) Tourism Flow model, as illustrated in Equations 6.1 to 6.4. This illustrates the individual total spend and trip duration decisions and takes into account the motivational factors, demographics and major sporting event profile of the individuals that are classified as event visitors within Preuss' Tourism Flow model.

$$\Delta Y = \Delta(E2 + G + H + K) + (A + B + C) - (E1 + D + F)$$

Equation 6.1

Where $E2$= Pre/Post Switchers, G= Casuals, K= Residents, A= Extensioners, B= Event Visitors, C= Home Stayers, $E1$= Cancellers, D= Runaways, F= Changers

Where B (Event Visitors) is equal to,

$$B = \hat{Y}_{TS} + \hat{Y}_{TL}$$

Equation 6.2

And where $\hat{Y}_{TS}$ and $\hat{Y}_{TL}$ are represented as in the econometric models presented in Figure 5.1 and 5.2 in Chapter Five.

$$\hat{Y}_{TS} = \beta_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 - \beta_5 X_5 + \beta_6 X_6$$

Equation 6.3

$$\hat{Y}_{TL} = \beta_7 + \beta_8 X_8 - \beta_9 X_9 + \beta_{10} X_{10} - \beta_{11} X_{11} + \beta_{12} X_{12} + \beta_{13} X_{13} + \beta_{14} X_{14} + \beta_{15} X_{15} + \beta_{16} X_{16} + \beta_{17} X_{17} + \beta_{18} X_{18} + \beta_{19} X_{19}$$

Equation 6.4

Where $\hat{Y}_{TS}$ = Total Spend, X_2 = Total Income, X_3= Gender, X_4= Availability of Tickets, X_5= Historical significance of the event, X_6 = Tourist attractions other than the event.

Where $\hat{Y}_{TL}$ = Trip Duration, X_8 = Availability of Accommodation, X_9= Availability of Tickets, X_{10}= Enjoy the competition and the sport, X_{11}= Enjoy the excitement and atmosphere, X_{12} =Enjoy Travelling, X_{13} = Age, X_{14} = Number of Major Events Attended, X_{15}= Summer Olympic Games,

X_{16}= Football World Cup, X_{17}= Winter Olympics, X_{18} = Commonwealth Games, X_{19}= Rugby World Cup.

Being able to more fully understand the consumption patterns and decisions of those that travel to and attend major sporting events is seen as a major area for developing the major sporting event product and experience whilst leveraging the economic impact that can be achieved from hosting such an event (Preuss *et al,* 2007).

The prevalence of repeat attenders is also an area for future research. This needs to be examined to see if the findings from this research, which indicates high levels of repeat attendance at major sporting events, is a characteristics of major sporting events in general or if it is a characteristic of samples connected to commercial companies that package travel and attendance to major sporting events. Future research with a random sample needs to be able to distinguish between repeat attenders and first time attenders, not only to enable a comparison of the resultant econometric models and significant variables, but also to identify if there are significantly different target markets within Preuss's 'Event Visitor' segment. If the econometric models are shown to be significantly different, then the information contained within the subsequent models can be used by event planners and marketers to target their specific target group of first time attenders or repeat attenders.

Extending the research in these ways allows for a further testing of the conceptual model, relationships and the final proposed econometric model and its 16 key variables that are seen here to be responsible for impacting an individual's decisions as they relate to total spend and trip duration when travelling to and attending major sporting events.

6.4 Limitations of This Research

The Methodology Chapter in section 3.3.3. Survey Administration, acknowledged a number of issues that may act to impact this research. These issues were connected to the partnership with the commercial company, centring on the timing of the survey, the way in which the survey information was disseminated and the nature of the sample that

data was to be collected from. This discussion illustrates how in practice these issues impacted this research. The strength of this research, despite coming from a non-randomised sample, is that it utilises information from respondents that have travelled to and attended nine different major sporting events, which were classified within the UK Sport major event typology. This research therefore does not have the same narrow focus that can be attributed to some of the existing literature discussed in Chapter Two. The existing literature can be described as having a narrow focus as it predominately only focuses on sampling one specific major sporting event, which is illustrated well by the studies that are used as the latter focus of the Literature Review; Mashiach (1980; 1981); Deply (1997); Delpy Neirotti *et al* (2001); Kim and Chalip (2004) and Breitbarth (2006). This has resulted in the findings from such studies only being applicable to that specific major sporting event as well as being a limitation to their study. Therefore in developing the literature and acting on Armstrong's (2002) call for research to sample more than one event, in more than one sport and at different levels of competition, this research can be seen to have gone some way to addressing this call and providing the research community with 'useful' information in the format of the descriptive analysis in, Chapter Four, and the statistical analysis with the resulting econometric model illustrated in Chapter Five, by sampling nine different major sporting events, that are single and multi sport and at different levels of competition[39]. This research therefore is contributing to the knowledge base regarding travel to and attendance at major sporting events through the development of the econometric model produced by this research, Figure 5.3, and can be used as a generic guide across major sporting events for inquiries into total spending and/or trip duration, in addition to all the individual variables that have been investigated within this research.

The descriptive statistics of this research stated that respondents reported on 547 incidences of major sporting event attendance motivations; this has been illustrated by Table 4.11 in Chapter Four, section 4.2.3. There was a concern discussed within the Methodology Chapter, section 3.3.3, that the timing of the survey would affect response rates for those events coming up to the end of their annual/quadrennial cycle and for those events that had recently occurred. The results in Table 4.11 illustrates that it is unclear whether this concern impacted this research and can be illustrated by the percentage responses of individuals that reported to have attended the Rugby World Cup

[39] The major sporting events sampled were classified and identified within the UK Sport major event typology as illustrated by Figure 3.3 in the Methodology Chapter.

(3%) which was nearing the end of its quadrennial cycle and those that reported attending the Winter Olympics (4%) that had recently entered into a new quadrennial cycle when the survey was 'live'. However 10% of respondents reported information on the Commonwealth Games, which had also occurred leading up to the survey going 'live'. Overall though, what Table 4.11 does illustrate is that the percentage responses for each of the 9 events, does not deviate excessively from the expected mean of 11.1%.

The percentage of respondents reporting on the Olympic Games however, may have been impacted by the way in which the information regarding the survey was disseminated to the commercial company's client list. Initially the survey information was distributed by the commercial company with the priority booking information for the 2008 Beijing Olympic Games. As the research has illustrated that quadrennial event attendance impacts the trip duration decision making process when travelling to and attending major sporting events, those that had previously attended an Olympic Games may have been more likely to receive this information and be more receptive to the information on the priority booking service and the information regarding the survey and how to access it. The way in which customers were segmented and targeted for mail shots and the information they received from the commercial company was outside of the control of the researcher. However, the researcher provided standard information to be included with all the commercial mail out information. The commercial company initially promoted their product range to the interested party, with the survey information being a secondary source of information. The company attached the survey information to their outgoing mail shots that advertised their core product as it was not seen as a cost effective process for the company to produce a separate information shot without product information. Due to Data Protection Legislation that exists within the UK, the commercial company had to be compliant with, and not be seen to be sending none product related information or information that the registered party had not asked to receive. Data Protection Legislation and the commercial company's data protection policy therefore acted to restrict the control the researcher had over the dissemination of the survey information. No doubt conclusions can be drawn about the impact this may have had on the response rate of the survey.

More control over the mail out process and providing potential respondents with solely survey information may have improved the number of responses to the survey, however there were 331 individual respondents that reported 547 incidences of travel to and

attendance to major sporting events, which has been shown to provide statistically significant results for this research. This research has sampled multiple different major sporting events and provides a solid base from which similar wide scale research can be directed and encouraged with regard to major sporting events. With the survey, results have already been shown to be comparable to the existing literature and expanding the understanding of decisions related to travel and attendance of major sporting events. It is fully acknowledged that another limitation of the research is that the results cannot be generalised to all individuals that travel to and attend major sporting events, due to the none random nature of the sample. Replication of this research using a randomised sample will allow for a broader population generalisation to be possible to confirm, reject or modify the findings of this research. It would be important to do this to further develop the area and continue to statistically analyse and model data for those that travel to and attend major sporting events as well as progressing the way in which online surveys are conducted within this are of research.

6.5 Research Objectives

This section of the chapter now reviews each of the research objectives that were established in Chapter One. Each objective is discussed individually to clearly illustrate how this research has specifically satisfied the research objectives.

6.5.1 Research Objective One

Review the current literature on major sporting events, with particular respect to travel, tourism, motivations and the economic importance of major sporting events.

This objective was achieved through the narrative literature review that was presented in Chapter One. The literature review identified the important literature with regard to major sporting events in the areas of travel, tourism, motivations and the economic importance of major sporting events. From this, six key studies were identified that focused on the elements of travelling to and attendance at major sporting events, which were the key concepts investigated for this research. This highlighted the lack of literature in this specific area. However, the six key studies and the associated literature formed the platform from which the conceptual model for this research was developed. The conceptual model that was developed utilised information and theorised relationships

discussed within each of the academic areas of travel, tourism, motivations and the economic importance of major sporting events, to provide a holistic model for statistical estimation. The conceptual model focused on evaluating the total spend and trip duration at the micro level of the individual that travels to and attends major sporting events.

6.5.2 Research Objective Two

Synthesise the insights from the travel motivation and event expenditure literatures to develop an econometric model in which the relationships between motivations, trip durations and expenditures are tested.

This second objective was satisfied through the synthesis of the information and theories discussed in the literature review to develop the conceptual model presented within Chapter Two. This model was then used as a guide for the subsequent data collection and provided the data for the statistical econometric estimation of the model. The model enabled the theorised relationships between demographics, event related motivations, major sporting event profile, sporting involvements, trip duration and total spending to be formalised for individuals that travel to and attend major sporting events with commercial companies. This resulted in an econometric model for total spend and trip duration and illustrated the role that motivations play within these decisions.

6.5.3 Research Objective Three

Collect data from individual respondents on nine different major sporting events relating to major sporting event motivations, trip durations and expenditures, as well as demographic profiling information.

The third objective was satisfied through the use of an online survey that used a non-randomised sample generated via a partnership with a commercial major events company. As discussed within section 1.1 of the Chapter One the commercial company's business is concerned with the packaging and selling of tickets for domestic UK and international major sporting events and covered the range of nine major sporting events sampled by the online survey. The nine events sampled covered the range of events that the commercial company packaged and ticketed. The nine events also covered the categories A-D in UK Sports major sporting event typology. This therefore acknowledged

and acted on Preuss *et al's* (2007) claim that events other than the Olympic Games should be sampled to provide a profile their attendees.

The research survey collected data relating to respondents' major sporting event attendance, motivations, their sporting involvement, in addition to that of their trip duration, expenditure and demographic characteristics. All of the data is reported on and discussed within Chapter Four. From the discussion in the Literature Review it is apparent that no other major sporting event research has attempted to collect data on a number of different major sporting events, at different levels of competition and bring together their findings in such a way as to enhance the understanding of individuals that travel to and attend major sporting events.

6.5.4 Research Objective Four

Provide a detailed discussion of the motivations for major sporting event attendance.

Research Objective Four has been satisfied through the detailed discussion in Chapter Four section 4.2.3 and Chapter Five section 5.4. The discussion in Chapter Four illustrates the descriptive statistics as they relate to motivations and Table 4.14 compares and contrasts the motivational statistics with those reported in the existing descriptive motivational literature investigating travelling to and attending major sporting events. The results were shown to be broadly similar but the data from this research was further analysed and statistically estimated in terms of the conceptual model. The discussion in Chapter Five reports on the econometric estimation and illustrates the impact motivations have on the total spend and trip duration decisions for major sporting events. From these discussions it is illustrated that motivations impact the total spend and trip duration decisions in different ways due to the range and number of motivations involved.

6.5.5 Research Objective Five

Provide a micro level evaluation of total spending and trip duration for major sporting events.

In order to achieve research objective five, a micro level evaluation of total spend and trip duration was carried out by this research through the estimation of the econometric model as is illustrated in Chapter Five, Figure 5.3. The model presented within Figure 5.3 illustrates the micro level evaluation of the total spend and trip duration decisions that are entered into by individuals that travel to and attend major sporting events. This micro level analysis of Press's 'event visitors' category illustrates the impact that demographics, event related motivations and major sporting event profile variables have on total spend and trip duration decisions. Expanding the analysis of those that travel to and attend major sporting events in this way has previously not been attempted and can be seen to be an extension of reporting data collected from those that travel to and attend major sporting events and is in line with the calls from Armstrong (2002); Gibson (1998) and Preuss *et al* (2007).

6.5.6 Research Objective Six

Provide an extension of the analysis of those that travel to and attend major sporting events beyond that of a basic quantitative descriptive account to one in which statistical testing is undertaken.

This research objective was achieved through the statistical analysis detailed in section 3.4.2 of Chapter Three and then undertaken and presented in Chapter Five of this research. The descriptive analysis presented in Chapter Four is extended within Chapter Five with the application of Interval and Tobit Regression to the data which enables an econometric model to be produced, Figure 5.3. This econometric model illustrates the total spend and trip duration consumption decisions that are entered into by individuals that choose to travel to and attend major sporting events. By extending the analysis of the data collected from respondents that have travelled to and attended nine different major sporting events from that of a descriptive account, this research provides a more statistically robust commentary on those that travel to and attend major sporting events with commercial companies.

6.5.7 Research Objective Seven

Provide recommendations and conclusions that can be used by those that manage and market major sporting events in order to enhance the economic impact of hosting a major sporting event.

Preuss *et al* (2007) has illustrated that individuals that travel to and attend major sporting events are a distinct market segment. As such this research has demonstrated the variables that impact the total spend and trip duration decisions of individuals that travel to and attend major sporting events with commercial companies. It has been demonstrated how this research can be utilised to inform Preuss's (2005) tourism flows. It is recommended that the empirically determined variables need to be leveraged by the commercial company involved in the research and by the major sporting event industry to maximise the total spend and trip duration of individuals that travel to and attend major sporting events.

6.6 Research Conclusion

The aim of this research was to investigate the total spend and trip duration decisions taken by individuals that choose to travel to and attend major sporting events. This research was therefore, undertaken to gain an understanding of these and, in addition, identify the implications of these findings for the commercial company involved in the research as well as major sporting event managers, planners and evaluators. This research constitutes the first significant piece of research into understanding the decisions taken by individuals that travel to and attend major sporting events and in doing so leads to a greater understanding of the total spend and trip duration decisions.

This research provides an econometric model that illustrates the variables that are statistically significant influences on the total spend and trip duration decisions involved in travelling to and attending major sporting events. This research has illustrated how the information contained within this econometric model can be used by future researchers, commercial companies and major sporting event managers and planners. Currently the major sporting event community sees the value of measuring the economic impact of major sporting events, but due to the lack of research at the individual level, does not understand the decisions taken by the individual that travels to and attends major sporting

events. The major sporting event community is therefore unable to utilise information to maximise the economic impact of major sporting events. From this research, it is shown that the potential exists to enhance these economic impact studies of major sporting events through a better understanding of the individual at the micro level.

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Appendices

Appendix 1: Online Survey

Loughborough University International Sports Research

DO YOU TRAVEL TO AND ATTEND MAJOR SPORTING EVENTS?

IF SO, WE WANT TO HEAR FROM YOU!

[redacted] has teamed up with Loughborough University's Institute of Sport and Leisure Policy to conduct some key research into travelling sports spectators. We would appreciate it if you could complete the following questionnaire whether you have travelled to a sporting event or not. The questionnaire should take about 10 minutes to fill in.

The questionnaire focuses on major sporting events which carry significant influence and importance, such as the Olympic Games, World Cups and major Championships. Even if you think the event you have attended is not that significant or important please continue to complete the questionnaire, as all responses matter to us.

By completing the questionnaire and leaving your contact details you will be entered into a prize draw to win a pair of tickets for the Beijing 2008 Olympic Games. The tickets are offered by [redacted], in conjunction with the British Olympic Association and the prize draw will be made on 31st March 2007, after which the winner will be notified.

Thank you and good luck!

Please note that clicking submit to complete the survey indicates your informed consent for this survey.

*** 1. Have you previously attended any major sporting events?**

- ◯ I have only attended major sporting events internationally
- ◯ I have only attended major sporting events domestically
- ◯ I have attended major sporting events both internationally and domestically
- ◯ I have never attended any major sporting events.

Introduction

*** 1. How many major sporting events have you attended in the past 10 years?**

*** 2. Please tell us which are the most recent events you have attended, please select a maximum of 2 events**

- ☐ Olympic Games
- ☐ Winter Olympics
- ☐ Commonwealth Games
- ☐ Football World Cup
- ☐ Rugby World Cup
- ☐ Test Match Cricket
- ☐ International Tennis
- ☐ World Championship - any sport
- ☐ Other major sporting event

Other (please specify)

Summer Olympic Games

Please answer these questions as they relate to your travel to and attendance at the Summer Olympic Games

*** 1. Please tell us about the duration of your trip to the Summer Olympic Games.**

For example: if you left your home on the Monday, travelled to and attended the Olympic Games and returned home on the Friday, that would be 5 days.

- ◯ 1 Day - Day trip only
- ◯ 2 Days
- ◯ 3 Days
- ◯ 4 Days
- ◯ 5 Days
- ◯ 6 Days
- ◯ More than 6 Days

*** 2. Please tell us how important each of these factors were in influencing your decision to travel to and attend this event, ranging from "very important" to "unimportant"**

	Very Important	Important	Moderately Important	Of little Importance	Unimportant
Once in a lifetime opportunity	◯	◯	◯	◯	◯
Cultural experience	◯	◯	◯	◯	◯
Historical significance of the event	◯	◯	◯	◯	◯
Prestige of the event	◯	◯	◯	◯	◯
Educational experience	◯	◯	◯	◯	◯
Location of the event	◯	◯	◯	◯	◯
Tourist attractions other than the event itself	◯	◯	◯	◯	◯
Escape everyday life	◯	◯	◯	◯	◯
Enjoy travelling	◯	◯	◯	◯	◯
Enjoy the excitement & atmosphere	◯	◯	◯	◯	◯
Enjoy the competition & the sport	◯	◯	◯	◯	◯
Good source of entertainment	◯	◯	◯	◯	◯
Relative of a competitor	◯	◯	◯	◯	◯
Visit family & friends	◯	◯	◯	◯	◯
Availability of tickets	◯	◯	◯	◯	◯
Availability of accomodation	◯	◯	◯	◯	◯
Overall cost of trip	◯	◯	◯	◯	◯
Business/ networking opportunities	◯	◯	◯	◯	◯
Other reasons	◯	◯	◯	◯	◯

Other (please specify)

*** 3. How far in advance did you book your trip?**

- ◯ Less than 2 weeks
- ◯ 3 weeks - 2 months
- ◯ 3 - 6 months
- ◯ 7 - 12 months
- ◯ 13 - 18 months
- ◯ More than 18 months

✱ 4. How much money in total did you spend on this trip?

Total spend includes all the money you spent on the trip, so how much money did you spend on travel, accommodation, tickets, merchandise, food and drink, other tourist attractions, anything connected to your trip.

Winter Olympic Games

Please answer these questions as they relate to your travel to and attendance at the Winter Olympics

*** 1. Please tell us about the duration of your trip to the Winter Olympics**

For example: if you left your home on the Monday, travelled to and attended the Winter Olympics and returned home on the Friday, that would be 5 days.

- ◯ 1 Day - Day trip only
- ◯ 2 Days
- ◯ 3 Days
- ◯ 4 Days
- ◯ 5 Days
- ◯ 6 Days
- ◯ More than 6 Days

*** 2. Please tell us how important each of these factors were in influencing your decision to travel to and attend this event, ranging from "very important" to "unimportant"**

	Very Important	Important	Moderately Important	Of little Importance	Unimportant
Once in a lifetime opportunity	◯	◯	◯	◯	◯
Cultural experience	◯	◯	◯	◯	◯
Historical significance of the event	◯	◯	◯	◯	◯
Prestige of the event	◯	◯	◯	◯	◯
Educational experience	◯	◯	◯	◯	◯
Location of the event	◯	◯	◯	◯	◯
Tourist attractions other than the event itself	◯	◯	◯	◯	◯
Escape everyday life	◯	◯	◯	◯	◯
Enjoy travelling	◯	◯	◯	◯	◯
Enjoy the excitement & atmosphere	◯	◯	◯	◯	◯
Enjoy the competition & the sport	◯	◯	◯	◯	◯
Good source of entertainment	◯	◯	◯	◯	◯
Relative of a competitor	◯	◯	◯	◯	◯
Visit family & friends	◯	◯	◯	◯	◯
Availability of tickets	◯	◯	◯	◯	◯
Availability of accomodation	◯	◯	◯	◯	◯
Overall cost of trip	◯	◯	◯	◯	◯
Business/ networking opportunities	◯	◯	◯	◯	◯
Other reasons	◯	◯	◯	◯	◯

Other (please specify)

*** 3. How far in advance did you book your trip?**

- ◯ Less than 2 weeks
- ◯ 3 weeks - 2 months
- ◯ 3 - 6 months
- ◯ 7 - 12 months
- ◯ 13 - 18 months
- ◯ More than 18 months

* 4. How much money in total did you spend on this trip?

Total spend includes all the money you spent on the trip, so how much money did you spend on travel, accommodation, tickets, merchandise, food and drink, other tourist attractions, anything connected to your trip.

Commonwealth Games

Please answer these questions as they relate to your travel to and attendance at the Commonwealth Games

*** 1. Please tell us about the duration of your trip to the Commonwealth Games**

For example: if you left your home on the Monday, travelled to and attended the Commonwealth Games and returned home on the Friday, that would be 5 days.

- ◯ 1 Day - Day trip only
- ◯ 2 Days
- ◯ 3 Days
- ◯ 4 Days
- ◯ 5 Days
- ◯ 6 Days
- ◯ More than 6 Days

*** 2. Please tell us how important each of these factors were in influencing your decision to travel to and attend this event, ranging from "very important" to "unimportant"**

	Very Important	Important	Moderately Important	Of little Importance	Unimportant
Once in a lifetime opportunity	◯	◯	◯	◯	◯
Cultural experience	◯	◯	◯	◯	◯
Historical significance of the event	◯	◯	◯	◯	◯
Prestige of the event	◯	◯	◯	◯	◯
Educational experience	◯	◯	◯	◯	◯
Location of the event	◯	◯	◯	◯	◯
Tourist attractions other than the event itself	◯	◯	◯	◯	◯
Escape everyday life	◯	◯	◯	◯	◯
Enjoy travelling	◯	◯	◯	◯	◯
Enjoy the excitement & atmosphere	◯	◯	◯	◯	◯
Enjoy the competition & the sport	◯	◯	◯	◯	◯
Good source of entertainment	◯	◯	◯	◯	◯
Relative of a competitor	◯	◯	◯	◯	◯
Visit family & friends	◯	◯	◯	◯	◯
Availability of tickets	◯	◯	◯	◯	◯
Availability of accomodation	◯	◯	◯	◯	◯
Overall cost of trip	◯	◯	◯	◯	◯
Business/ networking opportunities	◯	◯	◯	◯	◯
Other reasons	◯	◯	◯	◯	◯

Other (please specify)

*** 3. How far in advance did you book your trip?**

- ◯ Less than 2 weeks
- ◯ 3 weeks - 2 months
- ◯ 3 - 6 months
- ◯ 7 - 12 months
- ◯ 13 - 18 months
- ◯ More than 18 months

* 4. How much money in total did you spend on this trip?

Total spend includes all the money you spent on the trip, so how much money did you spend on travel, accommodation, tickets, merchandise, food and drink, other tourist attractions, anything connected to your trip.

Football World Cup

Please answer these questions as they relate to your travel to and attendance at the Football World Cup

*** 1. Please tell us about the duration of your trip to the Football World Cup**

For example: if you left your home on the Monday, travelled to and attended the Football World Cup and returned home on the Friday, that would be 5 days.

- ◯ 1 Day - Day trip only
- ◯ 2 Days
- ◯ 3 Days
- ◯ 4 Days
- ◯ 5 Days
- ◯ 6 Days
- ◯ More than 6 Days

*** 2. Please tell us how important each of these factors were in influencing your decision to travel to and attend this event, ranging from "very important" to "unimportant"**

	Very Important	Important	Moderately Important	Of little Importance	Unimportant
Once in a lifetime opportunity	◯	◯	◯	◯	◯
Cultural experience	◯	◯	◯	◯	◯
Historical significance of the event	◯	◯	◯	◯	◯
Prestige of the event	◯	◯	◯	◯	◯
Educational experience	◯	◯	◯	◯	◯
Location of the event	◯	◯	◯	◯	◯
Tourist attractions other than the event itself	◯	◯	◯	◯	◯
Escape everyday life	◯	◯	◯	◯	◯
Enjoy travelling	◯	◯	◯	◯	◯
Enjoy the excitement & atmosphere	◯	◯	◯	◯	◯
Enjoy the competition & the sport	◯	◯	◯	◯	◯
Good source of entertainment	◯	◯	◯	◯	◯
Relative of a competitor	◯	◯	◯	◯	◯
Visit family & friends	◯	◯	◯	◯	◯
Availability of tickets	◯	◯	◯	◯	◯
Availability of accomodation	◯	◯	◯	◯	◯
Overall cost of trip	◯	◯	◯	◯	◯
Business/ networking opportunities	◯	◯	◯	◯	◯
Other reasons	◯	◯	◯	◯	◯

Other (please specify)

*** 3. How far in advance did you book your trip?**

- ◯ Less than 2 weeks
- ◯ 3 weeks - 2 months
- ◯ 3 - 6 months
- ◯ 7 - 12 months
- ◯ 13 - 18 months
- ◯ More than 18 months

* 4. How much money in total did you spend on this trip?

Total spend includes all the money you spent on the trip, so how much money did you spend on travel, accommodation, tickets, merchandise, food and drink, other tourist attractions, anything connected to your trip.

Rugby World Cup

Please answer these questions as they relate to your travel to and attendance at the Rugby World Cup

*** 1. Please tell us about the duration of your trip to the Rugby World Cup**

For example: if you left your home on the Monday, travelled to and attended the Rugby World Cup and returned home on the Friday, that would be 5 days.

- ◯ 1 Day - Day trip only
- ◯ 2 Days
- ◯ 3 Days
- ◯ 4 Days
- ◯ 5 Days
- ◯ 6 Days
- ◯ More than 6 Days

*** 2. Please tell us how important each of these factors were in influencing your decision to travel to and attend this event, ranging from "very important" to "unimportant"**

	Very Important	Important	Moderately Important	Of little Importance	Unimportant
Once in a lifetime opportunity	◯	◯	◯	◯	◯
Cultural experience	◯	◯	◯	◯	◯
Historical significance of the event	◯	◯	◯	◯	◯
Prestige of the event	◯	◯	◯	◯	◯
Educational experience	◯	◯	◯	◯	◯
Location of the event	◯	◯	◯	◯	◯
Tourist attractions other than the event itself	◯	◯	◯	◯	◯
Escape everyday life	◯	◯	◯	◯	◯
Enjoy travelling	◯	◯	◯	◯	◯
Enjoy the excitement & atmosphere	◯	◯	◯	◯	◯
Enjoy the competition & the sport	◯	◯	◯	◯	◯
Good source of entertainment	◯	◯	◯	◯	◯
Relative of a competitor	◯	◯	◯	◯	◯
Visit family & friends	◯	◯	◯	◯	◯
Availability of tickets	◯	◯	◯	◯	◯
Availability of accomodation	◯	◯	◯	◯	◯
Overall cost of trip	◯	◯	◯	◯	◯
Business/ networking opportunities	◯	◯	◯	◯	◯
Other reasons	◯	◯	◯	◯	◯

Other (please specify)

*** 3. How far in advance did you book your trip?**

- ◯ Less than 2 weeks
- ◯ 3 weeks - 2 months
- ◯ 3 - 6 months
- ◯ 7 - 12 months
- ◯ 13 - 18 months
- ◯ More than 18 months

* 4. How much money in total did you spend on this trip?

Total spend includes all the money you spent on the trip, so how much money did you spend on travel, accommodation, tickets, merchandise, food and drink, other tourist attractions, anything connected to your trip.

Test Match Cricket

Please answer these questions as they relate to your travel to and attendance at the Test Match Cricket

*** 1. Please tell us about the duration of your trip to the Test Match Cricket**

For example: if you left your home on the Monday, travelled to and attended the Olympic Games and returned home on the Friday, that would be 5 days.

- ◯ 1 Day - Day trip only
- ◯ 2 Days
- ◯ 3 Days
- ◯ 4 Days
- ◯ 5 Days
- ◯ 6 Days
- ◯ More than 6 Days

*** 2. Please tell us how important each of these factors were in influencing your decision to travel to and attend this event, ranging from "very important" to "unimportant"**

	Very Important	Important	Moderately Important	Of little Importance	Unimportant
Once in a lifetime opportunity	◯	◯	◯	◯	◯
Cultural experience	◯	◯	◯	◯	◯
Historical significance of the event	◯	◯	◯	◯	◯
Prestige of the event	◯	◯	◯	◯	◯
Educational experience	◯	◯	◯	◯	◯
Location of the event	◯	◯	◯	◯	◯
Tourist attractions other than the event itself	◯	◯	◯	◯	◯
Escape everyday life	◯	◯	◯	◯	◯
Enjoy travelling	◯	◯	◯	◯	◯
Enjoy the excitement & atmosphere	◯	◯	◯	◯	◯
Enjoy the competition & the sport	◯	◯	◯	◯	◯
Good source of entertainment	◯	◯	◯	◯	◯
Relative of a competitor	◯	◯	◯	◯	◯
Visit family & friends	◯	◯	◯	◯	◯
Availability of tickets	◯	◯	◯	◯	◯
Availability of accomodation	◯	◯	◯	◯	◯
Overall cost of trip	◯	◯	◯	◯	◯
Business/ networking opportunities	◯	◯	◯	◯	◯
Other reasons	◯	◯	◯	◯	◯

Other (please specify)

*** 3. How far in advance did you book your trip?**

- ◯ Less than 2 weeks
- ◯ 3 weeks - 2 months
- ◯ 3 - 6 months
- ◯ 7 - 12 months
- ◯ 13 - 18 months
- ◯ More than 18 months

* 4. How much money in total did you spend on this trip?

Total spend includes all the money you spent on the trip, so how much money did you spend on travel, accommodation, tickets, merchandise, food and drink, other tourist attractions, anything connected to your trip.

International Tennis

Please answer these questions as they relate to your travel to and attendance at the International Tennis

*** 1. Please tell us about the duration of your trip to the International Tennis event**

For example: if you left your home on the Monday, travelled to and attended the International Tennis event and returned home on the Friday, that would be 5 days.

- ◯ 1 Day - Day trip only
- ◯ 2 Days
- ◯ 3 Days
- ◯ 4 Days
- ◯ 5 Days
- ◯ 6 Days
- ◯ More than 6 Days

*** 2. Please tell us how important each of these factors were in influencing your decision to travel to and attend this event, ranging from "very important" to "unimportant"**

	Very Important	Important	Moderately Important	Of little Importance	Unimportant
Once in a lifetime opportunity	◯	◯	◯	◯	◯
Cultural experience	◯	◯	◯	◯	◯
Historical significance of the event	◯	◯	◯	◯	◯
Prestige of the event	◯	◯	◯	◯	◯
Educational experience	◯	◯	◯	◯	◯
Location of the event	◯	◯	◯	◯	◯
Tourist attractions other than the event itself	◯	◯	◯	◯	◯
Escape everyday life	◯	◯	◯	◯	◯
Enjoy travelling	◯	◯	◯	◯	◯
Enjoy the excitement & atmosphere	◯	◯	◯	◯	◯
Enjoy the competition & the sport	◯	◯	◯	◯	◯
Good source of entertainment	◯	◯	◯	◯	◯
Relative of a competitor	◯	◯	◯	◯	◯
Visit family & friends	◯	◯	◯	◯	◯
Availability of tickets	◯	◯	◯	◯	◯
Availability of accomodation	◯	◯	◯	◯	◯
Overall cost of trip	◯	◯	◯	◯	◯
Business/ networking opportunities	◯	◯	◯	◯	◯
Other reasons	◯	◯	◯	◯	◯

Other (please specify)

*** 3. How far in advance did you book your trip?**

- ◯ Less than 2 weeks
- ◯ 3 weeks - 2 months
- ◯ 3 - 6 months
- ◯ 7 - 12 months
- ◯ 13 - 18 months
- ◯ More than 18 months

* 4. How much money in total did you spend on this trip?

Total spend includes all the money you spent on the trip, so how much money did you spend on travel, accommodation, tickets, merchandise, food and drink, other tourist attractions, anything connected to your trip.

World Championships - Any Sport

Please answer these questions as they relate to your travel to and attendance at the World Championships - Any Sport

*** 1. Please tell us about the duration of your trip to the World Championship - Any Sport**

For example: if you left your home on the Monday, travelled to and attended the World Championships and returned home on the Friday, that would be 5 days.

- ◯ 1 Day - Day trip only
- ◯ 2 Days
- ◯ 3 Days
- ◯ 4 Days
- ◯ 5 Days
- ◯ 6 Days
- ◯ More than 6 Days

*** 2. Please tell us how important each of these factors were in influencing your decision to travel to and attend this event, ranging from "very important" to "unimportant"**

	Very Important	Important	Moderately Important	Of little Importance	Unimportant
Once in a lifetime opportunity	◯	◯	◯	◯	◯
Cultural experience	◯	◯	◯	◯	◯
Historical significance of the event	◯	◯	◯	◯	◯
Prestige of the event	◯	◯	◯	◯	◯
Educational experience	◯	◯	◯	◯	◯
Location of the event	◯	◯	◯	◯	◯
Tourist attractions other than the event itself	◯	◯	◯	◯	◯
Escape everyday life	◯	◯	◯	◯	◯
Enjoy travelling	◯	◯	◯	◯	◯
Enjoy the excitement & atmosphere	◯	◯	◯	◯	◯
Enjoy the competition & the sport	◯	◯	◯	◯	◯
Good source of entertainment	◯	◯	◯	◯	◯
Relative of a competitor	◯	◯	◯	◯	◯
Visit family & friends	◯	◯	◯	◯	◯
Availability of tickets	◯	◯	◯	◯	◯
Availability of accomodation	◯	◯	◯	◯	◯
Overall cost of trip	◯	◯	◯	◯	◯
Business/ networking opportunities	◯	◯	◯	◯	◯
Other reasons	◯	◯	◯	◯	◯

Other (please specify)

*** 3. How far in advance did you book your trip?**

- ◯ Less than 2 weeks
- ◯ 3 weeks - 2 months
- ◯ 3 - 6 months
- ◯ 7 - 12 months
- ◯ 13 - 18 months
- ◯ More than 18 months

* 4. How much money in total did you spend on this trip?

Total spend includes all the money you spent on the trip, so how much money did you spend on travel, accommodation, tickets, merchandise, food and drink, other tourist attractions, anything connected to your trip.

Other Most Recent Event

Please answer these questions as they relate to your travel to and attendance at the Other Most Recent Event

*** 1. Please tell us the name and location of this event**

*** 2. Please tell us about the duration of your trip to the Other Most Recent Event**

For example: if you left your home on the Monday, travelled to and attended the Other Most Recent Event and returned home on the Friday, that would be 5 days.

- ◯ 1 Day - Day trip only
- ◯ 2 Days
- ◯ 3 Days
- ◯ 4 Days
- ◯ 5 Days
- ◯ 6 Days
- ◯ More than 6 Days

*** 3. Please tell us how important each of these factors were in influencing your decision to travel to and attend this event, ranging from "very important" to "unimportant"**

	Very Important	Important	Moderately Important	Of little Importance	Unimportant
Once in a lifetime opportunity	◯	◯	◯	◯	◯
Cultural experience	◯	◯	◯	◯	◯
Historical significance of the event	◯	◯	◯	◯	◯
Prestige of the event	◯	◯	◯	◯	◯
Educational experience	◯	◯	◯	◯	◯
Location of the event	◯	◯	◯	◯	◯
Tourist attractions other than the event itself	◯	◯	◯	◯	◯
Escape everyday life	◯	◯	◯	◯	◯
Enjoy travelling	◯	◯	◯	◯	◯
Enjoy the excitement & atmosphere	◯	◯	◯	◯	◯
Enjoy the competition & the sport	◯	◯	◯	◯	◯
Good source of entertainment	◯	◯	◯	◯	◯
Relative of a competitor	◯	◯	◯	◯	◯
Visit family & friends	◯	◯	◯	◯	◯
Availability of tickets	◯	◯	◯	◯	◯
Availability of accomodation	◯	◯	◯	◯	◯
Overall cost of trip	◯	◯	◯	◯	◯
Business/ networking opportunities	◯	◯	◯	◯	◯
Other reasons	◯	◯	◯	◯	◯

Other (please specify)

*** 4. How far in advance did you book your trip?**

- ◯ Less than 2 weeks
- ◯ 3 weeks - 2 months
- ◯ 3 - 6 months
- ◯ 7 - 12 months
- ◯ 13 - 18 months
- ◯ More than 18 months

* 5. How much money in total did you spend on this trip?

Total spend includes all the money you spent on the trip, so how much money did you spend on travel, accommodation, tickets, merchandise, food and drink, other tourist attractions, anything connected to your trip.

Information on the Last Major Sporting Event You Attended

*** 1. Of the events that you have just told us about which was the last event you attended?**

Please tell us the year and the location of this event.

Summer Olympic Games	
Winter Olympics	
Commonwealth Games	
Football World Cup	
Rugby World Cup	
Test Match Cricket	
International Tennis	
World Championships - Any Sport	
Other most recent event	

*** 2. Would you have visited the area without this major sporting event taking place?**

◯ Yes ◯ No

*** 3. Was your trip to the event an additional activity beyond your normal travel plans?**

◯ Yes ◯ No

*** 4. Was attending the event**

◯ The sole reason for your trip? ◯ One activity among many on a more general trip?

◯ An important part of an already planned trip?

*** 5. Please tell us who you travelled to this event with**

Individual Sporting Profile

Please tell us about your participation and involvement in sport and physical activity

*** 1. Please tell us if you participate, have participated or if any member of your family participates in any of the following sports.**

Please indicate all that apply to you within the last 12 months

	I spectate at live events	I watch on TV	I currently participate in	I used to participate in	I currently volunteer in	I used to volunteer in	Somone in my family participates/ volunteers in	Not interested in this sport/ physical activity
Aerobics/ Keep Fit	○	○	○	○	○	○	○	○
Athletics	○	○	○	○	○	○	○	○
Badminton	○	○	○	○	○	○	○	○
Cricket	○	○	○	○	○	○	○	○
Cycling	○	○	○	○	○	○	○	○
Football	○	○	○	○	○	○	○	○
Golf	○	○	○	○	○	○	○	○
Go to Gym	○	○	○	○	○	○	○	○
Martial Arts	○	○	○	○	○	○	○	○
Jogging / Running	○	○	○	○	○	○	○	○
Rugby Union	○	○	○	○	○	○	○	○
Rugby League	○	○	○	○	○	○	○	○
Skiing	○	○	○	○	○	○	○	○
Squash	○	○	○	○	○	○	○	○
Swimming	○	○	○	○	○	○	○	○
Tennis	○	○	○	○	○	○	○	○
Walking	○	○	○	○	○	○	○	○
Weight Training	○	○	○	○	○	○	○	○
Other sports/ physical activities	○	○	○	○	○	○	○	○

Other sports/ physical activities (please specify)

Future Event Attendance

*** 1. Which major sporting events would you like to attend either domestically or internationally in the future?**

- ☐ Summer Olympic Games
- ☐ Winter Olympic Games
- ☐ Commonwealth Games
- ☐ Football World Cup
- ☐ Rugby World Cup
- ☐ Cricket World Cup
- ☐ Test Match Cricket
- ☐ International Tennis
- ☐ Motor Sports - Formula 1
- ☐ Major Golf Tournaments
- ☐ World Championships - Any Sport
- ☐ Other Significant Event
- ☐ None

Other Significant Event(please specify)

Tell Us About You

*** 1. Please tell us your gender**

- ◯ Male
- ◯ Female

*** 2. Please tell us your age**

*** 3. Please tell us which of these best describes you**

- ◯ Working full-time
- ◯ Working part-time
- ◯ Retired
- ◯ Student
- ◯ Homemaker
- ◯ Unable to work due to long term illness
- ◯ Unemployed
- ◯ Prefer not to say
- ◯ Other

*** 4. Please tell us your ethnicity**

- ◯ Bangladeshi
- ◯ Black African
- ◯ Black Caribbean
- ◯ Chinese
- ◯ Indian
- ◯ Mixed
- ◯ Pakistani
- ◯ White
- ◯ Asian - Other
- ◯ Black - Other
- ◯ Prefer not to say
- ◯ Other ethnic group

*** 5. Please tell us the approximate highest income in your household**

Prize Draw

Thank you for taking the time to complete this survey.

If you wish to enter the 2008 Beijing Olympic Ticket Prize Draw please enter your contact details below.

If you DO NOT wish to enter the draw please leave the following boxes blank and submit the survey

1. To enter the prize draw please provide us with your name, and the best way to contact you, either postal address, email or telephone number

Title (Mr, Mrs, Miss, Ms, Dr etc)	
First name	
Surname	
Email	
Contact telephone number	
Address	

Appendix 2: Method of Maximum Likelihood

The method of Maximum Likelihood (ML) is another point estimation method similar to OLS, but with what is felt to be some stronger theoretical properties as it is a more involved estimation method (Gujarati 1995). Generally, as the OLS estimation method with the assumption of normality of u_i has all the necessary information for both estimation and hypothesis testing, this tends to be the method most commonly used, as this avoids the slightly more complex mathematical issues involved with ML (Gujarati 1995). The preference of OLS over ML is not a serious issue, as when, normal distribution is assumed for u_i, the ML and OLS estimation of the parameters in multiple and simple regressions are identical. This appendix therefore briefly outlines the ML method as an alternative to OLS, to illustrate awareness of alternative estimation methods.

The ML estimator of σ^2 is, $\frac{1}{n}\sum \hat{u}_i^2$, and is a biased estimator, whereas, the estimator that is used in OLS is unbiased, $\sigma^2 = \frac{1}{n-2}\sum \hat{u}_i^2$. However, with an indefinitely increasing sample size this leads to the ML estimator of σ^2 becoming unbiased. When present, the biased properties of the ML estimator tend to exist as a downwards estimator, that is, on average it will underestimate the true variance of σ^2. Even though the two estimators of OLS and ML are not the same, with ML, as the sample size (n) increases, then the two estimators for σ^2 tend to be equal (Gujarati 1995).

Gujarati (1995:110) illustrates the method of ML estimation using a two variable model,

$$Y_i = \beta_1 + \beta_2 X_i + u_i$$

Equation A.1

Where Y_i is normally and independently distributed with mean $= \beta_1 + \beta_2 X_i$ and variance $= \sigma^2$. Gujarati shown that as a result, the joint probability density function of Y_1, Y_2 …, Y_n with the given mean and variance can be written,

$$f(Y_1, Y_2, \ldots, Y_n | \beta_1 + \beta_2 X_i, \sigma^2)$$

Equation A.2

Due to the independence of the Y's Gujarati (1995) illustrates that this can also be show as a product of the individual density functions,

$$f(Y_1, Y_2, \dots, Y_n|\beta_1 + \beta_2 X_i, \sigma^2) = f(Y_1|\beta_1 + \beta_2 X_i, \sigma^2) f(Y_2|\beta_1 + \beta_2 X_i, \sigma^2) \cdots f(Y_n|\beta_1 + \beta_2 X_i, \sigma^2)$$

Equation A.3

Where,

$$f(Y_i) = \frac{1}{\sigma\sqrt{2\pi}} \exp\left\{-\frac{1}{2}\frac{(Y_i - \beta_1 - \beta_2 X_i)^2}{\sigma^2}\right\}$$

Equation A.4

Which is a density function of a normally distributed variable with the given mean and variance, Equation A.4 is substituted for each Y_i into Equation A.3 gives,

$$f(Y_1, Y_2, \dots, Y_n|\beta_1 + \beta_2 X_i, \sigma^2) = \frac{1}{\sigma^n\left(\sqrt{2\pi}\right)^n} \exp\left\{-\frac{1}{2}\sum\frac{(Y_i - \beta_1 - \beta_2 X_i)^2}{\sigma^2}\right\}$$

Equation A.5

If $Y_1, Y_2, \dots, Y_n$ are know or in fact given, but β_1, β_2 and σ^2 are unknown the above function in Equation A.5 is known as the Likelihood Function, which can be denoted by $\mathrm{LF}(\beta_1, \beta_2, \sigma^2)$ and written as,

$$\mathrm{LF}(\beta_1, \beta_2, \sigma^2) = \frac{1}{\sigma^n\left(\sqrt{2\pi}\right)^n} \exp\left\{-\frac{1}{2}\sum\frac{(Y_i - \beta_1 - \beta_2 X_i)^2}{\sigma^2}\right\}$$

Equation A.6

From this the method of ML consists of estimating the unknown parameters in such a way that the probability of observing the given Y's is as high as it possibly can be. For this to occur, the maximum of the function, Eq. A.6, has to be established. This can be done using differential calculus and requires Equation A.6 to be expressed in its log form,

$$\ln \mathrm{LF} = -n \ln\sigma - \frac{n}{2}\ln(2\pi) - \frac{1}{2}\sum\frac{(Y_i - \beta_1 - \beta_2 X_i)^2}{\sigma^2}$$

$$= -\frac{n}{2}\ln\sigma - \frac{n}{2}\ln(2\pi) - \frac{1}{2}\sum\frac{(Y_i - \beta_1 - \beta_2 X_i)^2}{\sigma^2}$$

Equation A.7

In differentiating Equation A.7 partially with respect to β_1, β_2 and σ^2 gives,

$$\frac{\partial \ln \mathrm{LF}}{\partial \beta_1} = -\frac{1}{\sigma^2}\sum(Y_i - \beta_1 - \beta_2 X_i)(-1)$$

Equation A.8

$$\frac{\partial \ln \mathrm{LF}}{\partial \beta_2} = -\frac{1}{\sigma^2}\sum(Y_i - \beta_1 - \beta_2 X_i)(-X_i)$$

Equation A.9

$$\frac{\partial \ln \mathrm{LF}}{\partial \sigma^2} = -\frac{n}{2\sigma^2} + \frac{1}{2\sigma^4}\sum(Y_i - \beta_1 - \beta_2 X_i)^2$$

Equation A.10

To set these equations equal to zero, as the first order condition for optimisation, $\tilde{\beta}_1$, $\tilde{\beta}_2$ and $\tilde{\sigma}^2$ denote the ML estimators[40] it is observed that,

$$\frac{1}{\tilde{\sigma}^2}\sum\left(Y_i - \tilde{\beta}_1 - \tilde{\beta}_2 X_i\right) = 0$$

Equation A.11

$$\frac{1}{\tilde{\sigma}^2}\sum\left(Y_i - \tilde{\beta}_1 - \tilde{\beta}_2 X_i\right) X_i = 0$$

Equation A.12

$$-\frac{n}{2\tilde{\sigma}^2} + \frac{1}{2\tilde{\sigma}^4}\sum\left(Y_i - \tilde{\beta}_1 - \tilde{\beta}_2 X_i\right)^2 = 0$$

Equation A.13

With simplification Eq. A.11 and A.12 give,

$$\sum Y_i = n\tilde{\beta}_1 + \tilde{\beta}_2 \sum X_i$$

Equation A.14

[40] ~ (tilde) is used to indicate the ML estimator, with ^ (hat/cap) being used for the OLS estimators.

$$\sum Y_i \; X_i = \; \tilde{\beta}_1 \sum X_i + \; \tilde{\beta}_2 \sum X_i^2$$

Equation A.15

which are precisely the Least Squares Normal Equations. This therefore shows that the ML estimators, the $\tilde{\beta}$'s are the same as the OLS estimators, the $\hat{\beta}$'s, this is not accidental (Gujarati 1995). Substitution the ML (=OLS) into Equation 7.13 and simplifying the ML estimator $\tilde{\sigma}^2$ can be obtained,

$$\tilde{\sigma}^2 = \frac{1}{n} \sum \left(Y_i - \; \tilde{\beta}_1 - \; \tilde{\beta}_2 X_i\right)^2$$

$$= \frac{1}{n} \sum \left(Y_i - \; \hat{\beta}_1 - \; \hat{\beta}_2 X_i\right)^2$$

$$= \frac{1}{n} \sum \hat{u}_i^2$$

Equation A.16

As previously stated it can be seen that the ML and the OLS estimators are different. This is because the OLS estimator is unbiased and the ML estimator can be seen to be biased. Gujarati (1995) shows that the bias is determined as follows,

$$E(\tilde{\sigma}^2) = \frac{1}{n} \; E \; \left(\sum \hat{u}_i^2\right)$$

$$= \left(\frac{n-2}{n}\right) \sigma^2$$

$$= \; \sigma^2 - \frac{2}{n} \sigma^2$$

Equation A.17

This illustrates that $\tilde{\sigma}^2$ has a downwards bias and therefore underestimates the true σ^2 in small samples, but as sample size increases indefinitely, it becomes an unbiased estimator (Gujarati 1995).