

MAJOR SPORT EVENT ECONOMIC MODELLING AT DESTINATION

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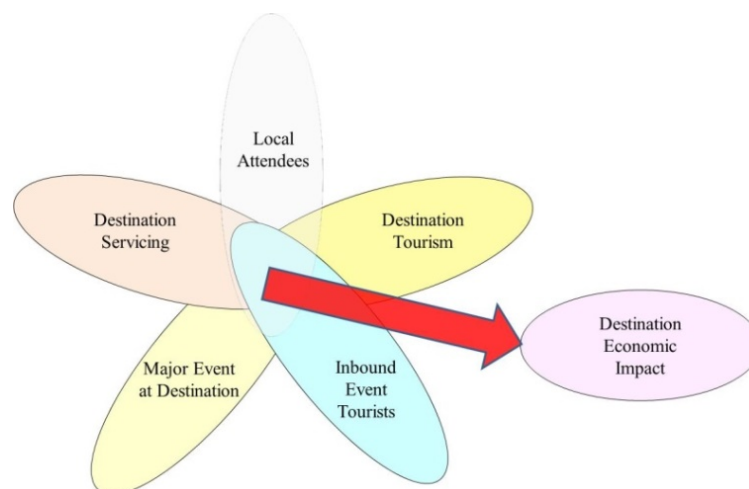
ABSTRACT

Inbound event tourists (IETs) and locals are drawn to major events. Their economic impact generates significant effects on regional destinations. This study follows the major sport of auto racing across 2012 and 2013. Motivated IETs travel over 100km to attend the major event, and some attend preferred destination tourism activities. IETs and locals each self-segregate themselves into one of seven behavioural attendance motive groups - each with different spending patterns. Economic impact equations are generated. Economic impacts of individual IETs and local behavioural groups at destination and at the major event show how destination managers (and researchers) can support a major event and focus their regional tourism activities.

Highlights

- major event inbound event tourists (IETs) and locals are sectioned
- IETs and locals each behaviourally divide into seven groups
- each behavioural group holds a spend profile
- major event IETs and locals show differing economic impact contributions
- major event IETs and locals show different economic impacts on the destination
- summed IET, locals and operational spends best represent destination economic impact
- a group economic impact view helps future major event's target specific tourism markets.

Graphical Abstract:



INTRODUCTION

Destination managers and marketers often assess the consequences of a major event [32] through an economic impact analysis [16][17][54][68]. Major events - like auto racing (AR) typically draw inbound event tourists (IETs) to a destination [26][36]. These major events typically pursue a profit agenda, and they occur infrequently, and often annually at a particular destination [31]. Hosting a major event often requires a substantive financial commitment by the destination and its larger external backers (industry and/or state/national governments). Chalip, Grenn and Hill [12] suggest such ongoing external financial backing to be dependent upon the major event's economic impact on the destination, and on the major event's capability to retain its competitive national or 'world-scale' drawcard status [59].

For IETs, Tyrrell and Johnston [64] follow a standardized economic impact approach of assessing changes in net-direct-expenditures caused by the major event. Song, Dwyer, Li and Cao [61] suggest existing economic impact approaches each hold underlying assumptions and limitations, but that economic considerations remain important.

LITERATURE

Economic Grouping Considerations at Destination

Some recent economic studies have adopted tourist behaviour as a quantifiable and motivating approach to understanding cost/benefits and/or economic impacts [41][56][57]. Such behavioural approaches can also be sectioned into motive group perspectives [1][36][51][53][58][71] have sectioned major AR event attendees as either IETs or as locals, and have sub-sectioned the tourist groups against their differing attendance motives.

Other researchers have sectioned tourists and locals by tribal groupings - as fan groups (or tribes) attached to the sport, to a community or to a vicarious achievement [66]. Further behaviourally-related studies group used levels of commitment, or self-identity or social-identity [33]; involvement levels or closeness to an event's team [39]; demographics and market reach across distance, education, income or spend [3][50]; knowledge, alertness or enthusiasm [13] and degree of behavioural intention [38]. Sport researchers have also mapped behaviours using self-selections of eustress, self-esteem, escape, entertainment, economic, athletic-type, group-affiliation or family-groupings [70][72]; or by mapping items including event satisfaction against trying new brands, seeing events, finding daring activities, relieving boredom, or revisiting intentions [28].

The major event also motivates attendees into a resource (time, experience and/or economic) commitment. Their overall economic impact as a homogeneous group (or as several behaviourally-sectioned sub-groups) can be monitored through their group spending patterns across the destination [65]. Homogeneous major event studies generally assume that locals, already living in or around the city, behave the same as IETs visiting the city to enjoy the major sport event. However, when selecting and sampling the destination's tourism activities, IETs display differing spend patterns to locals [7][29][34][48].

As most comparison studies display limitations when accurately splitting IETs from locals attending the major event [15] this study segregates IETs from local attendees, and then sections both IETs and local attendees into behaviourally different groups. It then develops economic impact measures that mirror the spend patterns of these groups.

TABLE 1

Major Event AR Attendee Expenditure Categories

Spend category	Research Studies								
	Chalip & McGuirly, 2004	Dwyer, 2000; Daniels et al., 2004	Lee & Taylor, 2005; Tyrrell & Ismail, 2005	Solberg & Preuss, 2007	Bonn & Harrington, 2008	Brida & Scuderi, 2013	Brida et al., 2014; Lee et al., 2015	Edwards et al., 2014; Byrd et al., 2014	Economic Spend Categories Used
Major event at destination	primary spends		event tickets event merchandise event foods	event spends	ticket fees other	pd reservation event motives cost variables	foods	event tickets event merchandise event foods	tickets event merchandise at-event foods
Destination tourism	secondary spends	foods eat/drink cafes shopping ammusements recreation tours eat/drink clubs shopping other services accommodation	shopping restaurants retail entertainment rec. attractions	rec. attractions tours clubs clubs/facilities activities accommodation	groceries restaurants shopping entertainment other reservation other reservation cost variables accommodation	cost variables cost variables cost variables other reservation other reservation cost variables dest. activities accommodation	foods foods shopping recreation recreation recreation shopping tourism activities lodging	foods eat/drink cafes shopping entertainment other entertainment eat/drink clubs shopping tourism activities accommodation	foods cafes merchandise entertainment attractions tours clubs souvenirs activities accommodation
Destination servicing & incidentals	necessary spends	transport car costs fuel	transport fuel	mass transport telecommunic's	transport	transport cost variables cost variables	transport vehicle hire cost variables	transport vehicle hire cost variables	transport vehicle hire repairs

Spend Patterns

Attendees at major sport events exert differing degrees of discretionary spending at the event’s destination [19][22][29]. They spend on event tickets, merchandise and activities associated with the major event itself. But at the destination, the IETs also spend on accommodation, transport, tourism attractions, visits, food and drinks, gifts, souvenirs and associated self-indulgent items [10][31][44][55]. Some also spend on specific destination tourism activities [43][52][73].

Only some of the locals who spend to attend the major event and/or its supporting activities also choose to place significant amounts of their remaining discretionary spend into the destination and its tourism activities. In contrast, IETs mix their spending between the event, and the destination [14]. Thus, the contributions of IETs and locals should be separately measured [19][64].

Bonn and Harrington [4] summarize four major sport event IET expenditure patterns under accommodation, restaurants, entertainment, shopping, transport, groceries, ticket fees, and other. As shown in Table 1, we include other studies and expand this list under the general destination classification areas of event, tourism and incidentals. We then follow the right hand column of categories in determining IET spend behaviours of major sport events. We use the same categories to contrast the spend behaviour of locals attending the major sport event.

Attendee Grouping Considerations at Destination

Tourism recognises attendee event segmentation has many approaches [62]. In previous studies researchers have segregated major sport event attendees into groups based on their self-selected behaviours and in particular through their motives-to-attend. Although different, McDonald et al.’s [51] twelve motives, Wann et al. [71] eight motives, and Hamilton, Tee and Prideaux’s, [36] six motives to attend a major sport event are comparable, and in the sport of auto racing they offer substantive degrees of alignment - suggesting six different attendee group classifications likely exist (Table 2).

TABLE 2

Major Sport Event Attendee Groups (developed from Hamilton et al., 2013)

Sport Motives (McDonald, Milne & Hong, 2002)	Sport Motives (Wann, Grieve, Zapalac & Pease 2008)	AR Event Motives (Hamilton, Tee, & Prideaux, 2011; 2013)	Group Classification	Retail Shopping Motives (Arnold & Reynolds, 2003)	Psych. Motives (McGuire 1974, Yang & Kim, 2012)
Achievement; Competition; Aggression	Escape: daily norms & activities	Rave about experiences & knowledge of event	Actors	To enhance ego & fulfill a desired role play	Human motivation; Achievement
Skill mastery; Aesthetics	Aesthetics: at event artistry pursuits	Expand personal knowledge at event	Inquirers	Keep current with what's new & obtain information	Objectification; Salubrious effects
Value development	Economic gain: as perceived benefit from investment	Require benefits/values from each commitment to engage/participate	Valuers	Get value for money & find some bargains	Assertion; Aggression
Social facilitation; Affiliation	Group/social affiliation preference at event; Convivial event time with family; Entertainment: enjoyable pastime	Socialize & exchange with like-minded persons	Socializers	Socializing with friends & for enjoyment	Human motivation; Entertainment
Risk Taking; Self actualization	Eustress: as positive euphoric stimulation through event	Feel the experience, excitement & adventure	Adventurers	For stimulation, self expression & curiosity	Human motivation; Stimulation
Self esteem; Stress relief	Self-esteem: as personal achievement	Treat oneself to a self-gratifying special event	Gratifiers	Treat oneself, & to reduce tension	Tension reduction; Salubrious effects

To check these Table 2 major sport event group classifications, we also check for alignment against Arnold and Reynolds [1] six retail shopping behavioural motive groupings, McGuire's [53] sixteen psychological motive theories, plus Yang & Kim's [74] and Kim & Eves's [42] psychological motive theories. These comparison checks show alignment with the six sport event attendee group classifications of Table 2. Hence for the major sport (such as AR) the attendee motives likely fit into one of six attendance groupings. From above, as IETs and locals can also behave differently, this study poses the following question:

Research Question 1 (RQ₁): Do major sport event attendees (IETs or locals) self-select into behavioural groups?

AR attracts IETs and locals to each of its major event destinations. Those attending choose their degree of economic commitment, but locals are more selective in their spend patterns [8][47].

IETs also broaden their destination experiences. They typically include a selection of destination tourism activities somewhat aligned towards their innate behavioural agendas [24][32][67]. They 'fit' these secondary-behavioural personal tourism agendas around their primary 'must-do' major event activities [11]. Hence, this study investigates whether the spending patterns at destination also show alignment with each attendee's self-selected behavioural grouping.

Research Question 2 (RQ₂): Do the spending patterns at destination match those expected with the major event attendee's self-selected group?

Research Question 3 (RQ₃): Compared to major sport event local attendees, do IETs exert a stronger economic impact on the destination?

Brida and Risso [6] and Cortez-Jimenez and Pulina [14] support the proposal that seasonally-timed inbound tourism (such as a major destination sport event), when treated as an external income generator, is also a driver of local economic growth. Thus, for IETs, the destination has an economic incentive to align its tourism and servicing offerings towards the requirements of its major event.

These IETs likely exert a stronger economic impact on the destination than do the local attendees at the same major event. The overall economic impact of this major event has revenue contributions from its IETs, from locals and from its associated set-up, operational pull-down and storage expenses [49]. Hence, it is likely that the overall economic impact associated with the major event is greater than the economic impact into the destination itself. Hence this study proposes:

Research Question 4 (RQ₄): The overall economic impact of the major event exceeds its contribution into the destination?

In this study the Table 1 spends of the (1) IETs, (2) local attendees and (3) major event's management (set-up, internal event roadshow, pull-down, and materials storage) are developed for each Table 2 behaviourally-sectioned major event attendee sub-group. These are summed and then adjusted with the destination economic multiplier to deliver a combined economic impact.

This segmented summing approach shows the relative economic impact of each group against the destination's existing tourism activities, and against its other relevant servicing offerings. This is useful when considering future cycles of this major sport event at this destination.

RESEARCH METHODOLOGY

This two year study follows a prior three year study at the same destination. It encompasses a 2012 major event and a 2013 major event at the same destination within an annual major international AR circuit across Australia, New Zealand, the USA, and the United Arab Emirates. Here, IETs and locals are compared for their at-event and at-destination activities [27][40].

Surveying

This regional Australian destination, AR event attendee economic impact study was conducted in July 2012 and in July 2013. It is one of fourteen major events in this annual international AR circuit. Each major event encompasses three days of competitive AR [30][36][51]. Sixty race-cars enter qualifying events, and the thirty best race-cars compete for major event prizes. Attendee behavioural responses are captured by five-point strongly disagree (1) to strongly agree (5) Likert scale questions. Demographic choices and economic scale questions capture further responses.

At this destination major event surveys of IETs and of locals are collected by around seventy rigorously pre-trained surveyors, each working across each day, and surveying only during the 20-30 minutes between each racing event. All respondents are asked to indicate that they completed the survey only once across the three days. In 2012 this major AR event drew 152,161 attendees to three days of competitive racing, and in 2013 the same AR event drew 146,842 attendees across the three race days.

For the event under study, IETs stay at this destination for a few extra days around the major event's race days. During this time they continue their destination spends and they also sample the destination's tourism activities. Hence, this major event also releases many millions of dollars into this destination.

Data Cleaning

After data cleaning, 2012 and 2013 missing value at random replacement (Little's MCAR $\chi^2 = \text{large}$, $p < 0.000$) [20] respectively removed 29 and 24 items with over twenty per cent missing at random. Next from the 2012 and 2013 data sets five and three outliers were removed, leaving 551 and 577 IETs survey responses and 691 and 657 local survey responses.

Demographics

In this major sport event attendee study we determine IETs and locals by their postcode with those living up to 100 kilometres of the major sport event's venue deemed locals, and those living further away deemed IETs. These AR attendees are typically middle aged, in stable jobs, and with a degree of discretionary spending. Many are also fans, or those who are attracted to the major event through a shared interest or vision.

Economics

Both IETs and locals spend at a major event. They purchase goods and services that encapsulate their consumptive hedonic (uniqueness, symbolic or emotive self-gratification) pursuits [18], and/or their consumptive utilitarian pursuits to acquire personally satisfying goals [2].

Seasonally-timed major events specifically draw IETs and generate external revenue for a destination [6]. Hence, we collate the destination's external revenue from its IETs as either directly-related to the major event, or as specifically-related to the spending on destination servicing and/or destination tourism activities [9][46]. Similarly, we collate the internal revenue generated from local attendees as specifically relating to the major event, and as revenue generated against extra servicing and/or extra tourism activities at the destination

ANALYSIS AND DISCUSSION

Attendance Numerics

Attendee feedback (Table 3) shows 'adventures' is the preferred motivational choice for attending this major AR event, then comes 'socializers', followed by those fitting 'gratifiers' and 'actors' groups. 'Valuers' and 'inquirers' groupings display lowest level of attendance. Over ninety three per cent of major event attendees also indicate satisfaction with the major event, and with the destination's tourism offerings.

Over ten thousand attendees do not plan to return when the major event revisits in 2014. This study's economic impact approach elucidates potential appeal areas of specific tourism relevance to managers when seeking to target members of an individual attendee group. How to market to these groups is also of relevance.

For example, Table 4 right-side includes our 2011 data from 1177 respondents to show that over time attendees are expanding their use of on-line (web/mobile) and social apps to update their knowledge and to buy entry/seating tickets to the major event. Similarly, travel agents are increasingly promoting major event packages.

TABLE 3**Major Event AR Attendee Numbers per Group**

Group	2012			2013		
	Surveyed attendees per group	Attendees % per group	Attendees % selecting a group at event	Surveyed attendees per group	Attendees % per group	Attendees % selecting a group at event
Adventurers	384	36.3%		325	29.3%	
Socializers	348	32.9%		334	30.1%	
Gratifiers	139	13.2%	1057/1242 =	175	15.8%	1111/1234 =
Actors	113	10.7%	84.7%	161	14.5%	90.0%
Valuers	46	4.4%		78	7.0%	
Inquirers	27	2.6%		38	3.4%	
Total Attendees		152,161			146,842	

In addition to the normal media advertising, personal influences through word-of-mouth and Facebook are increasingly attendance motivators. Table 4 left-side indicates all attendees (IETs or locals) use multiple sources to learn of the major event. Word-of-mouth, family/friends, free TV, web/mobile applications, and travel agents are key IET attendance motivators, whilst newspapers, radio, billboards and corporate initiatives are key local attendance motivators. This major AR event is also a social activity. Thus destination marketing should utilize social and group (or tribal) appeal mechanisms [37].

TABLE 4**Major AR Event Promotional Modes**

Source Major Event through...	2012 users		2013 users		2011 users	2012 users	2013 users
	IETs (%)	Local (%)	IETs (%)	Local (%)	%	%	%
Word-of-mouth	14.7	13.7	17.0	15.0	14.7	14.1	16.1
Family/Friends	19.0	15.0	16.0	12.0	16.6	16.3	13.7
Free TV	21.0	20.0	15.0	13.0	15.7	15.6	14.5
Newspaper	14.4	16.0	12.0	16.0	5.1	4.2	3.0
Radio	9.4	14.0	10.0	15.0	7.4	7.7	3.4
Travel Agent	0.0	1.0	8.0	5.0	1.7	0.0	0.0
Facebook	4.0	4.0	5.0	5.0	0.0	3.9	7.7
Web page	9.0	7.0	4.0	3.0	1.1	0.6	5.9
Pay TV			2.0	3.0	5.4	5.4	4.4
Billboards	4.0	6.0	3.0	5.0	20.6	20.2	16.0
Business/Corporate promotion	4.0	4.0	2.0	3.0	11.7	12.0	13.1
Mobile/Ipad/Phone Apps			2.0	2.0	0.0	0.0	2.2
Twitter			1.0	1.0			
YouTube			1.0	2.0			

Economic Impacts

From Table 1 the destination tourism facilities (f_{ij}) spend per group and the servicing/incidentals spend per group (g_{ij}) for IETs are each measured. These same IETs also spend at the major event itself (e_{ij}). The same approach is applied to locals.

Once summed for all the 160 members of the 2012 socializer IETs, this result is divided by the number of attendees surveyed ($N_{UT} = 1242$), and multiplied by the total number of attendees at the major event ($N_O = 152,161$). Once combined with the average family (or compatriot) cluster size ($N_U = 2.9$) incorporated, the revenue for the socializers (or i^{th}) IET group (R_{T_i}) is delivered through equation 1.

$$R_{T_s} = N_O / (N_{UT} * N_U) * \sum_{j=1}^{j=160} (g_{t_j} + e_{t_j} + f_{t_j}) \quad (1)$$

Where: i = the socializers IET group, and: j = a member of the i^{th} or socializers IET group

When gauged for each major event IET attendee (R_T), or each local attendee (R_L) revenue value is developed. Within each group revenue for each individual ($j = 1$ to k) is summed and then factored by the group number ($i = 1$ to 7). An external contribution per IET towards the destination revenue (R_T) is determined through equation 2.

$$R_T = \sum_{ij}^{7k} (R_{T_{ij}}) \quad (2)$$

These two IET (R_T) and locals (R_L) revenue values are summed in equation 3 to deliver the overall attendee destination revenue (R_A).

$$R_A = (R_T + R_L) \quad (3)$$

Finally, the major event behaves as a travelling roadshow. Equation 4 shows its destination revenue from management expenditure (R_M). It combines set-up spends (r_e), internal event roadshow spends (r_m), pull-down spends (r_p), and materials storage spends (r_s).

$$R_M = \sum (r_e + r_m + r_p + r_s) \quad (4)$$

These R_M additions add a further five million dollars to the overall major event's revenue generation (R) into the destination.

The overall destination revenue (R) value sums E_T , E_L and E_M and it is then factored by the economic impact factor (I) for the destination as shown in equation 5. This destination's economic impact (E) from this major AR sport event also includes those major event attendees who do not self-select a preference for a group.

$$E = I * R \quad (5)$$

For IETs (and similarly for locals) equations 1 to 3 and equation 5 can be represented as one IET economic impact equation (equations 6).

$$E_T = I * [N_{T_O} / (N_{UT} * N_U) * \sum_{ij}^{7k} (g_{t_{ij}} + e_{t_{ij}} + f_{t_{ij}})] \quad (6)$$

Hence, for the major event and considered at its group levels, the differences (E_d) in economic impact (equation 7) can be calibrated between IETs (E_T) and locals (E_L). For 2012 this difference is \$19.2M and for 2013 it is \$21.0M. This 10% change in relative contributions may reflect the reach of the 2013 strategic target market changes implemented by the major event and by destination management.

$$E_d = \Delta (E_T - E_L) \quad (7)$$

This study broadens understanding of the major event's economic impact on the destination. The weighted spend by each attendee (IET or locals) group on chosen destination tourism activities is developed. Hence, instead of considering major event attendees as one homogeneous cohort, this

approach provides information that can allow the design of future targeted destination tourism activities (Lee & Taylor, 2005) – one that suit the behavioural requirements of each of the seven major event attendee groupings. The major event’s economic impact at the destination can now be viewed by section as IET (E_T), related, locals related (E_L) or overall (E). Further the economic impact component contributions, such as g_{ij} or e_{ij} or f_{ij} , can also be isolated and considered. Thus RQ₁ to RQ₄ can be tested.

Behavioural Analysis of Major event Attendee Groups at Destination

Next we refine the basic economic impact approach of equations 1 to 7 by capturing all the individual category spends of both IETs and locals. To confirm whether the Table 2 projected group behaviours actually apply to defined behavioural groups, we relate the spending patterns of each group against their attendance motives. This approach adds further weight to defining the needs-profiles for major event tourists against the destination’s servicing and its tourism activities.

We map the both IETs and local attendees at consecutive annual major AR events (2012 and 2013) at the same destination as shown in tables 4 to 7, and compute economic impact contributions.

TABLE 5

2012 IET Spends

2012 IET Destination Spend Items	Av. Group Spending of Major Event IET Attendees (\$)							Total
	None	Actor	Inquirer	Valuer	Adventurer	Socializer	Gratifier	
Major Event Spend (e)								
major event tickets	161	161	158	125	177	157	150	
major event merchandise	118	113	74	130	103	100	112	
major event food/drinks	<u>92</u>	<u>109</u>	<u>31</u>	<u>64</u>	<u>69</u>	<u>75</u>	<u>75</u>	
<i>Sub-total</i>	<i>371</i>	<i>382</i>	<i>262</i>	<i>319</i>	<i>349</i>	<i>332</i>	<i>337</i>	
Destination Tourism Spend (f)								
tourist attractions	97	61	48	56	70	55	74	
tickets to other local activities or tours	35	48	11	28	20	29	26	
food/drinks at grocery or other shops	92	109	31	64	69	73	75	
café/restaurant expenditure	95	112	82	67	72	85	93	
drinks at bars, hotels or nightclubs	82	128	71	75	59	80	53	
local souvenirs	12	34	5	20	13	17	19	
local support events expenditure	99	95	118	73	75	81	76	
local support event merchandise	47	52	39	67	34	41	47	
local entertainment (not support events)	79	98	59	81	79	105	96	
accommodation	<u>98</u>	<u>115</u>	<u>23</u>	<u>45</u>	<u>67</u>	<u>72</u>	<u>107</u>	
<i>Sub-total</i>	<i>735</i>	<i>851</i>	<i>553</i>	<i>578</i>	<i>558</i>	<i>636</i>	<i>665</i>	
Destination Servicing/Incidentals Spend (g)								
car hire	23	22	13	0	5	19	12	
car-related components	22	22	0	36	6	5	7	
public transport	<u>29</u>	<u>29</u>	<u>0</u>	<u>6</u>	<u>6</u>	<u>15</u>	<u>12</u>	
<i>Sub-total</i>	<i>73</i>	<i>73</i>	<i>13</i>	<i>41</i>	<i>16</i>	<i>38</i>	<i>31</i>	
Destination average spend per group	808	924	566	619	574	674	696	
Tourist average spend per group	1,179	1,306	827	938	923	1,006	1,032	
Tourist attendees per group	<u>73</u>	<u>50</u>	<u>10</u>	<u>15</u>	<u>163</u>	<u>160</u>	<u>80</u>	<u>551</u>
Total \$ from 551 inbound tourists	86071	65300	8270	14065	150437	161015	82570	567,728
Total \$ from all inbound tourists						scaled for av gp size		23,984,136
Total \$ Eco Impact (all IETs)						economic impact (\$)		43,890,968

Table 5 shows IETs typically spend \$336 (33%) at event and \$694 (67%) on at destination activities and incidentals. Being larger in group size, adventurers and socializers spend most then inquirers, and gratifiers and actors spend considerably more than inquirers, and valuers. Actors present a persona and

spend to display their presence. Inquirers seek new knowledge, but spend little. Valuers are conservative spenders, but still acquire token memorabilia. Adventurers selectively choose exciting and engaging activities. Socializers spend on experience-sharing activities. Gratifiers spend to meet their personal satisfaction requirements. Such spend patterns offer some support for RQ₂.

Equations 1 to 6 are captured in Tables 5 to 8. For example, and for both 2012 and 2013 IET socializers, the destination tourism facilities (f_{ij}) spend per group sums tourist attractions to accommodation, the servicing/incidentals spend per group (g_{ij}) for IETs sums car hire to public transport and the spend at the major event itself (e_{ij}) sums major event tickets to major event food/drinks. Scaling is achieved by dividing this summation by the total number of IET attendees (N_{UT}) and multiplying by the total number of IET attendees (N_T) to determine their proportional contribution to the revenue. This is corrected for both the average family (or compatriot) cluster size (N_U), and for the destination's economic impact factor (I). This approach delivers a socializer IET revenue stream of 6.8M in 2012 and 5.9M in 2013. This translates to a socializer economic impact into the destination of \$12.5M (2012) and \$10.8M (2013).

Table 6 shows locals on average typically spend \$232 (54%) at event and \$198 (46%) on at destination activities and incidentals, and they spend \$496 less on the at-destination activities and \$600 less overall than do IETs. This supports RQ₃.

TABLE 6

2012 Locals Spends

2012 Locals Destination Spend Items	Av. Group Spending of Major Event Local Attendees (\$)							Total
	None	Actor	Inquirer	Valuer	Adventurer	Socializer	Gratifier	
Major Event Spend (e)								
major event tickets	126	125	159	142	162	147	137	
major event merchandise	75	78	94	75	82	92	64	
major event food/drinks	<u>14</u>	<u>4</u>	<u>1</u>	<u>16</u>	<u>8</u>	<u>17</u>	<u>5</u>	
<i>Sub-total</i>	215	207	254	233	252	256	206	
Destination Tourism Spend (f)								
tourist attractions	8	4	0	5	3	7	1	
tickets to other local activities or tours	7	4	21	5	2	7	0	
food/drinks at grocery or other shops	14	4	1	16	8	17	5	
café/restaurant expenditure	10	4	10	7	5	15	6	
drinks at bars, hotels or nightclubs	11	8	0	18	4	18	8	
local souvenirs	8	2	10	4	3	11	0	
local support events expenditure	66	74	79	29	68	78	44	
local support event merchandise	28	42	46	20	40	42	27	
local entertainment (not support events)	39	50	80	25	42	55	25	
accommodation	<u>12</u>	<u>10</u>	<u>0</u>	<u>10</u>	<u>3</u>	<u>7</u>	<u>7</u>	
<i>Sub-total</i>	204	201	247	139	178	257	123	
Destination Servicing/Incidentals Spend (g)								
car hire	2	3	0	2	0	1	0	
car-related components	1	4	0	2	3	3	2	
public transport	<u>5</u>	<u>1</u>	<u>0</u>	<u>2</u>	<u>1</u>	<u>1</u>	<u>0</u>	
<i>Sub-total</i>	9	8	0	7	4	5	2	
Destination average spend per group	213	209	247	147	182	262	125	
Locals average spend per group	428	416	501	379	434	518	331	
Locals attendees per group	<u>112</u>	<u>63</u>	<u>17</u>	<u>31</u>	<u>221</u>	<u>188</u>	<u>59</u>	<u>691</u>
Total \$ from 691 local attendees	47911	26239	8523	11757	95914	97384	19529	307,257
Total \$ from all local attendees							scaled for av gp size	12,980,324
Total \$ Eco Impact (all local attendees)							economic impact (\$)	23,753,994

Supporting RQ₄, the overall economic impact in 2012 (not including TV rights, radio broadcast fees, and event sponsorships) is in excess of \$67.7M.

Compared to 2012, Table 7's 2013 IETs typically spend in almost the same ratio (\$2,253 (36%) at event and \$4,213 (64%) on at destination activities and incidentals). Being larger in group size, adventurers, socializers spend most, gratifiers and actors are the next highest spenders, whilst inquirers, valuers and the non-selecting group (now termed budgeters in section 5.2) spend least. This partially supports RQ₂.

TABLE 7

2013 IET Spends

2013 IET Destination Spend Items	Av. Group Spending of Major Event IET Attendees (\$)							Total
	None	Actor	Inquirer	Valuer	Adventurer	Socializer	Gratifier	
Major Event Spend (e)								
major event tickets	76	155	154	126	163	175	164	
major event merchandise	44	100	117	107	101	92	85	
major event food/drinks	<u>48</u>	<u>96</u>	<u>89</u>	<u>85</u>	<u>80</u>	<u>103</u>	<u>89</u>	
<i>Sub-total</i>	<i>169</i>	<i>352</i>	<i>361</i>	<i>318</i>	<i>345</i>	<i>370</i>	<i>339</i>	
Destination Tourism Spend (f)								
tourist attractions	40	93	88	52	69	70	75	
tickets to other local activities or tours	13	33	34	29	27	38	32	
food/drinks at grocery or other shops	13	25	32	17	8	23	22	
café/restaurant expenditure	43	94	90	85	90	98	85	
drinks at bars, hotels or nightclubs	33	67	66	48	63	88	73	
local souvenirs	15	27	31	18	22	23	21	
local support events expenditure	31	80	102	81	61	62	61	
local support event merchandise	17	52	48	46	40	40	30	
local entertainment (not support events)	36	89	86	73	85	88	69	
accommodation	<u>64</u>	<u>123</u>	<u>82</u>	<u>78</u>	<u>102</u>	<u>121</u>	<u>91</u>	
<i>Sub-total</i>	<i>306</i>	<i>683</i>	<i>658</i>	<i>525</i>	<i>569</i>	<i>651</i>	<i>559</i>	
Destination Servicing/Incidentals Spend (g)								
car hire	16	24	1	5	13	25	14	
car-related components	18	20	10	8	9	15	9	
public transport	<u>5</u>	<u>18</u>	<u>17</u>	<u>8</u>	<u>9</u>	<u>12</u>	<u>7</u>	
<i>Sub-total</i>	<i>39</i>	<i>62</i>	<i>27</i>	<i>21</i>	<i>30</i>	<i>52</i>	<i>30</i>	
Destination average spend per group	345	745	686	546	599	703	590	
Tourist average spend per group	514	1,097	1,047	864	944	1,073	928	
Tourist attendees per group	<u>97</u>	<u>65</u>	<u>19</u>	<u>29</u>	<u>150</u>	<u>134</u>	<u>83</u>	<u>577</u>
Total \$ from 577 inbound tourists	49852	71303	19888	25055	141577	143760	77063	528498
Total \$ from all inbound tourists						scaled for av gp size		21,686,051
Total \$ Eco Impact (all IETs)						economic impact (\$)		39,685,474

Table 8 shows locals on average typically spend \$208 (56%) at the major event and \$163 (44%) on their at-destination activities and incidentals. They also spend \$439 less on the at-destination activities and \$554 less overall than do IETs. This again supports RQ₃. Supporting RQ₄, the overall economic impact in 2013 is in excess of \$67M. Further revenue streams include TV fees, radio fees, and event sponsorship fees.

This approach allows direct comparisons between years. However between 2012 and 2013, major event management altered their marketing mix and the destination's managers altered their local tourism marketing approaches. Another restriction in 2012 or 2013 between-year comparisons arises because the data set size of each specific IETs and locals group is sometimes small (inquirers or valuers), or can vary considerably (actors or gratifiers) . Hence only approximate relationships can be inferred.

TABLE 8

2013 Locals Spends

2013 Locals Destination Spend Items	Av Group Spending of Major Event Local Attendees (\$)							Total
	None	Actor	Inquirer	Valuer	Adventurer	Socializer	Gratifier	
Major Event Spend (e)								
major event tickets	152	126	92	121	135	143	142	
major event merchandise	88	75	94	54	74	76	65	
major event food/drinks	<u>0</u>	<u>3</u>	<u>10</u>	<u>0</u>	<u>0</u>	<u>2</u>	<u>1</u>	
<i>Sub-total</i>	<i>240</i>	<i>204</i>	<i>196</i>	<i>176</i>	<i>209</i>	<i>221</i>	<i>208</i>	
Destination Tourism Spend (fi)								
tourist attractions	0	3	0	3	2	6	2	
tickets to other local activities or tours	0	2	10	3	4	5	0	
food/drinks at grocery or other shops	0	2	1	11	7	10	0	
café/restaurant expenditure	0	3	9	7	6	9	1	
drinks at bars, hotels or nightclubs	0	6	0	6	7	8	5	
local souvenirs	0	1	9	6	5	8	2	
local support events expenditure	64	55	37	37	35	45	28	
local support event merchandise	52	47	40	36	28	31	29	
local entertainment (not support events)	<u>82</u>	<u>64</u>	<u>36</u>	<u>33</u>	<u>46</u>	<u>53</u>	<u>26</u>	
accommodation	0	16	0	13	1	8	8	
<i>Sub-total</i>	<i>197</i>	<i>198</i>	<i>142</i>	<i>155</i>	<i>142</i>	<i>183</i>	<i>102</i>	
Destination Servicing/Incidentals Spend (gi)								
car hire	0	3	0	2	1	2	0	
car-related components	0	2	0	0	1	2	0	
public transport	<u>0</u>	<u>2</u>	<u>2</u>	<u>0</u>	<u>1</u>	<u>1</u>	<u>0</u>	
<i>Sub-total</i>	<i>0</i>	<i>8</i>	<i>2</i>	<i>2</i>	<i>3</i>	<i>5</i>	<i>0</i>	
Destination average spend per group	197	206	144	157	145	188	102	
Locals average spend per group	436	410	340	333	353	409	310	
Locals attendees per group	<u>26</u>	<u>96</u>	<u>19</u>	<u>49</u>	<u>175</u>	<u>200</u>	<u>92</u>	<u>657</u>
Total \$ from 657 locals attendees	11349	39384	6457	16308	61855	81736	28506	245595
Total \$ from all locals attendees						scaled for av gp size		10,077,570
Total \$ Eco Impact (all local attendees)						economic impact (\$)		18,441,952

Supporting RQ₁, the six behavioural groups are self-selected by 85% of the 152,161 attendees in 2012 and by 90% of 146,842 attendees in 2013 (Table 3). The remainder self-select into the ‘None’ group category of attendees. On very rare occasions an individual in the ‘None’ group multi-selected several groups in such instances for data consistency we chose not to remove them from the ‘None’ group. All Table 9 research questions are consistently supported above for each year of the study.

TABLE 9

Research Questions Support

Research Questions	2012	2013
RQ1: Major sport event attendees (inbound tourists or locals) self-select into behavioural groups.	✓✓✓	✓✓✓
RQ2: Spending patterns at destination match those expected of major event attendee’s self-selected group.	✓✓✓	✓✓✓
RQ3: Compared to major sport event, local attendees, inbound tourists exert a stronger eco impact on destination.	✓✓✓	✓✓✓
RQ4: Overall eco impact of major event exceeds contribution into destination.	✓✓✓	✓✓✓

‘Real’ Economic Impact into the Destination

Most studies combine the IETs and the locals as one cohort, and so we generate an overall attendee economic impact (E_T). In this study this equates to \$67.7M (43.9 + 23.8) in 2012 and \$58.1M (39.7 + 18.4) in 2013.

The major event encourages IETs and locals to spend and some selectively place a portion of their discretionary spend capacity into the destination and into its support activities. Some within the destination argue local attendees offer little net economic benefit to the region. They claim that in the weeks following the major event, many local attendees live more stringently, and as a cohort, locals spend less within their destination. Hence, the destination gains revenue from its major event IETs, but apparently loses some revenue to the major event from its local attendees.

The destination also wins over \$5M in revenue through the spending required to set-up, operationalise, pull-down and store major event equipment. This revenue stream brings \$2M more into the destination than local attendees actually spend on the major event.

The major event’s promotions have intangible destination benefits including international publicity, community hype and regional pride. Tangible destination benefits include physical infrastructure improvements, focused approaches to tourism, improvements in tourism coordination, and focused tourism support infrastructures (accommodation, transport, entertainment). Thus, from many perspectives annual or repetitive major events are of benefit to the destination and its tourism activities.

Hence, re-considering Tables 5 and 6, the ‘real’ economic impact into the destination is best represented by (1) the IET compatriot team spend on destination tourism facilities (f_{ij}) and on servicing/incidentals (g_{ij}) across all seven behavioural groups. The major event management event set-up, operational, pull-down and storage costs (R_M) is typically around \$5M. R_M is a revenue stream is into the destination and so it included and adjusted for economic impact as shown in Equation 8.

$$E_D = I * [N_{T_O} / (N_{U_T} * N_U) * \sum_{ij}^{7k} (g_{ij} + f_{ij}) + R_M] \quad (8)$$

The ‘real’ economic impact into the destination does not include the IETs spend on the major event itself - because these monies are taken out of the destination by the major event’s management when this major event concludes. The locals spend at the major event leaves the region along with its management.

The locals f_{ij} and g_{ij} spends also remain discretionary. Hence these post major event spends likely impact on the locals forthcoming and consequently smaller destination spends immediately after the major event. Thus, as the economic impact of local attendees into the destination cannot be accurately assessed, they are not included in the ‘real’ economic impact into the destination as shown by Equation 8.

Thus supporting RQ₃ and RQ₄, the ‘real’ economic impact into the destination (E_D) – from IETs and R_M , delivers \$38.3M in 2012 and \$34.9M in 2013.

CURRENT IMPLICATIONS OF RESEARCH

Theoretical Implications

Compared to a homogeneous economic impact determination, we show a summed groupings approach to deriving the economic impact on the destination offers greater business intelligence, and is a more accurate representation of the behaviour of the mix of major event attendees.

TABLE 10

Two Factor ANOVA (without replacement) for 2013 IETs

2013 Inbound tourists 2-factor ANOVA variations	SS	df	MS	F	P-value	F crit
Major event variations						
Rows (tickets, merchandise, food/drinks)	15140.3	2	7570.1	37.5	6.84E-06	3.89
Columns (budgeter, actor, inquirer, valuer, adventurer, socializer, gratifier)	9627.6	6	1604.6	8.0	0.001	3.00
Error	2419.3	12	201.6			
Destination tourism variations						
Rows (attractions, loc tickets, store food/drinks, café/rests, bars, souvenirs, loc exp, loc merchandise, loc ent.)	33601.2	8	4200.2	45.3	8.9E-20	2.14
Columns (budgeter, actor, inquirer, valuer, adventurer, socializer, gratifier)	8430.2	6	1405.0	15.1	1.2E-09	2.29
Error	4452.5	48	92.8			
Servicing/incidentals variations						
Rows (accommodation, car hire, car comps, public transport)	35422.0	3	11807.3	109.0	9.9E-12	3.16
Columns (budgeter, actor, inquirer, valuer, adventurer, socializer, gratifier)	1746.0	6	291.0	2.7	0.048	2.66
Error	1950.4	18	108.4			

Table 10's two factor Anova (without replication) of each section of Table 6 shows all seven 2013 IET groups show significant variation for each row of data collected. This supports RQ₁ and the existence of the seven delineated groups. It also supports RQ₂ as group spending patterns are significantly different [5].

Practical Implications

This study delineates a seventh inbound-tourist and locals grouping of major event attendees. This seventh grouping is outside the other six behavioural groups, and it typifies a 'minimalist' spending behaviour where group members behave as bargain-hunters. They go for cheap entry and seating tickets, and generally come for just one of the three of AR event activities. Their spending commitment is roughly fifty per cent of other attendees. Figures 1, 2, and 3, support this new grouping. As this group shows homogeneous and conscious behavioural differences from the other six self-selected groupings we term them 'budgeters'.

Budgeters choose to spend little and pursue discount or cheapest solutions. Inquirers, valuers and actors are calculating spenders – collecting specific merchandise, and spending on foods as needed. The other three groups buy tickets that typify their group needs. These spending patterns, shown in Figure 1, again support RQ₁ and RQ₂.

FIGURE 1

Major Event Spends by 2013 IETs

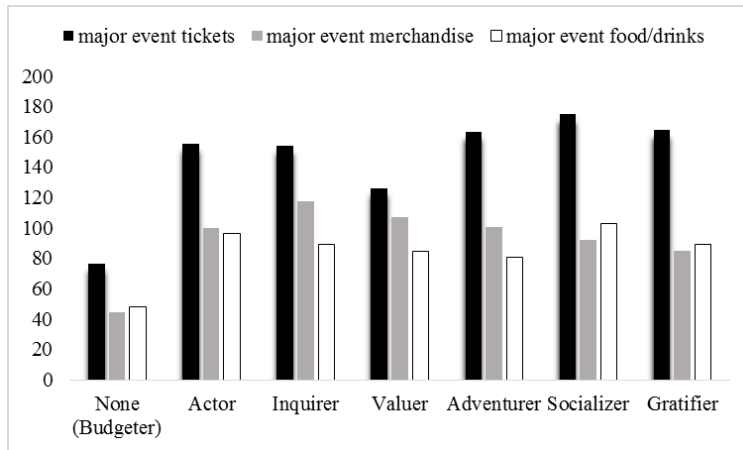


Figure 2 shows inquirers and valuers spend at cheap or free-entry destination offerings, and minimize their accommodation spend. Actors need to be seen in their role, and spend accordingly. Socializers spend in line with their more costly social agendas. Gratifiers and adventurers spend across the range of offerings and so fulfil their personal chosen group agendas. Budgeters again spend little. These trends also support RQ₁ and RQ₂.

FIGURE 2

Destination Tourism Spends by 2013 IETs

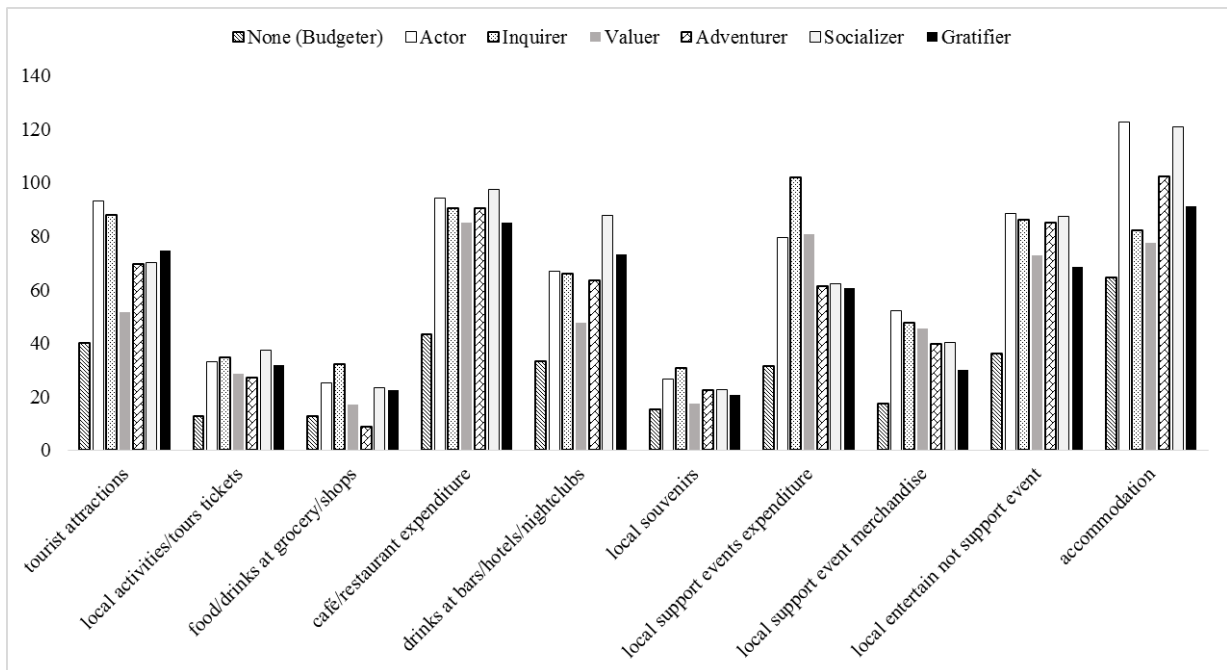
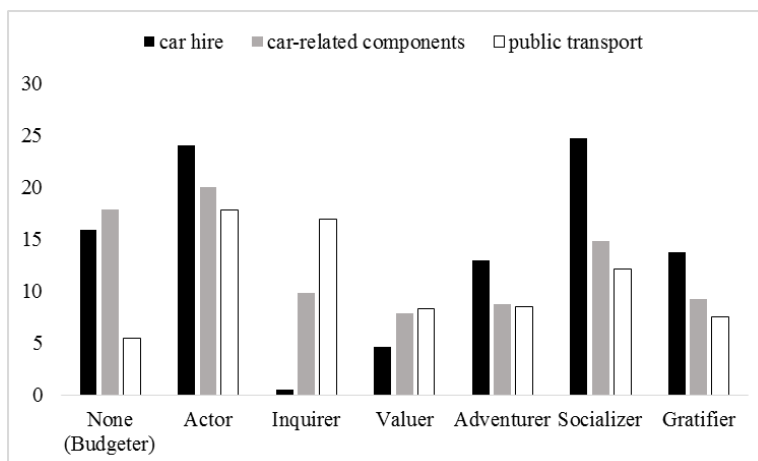


Figure 3's servicing and incidentals are small scale spends. Here, valuers spend least. Budgeteters, who are often one-time major event attendees, do spend slightly more than valuers. Actors and socializers spend most, followed by adventurers and gratifiers. These trends fit the logical requirements of each group, and they support RQ₁ and RQ₂.

FIGURE 3

Servicing and Incidentals Spends by 2013 IETs



FUTURE IMPLICATIONS AND OPPORTUNITIES FOR RESEARCH

Measurement Aspects

We note this major sport event is the destination driver for seven different groups of IETs and for the same seven local groupings. If future research shows these same seven groupings can be replicated for different major events at the same destination, then destination managers and the owners of tourism (or tourism-related) activities can directly target market to such specific attendee groups. For example *adventurers* enjoy: experiencing learning, observing unique features, being excited, discovering new knowledge and historical perspectives, and they prefer destination tourism activities possessing such action-based drawcards. In contrast *socializers* can be targeted with entertaining tourism activities. Further, by factoring the likely relative attendance numbers per group differing amounts of target marketing expenditure can be gauged against the likely revenue streams possible at the destination.

Table 4 and 5, and Table 6 and 7, comparisons for IETs and locals, show the overall spending generated in response to the major event at the destination is roughly a 2 (IETs) to 1 (locals) ratio. By acquiring the postcodes of IETs, future marketing strategies can be more specifically targeted. In this study we find 85% of the IETs (those residing beyond 100km from the destination) typically reside within a fifteen hour drive (1,500km) of the destination. Most IETs are also well educated, travel with friends or family, have substantive discretionary spend capacities, and typically reside either in cities or at major resource industries sites.

Profiling of IETs (and local) is likely better understood through a combination of psychographic (behavioural motive) grouping and demographic segmentation. This approach can assist when

determining the best selections from a destination's suite of tourism activities that should be promoted/marketed in conjunction with a forthcoming major event.

Theoretical Aspects

This study advances the fact that major events do not draw a homogeneous set of attendees, and that locals behave differently in their spend patterns when compared to IETs. First, IETs deliver a substantial economic impact into a destination. Second, by incorporating two behaviourally-segmented sectors (IETs and locals) along with the major event's set-up, operational, pull-down and storage expenditure a number of economic impacts can be derived. Third, splitting the attendees into groups provides a closer representation of where and to some extent why the economic impact is generated. Thus supporting RQ₃ and RQ₄,

The study also recognises that the major event management and its operations can also contribute significantly to the economic impact on the destination. It also notes that in the weeks following the major event, local businesses report a significant decrease in the spending of local consumers. As this aspect of local economic impact is not included in this study it remains a possible refinement area for future major event studies.

Management Aspects

Table 11 shows the revisit intentions for each group, against their satisfiers, their satisfaction (how satisfied) and their loyalty. This table maps intention-to-revisit; against satisfiers ($\alpha = 0.584$ measured as: fun, interesting, arousing-my-imagination, ones-I-enjoy, meet-my-entertainment-needs); satisfaction achieved measured as satisfied $\alpha = 0.641$ measured by: value-for-money, services-desired, performance levels experiences, qualities of experiences); and loyalty $\alpha = 0.884$ measured as: come-again in 2014, encourage mates or family to attend, first preference for day-out, without changes shall still come next year).

TABLE 11

Pearson Correlations (Two-Tail) for 2013 IETs

	Satisfier	Satisfied	Loyalty	Satisfier	Satisfied	Loyalty	Satisfier	Satisfied	Loyalty
Satisfied	0.667**	1	Budgeters	0.633**	1	Actors	0.674**	1	Inquirers
Loyalty	0.324*	0.553**	1	0.534**	0.516**	1	0.455**	0.516**	1
Revisit	0.124	0.259	0.324*	0.067	0.062	0.308*	0.304	0.334	0.607**
Satisfied	0.721*	1	Valuers	0.671*	1	Adventurers	0.658*	1	Socializers
Loyalty	0.462**	0.526**	1	0.582**	0.506**	1	0.626**	0.535**	1
Revisit	0.384**	0.332**	0.589**	0.116*	0.150**	0.597**	0.287**	0.178**	0.549**
Satisfied	0.622**	1	Gratifiers						
Loyalty	0.572**	0.401**	1						
Revisit	0.249**	0.123*	0.542**						

* p < 0.05, ** p < 0.01

Although all groups show significant loyalty to the major event, fourteen per cent of AR attendees don't plan to revisit for a future major event. Kwon et al (2005) suggest if data capture is broad and covers multiple points of each attendee's consideration then it may be possible to gauge cognitive, affective, conative, or behavioural loyalty. Table 11 shows budgeters, actors and inquirers (although significant) are less likely to revisit the major event than are valuers, adventures, socializers and gratifiers. This

behaviour is in-line with each group's profile - as budgeters are opportunists, actors as role players living in the 'now' and inquirers typically vary their position over time. Valuers, adventures, socializers and gratifiers pursue their selected major event agendas. They expect to be satisfied (value satisfiers), are actually satisfied (satisfied), and also plan to revisit for a future major event at this destination. Thus larger percentages of non-repeat attendees likely arise from the budgeters, actors and inquirers groups.

Table 11 suggests that for each group a linkage may exist from value satisfiers to satisfaction obtained, to event loyalty, and then to a consideration regarding a future revisit when a future major event comes to this destination. It also suggests behavioural group differences exist.

These behavioural group differences can be combined with differing destination tourism activities and modelled to elucidate group behaviour and group destination marketing opportunities.

IETs spend more than locals during a major event. Hence it remains useful for destination managers and researchers to expand this study and to assess whether each IET behavioural group remains consistent in their behaviour, spend, and destination tourism pursuits as their stay-time within the destination progresses.

CONCLUSIONS

Major event destination tourism activities remain demand-driven, rather than supply-driven. At the macro level, the accurate assessment of tourism economic impacts continues to progress towards theoretical and methodological maturity. This study integrates major event economics with related social sciences behaviours. It enriches both the pursuit of tourism knowledge creation and the development of tourism economics.

Unlike many past economic impact studies, this study includes: (1) the behavioural spending patterns of seven IETs groups and of seven local spend groups, (2) the average size of each survey respondent's cohort, and (3) the major event management's operational revenues committed annually into the destination. This approach generates a number of precise economic impact sub-sets, and it also generates each behavioural group's individual spending pattern contributions. Together these can assist management and marketing researchers when they: (1) plan future major events, (2) target average family (or compatriot) attendee clusters, and (3) map attendee choices of specific destination tourism activities.

Supporting RQ₁, both IETs and locals at an annual major AR sport event segregate themselves into one of six behavioural attendance motives. This study further delineates a seventh behavioural attendance group termed 'budgeters'. All seven groups (budgeters, actors, inquirers, valuers, adventurers, socializers and gratifiers) can be further sub-divided into IETs and locals. In line with RQ₂, each group of IETs and locals displays significantly different spending patterns. Hence, an economic profile can now be attached to each group's motive behaviour.

This study combines the spending of each group, and then derives summed economic impacts, that are each applicable to the major event and/or to the destination. It shows the IETs and locals each have significant sub-group differences. These sub-group differences support RQ₃ and offer destination managers and researchers a means to adjust their future regional tourism activities so they best match the desires of major sport event attendees. As RQ₄ projects, the overall economic impact of the major event exceeds its contribution into the destination.

Although this large study has occurred annually, it is limited to the major event of auto racing (and only at one destination). Nevertheless, it is likely this study's behavioural approach to the economic modelling of sub-groups of IETs (and/or of locals) has direct application to those studying the economic impact of major events, and/or to those studying the economic impact of tourism-related activities at a destination. Hence this study's approach likely provides a targeting mechanism for marketers as they plan each individual forthcoming attendee-group targeting strategy-set for the next major event.

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