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Economic Impact Research: Review of Measurement Techniques in a Special Event

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ABSTRACT

The study's purpose was to examine and update the research concepts and measurement issues associated with assessing the economic impact of tourism special events. Specifically examined were the issues with the implementation of economic impact studies in regard to: 1) non-attendee analysis; 2) defining "locals" and "non-locals" within a region; 3) the impact of VFRs within the local markets; 4) sampling techniques – including registration versus intercept sampling; 5) the estimation of purchasing within versus outside the region; 6) early versus late registration sampling; and 7) recall – length of time to run EIS post event survey. These measures were associated with the Westfield International Air Show (WIAS) conducted in 2010. Recommendations and findings for conducting a special event economic impact and significance analysis are made.

Keywords: *economic impact, economic significance, measurement techniques, special event.*

INTRODUCTION

There are a number of researchers who have examined the measurement of economic impact over the years. In fact, the *Journal of Travel Research* (see Tyrrell & Johnston, 2006) dedicated a whole issue to the measurement and issues surrounding this technique. John Crompton of Texas A&M University is one of a number of scholars closely examining this technique and process over the years. Crompton (2001) has also been both a critic and innovator in reviewing and conducting pilot studies on the various aspects of economic impact study (EIS) analysis and economic significance (ES). Furthermore, Crompton, Lee & Shuster (2001) systematically have worked to improve the measurements and developed a commonly accepted framework for undertaking economic impact studies and provided techniques to improve the measurement through a variety of targeted cases.

Crompton and associated researchers have further illustrated the conceptual rationale(s) for undertaking economic impact studies, measuring economic significance and expounded on basic principles of economic impact studies, including: "(1) exclusion of local residents, (2) exclusion of 'time-switchers' and 'casuals,' (3) use of income rather than sales measures, and (4) careful interpretation of employment measures" (Crompton & Lee, 2000; Crompton, Lee, & Shuster, 2001). However, due to the nature and increased popularity and timing of large regional special events, additional inquiries and measurement techniques need to be explored. Stynes (1997 and 1999) has also been a strong advocate of the application of economic impact measures

in recreation and tourism settings. Most of these issues also revolved around some of the basic techniques advocated by Crompton (2006); Crompton, et al. (2001); and Stynes (1997). However, the issues still have the potential to be further improved. They would generally be noted as alternatives to data collection, test measurement techniques and the development or improvements to enhance the measures and processes. Some of these technique improvements are the result of improved data collection technology via online survey processes, while others further expand the analysis of economic impact measures through refinement of measurement techniques. How the subjects are selected (sampling) and how the data are obtained from them (inquiry methods) are both crucial in the measurement of EIS and ES and the impact of providing more reliable estimates for special events.

Economic impact studies usually start with estimating visitor attendance and expenditures. Critical to this approach is the visitor estimates and how the estimates and changes in visitor expenditure can be converted to changes in local income and employment by applying it to a projection model. The process for estimating and measuring the visitor expenditure becomes crucial in EIS (Stynes 1997 and 1999). Factors affecting these measures include whether “new money” is actually coming into the local economy; how to best define the local economy; and to determine if the expenditures occur within or outside the local impact area when a study is conducted. While the exclusion of “locals” has been well defined and strongly advocated by Crompton, et al. (2001) and Crompton (2006), the techniques of measuring within and outside the local economy, defining the local economy area; considering different definitions of “locals” and “non-locals;” when the data are collected; recall issues; how the population is surveyed; and an investigation of a registration process have not been reviewed or explored as thoroughly. Furthermore, the issue of visiting friends and relatives (VFR market) as a subgroup of local attendees has not been fully considered in the context of measuring EIS and ES. This study serves to examine these issues.

Specifically, expanding on the previously mentioned studies, this paper examined the issues with the implementation of economic impact studies in regard to: 1) non-attendee analysis; 2) defining “locals” and “non-locals” within a region; 3) considering the impact of VFRs within the local markets; 4) sampling techniques – including registration versus intercept sampling; 5) the estimation of purchasing within versus outside the region; 6) early versus late registration sampling; and 7) recall – length of time to run EIS post event survey. This effort was made possible by addressing these research techniques and differences in the economic impact analysis of a special event in Western Massachusetts, namely the Westfield International Air Show (WIAS) conducted in 2010.

METHODOLOGY

To examine the various measurement and sampling techniques, an EIS of the WIAS was conducted in 2010. This event attracted 268,000 individuals representing 1,240 groups that participated in the economic, market and event experience study conducted in August of 2010. Three separate surveys were administered to collect the data, each with the intent of collecting the same EI, market and experience data; but each also representing slightly different collection and measurement criterion. One survey sample was from a population of air show registrants. The second survey sample was from a randomly selected on ground intercept technique. The third was from a later registration sample with a targeted invitation to participate and a slight variation in the survey measurement tool for assessing trip expenditures. Each instrument was basically the same with a difference in how the expenditure data was collected in the later method mentioned here. The first two surveys collected the expenditure data by eight different categories while the

later collected both inside and outside the region to determine if differences existed and to determine if participants were able to list expenditures properly and differentiate between where the expenditures occurred. Other advances in the measurement techniques included examining the differences between a registration sample and on-ground intercept sample. Further reviews of non-attendees and when respondents answered the survey over the course of the collection period were used to determine possible issues in the survey administration. While the measurement of economic impact and economic significance were the ultimate outcomes for the client, the focus in this study was on the measurement techniques that lead to the application. Therefore, a full EIS or ES outcome was not be the end result; but rather the focus was on how the initial measures are derived and if there are significant differences in these measures.

This study's implementation involved a detailed data collection instrument developed following the guidelines of the subsequent three techniques: (1) Crompton et al. (2001), here after called the "Crompton Technique", (2) the Stynes (1999) approach to collecting economic impact measures, , and (3) an online Qualtrics™ application of the surveys following the guidelines of a modified Dillman (2000) online approach. Email addresses and group leader names were collected through both registration processes and on-ground intercepts. For those groups with no email addresses, mailed surveys were sent. However, only nine groups requested this collection method. The online registration process was established for visitors at the WIAS web site to convey important event planning information, to sell priority seating, and to participate in incentives to be obtained at the show. The registration process was enhanced through targeted advertisements and publicity of the event in the area media.

Military personnel were stationed in uniform at each of the six major entry points to the air show venue and were trained to intercept every 20th group at peak arrival times between 10AM and 3PM and every 10th group between the non-peak times of 8AM and 10AM and 3PM and 5PM. Only email addresses were collected and air show maps and event programs were distributed during these intercepts. A group leader or contact person was identified in both the registration and intercept processes. Personalized emails and survey links were sent to the group leaders' email addresses commencing at 5AM on the Tuesday after the event. They were retrieved via the online survey platform Qualtrics™. Reminder emails were sent on each Tuesday at 5AM after the event for a six-week period. Adjustments to the expenditures measures and group classifications were made in Microsoft Excel™. Analysis of variance and t-tests were applied in examining the expenditures between different groups and the significance levels were tested at the .05 level through StatPlus™.

SELECTED FINDINGS AND RESULTS

In this study, three waves of surveys were conducted: 1) online registration group; 2) an event intercept group; and 3) a late registration group. In total, 2,687 surveys were emailed, 1,244 started, 1,140 completed. However, an additional 100 surveys were found to be included as they were non-attendees and therefore only completed the non-attendee portion of the survey. This resulted in a 42.4% response rate for those fully completed. When the additional group was also included, the overall response rate was 46.1% (1,240 surveys included ÷ 2,687 surveys emailed). The Qualtrics™ online survey platform was utilized and provided detailed analysis of start and completion dates and times that were useful in assessing recall assessments of expenditures. This platform was also useful in providing an opportunity to assess those who did not attend and to examine data collection under different survey conditions or response types.

Non-Attendee Analysis. Of the 1,240 groups included in the analysis, 1,027 attended the air show and 213 groups did not attend. With the online survey technique, the non-attendees were asked why they did not attend even though they had registered and planned to attend; why they were attracted to the event; if they would attend in the future; and their basic demographic profiles. The demographic profile of the non-attendees varies only slightly from the attendees. For example, non-attendee group leaders were 73% male compared to 79% male for attendees; average age slightly older for non-attendees (56 years) compared to attendees (49 years); 77% of the non-attendees had gross household incomes in excess of \$50,000 compared to 75% of attendees; 46% of both non-attendees and attendees held a college education; the potential group size of the non-attendees had they attended the air show would have been 3.73 compared to 3.60 for attendees; and 44% of the non-attendees had children in the household compared to 53% of the attendees. The non-attendees were largely the same on most dimensions except they were slightly older and less likely to have children in the household. Of the 213 group respondents, 207 provided reasons for not attending the show. The three most dominant reasons were: 1) forgot about it – 43 mentioned this reason (21%); 2) stuck in traffic – 42 mentioned (20%); and 3) something unexpected came up – 34 mentioned (16%). An additional 19 respondents (9%) indicated that they heard traffic and parking was difficult and decided not to attend. So, the volume of traffic and parking issues were the most significant non-attendee problem. However, the non-attendee respondents also indicated that their initial reasons for attending were very similar to attendees and they cited on average 3.86 reasons for desiring to attend. The top four reasons were 1) interest in aircraft/planes (161 mentioned – 78%); 2) thrill of the air show (159 mentioned – 77%); 3) support the military (145 mentioned – 70%) and 4) the opportunity to experience aircrafts up close (143 mentioned – 69%). On the 7-point likelihood scale (with 7 being definitely would attend as high point) of returning to a future air show, non-attendees averaged 5.97 compared to attendees who average 6.14. The major advantage of conducting the online survey over the intercept technique recommended by Crompton, et al. (2001) was the ability to more thoroughly interview non-attendees and specifically those who intended to participate but did not.

Locals versus Non-Locals. One of the main premises of over-estimating economic impact numbers is the inclusion of locals as noted by Crompton, et al (2001). However, is there a better way to define locals? The Crompton Technique would only define “locals” as those residing in the local zip codes and if applied in this study would only include two local zip codes – 01085 and 01086. The premise is that “locals” should not be included as they do not bring “new money” into the local economy. Rather, a local person’s expenditures at the air show would be money that is simply re-circulated or re-directed from other purposes. However, this assumes that the local economy is defined only by the local zip codes. In reality, the local economy is comprised of different shopping areas. The University of Wisconsin Extension Service, et al. (2012) defines these areas as convenience and destination shopping areas through trade market analysis (TMA). In community economic development, a trade market area is the geographic area from which a community generates the majority of its customers and where the local economy operates and expenditures are made. A local community may also have more than one trade area (such as a convenience and a destination trade area). When assessing a local economy, knowing the size and shape of each trade area is extremely important because its boundaries allow for the measurement of the number of potential customers, their demographics, and their spending potential and patterns. This information provides valuable insight into the community’s customer base and allows one to both calculate demand for stores, products, and services and estimate and configure the overall local economy. In reality this area might then be very different than considering only two local zip codes. In this study, two distinct trade market areas were defined for Westfield: 1) a convenience area that included 17 different zip codes and was measured

roughly by a geographic area of less than ten miles from the center of the primary zip code and 2) a destination shopping area from 10 to 20 miles that included 27 zip codes. For purposes of this study, non-locals were also further segmented into two additional groups: 1) day-trip attendees, those who traveled greater than 20 miles but less than 100 miles one-way to attend the air show and 2) overnight visitors, those who traveled more than 100 miles one-way and stayed overnight.

In the Crompton method, 63 groups (6.4%) were classified as “locals” while the TMA technique defined 302 groups (30.6%) as “locals” with 179 groups defined as a “local convenience market” and 123 groups (12.5%) as a “local destination shopping market.” The TMA segmentation found that 686 groups (69.4%) were “non-locals” with 576 groups (58.3%) defined as “day-trip” groups and 110 groups (11.1%) defined as “overnight visitors” (See Table 1).

Table 1. The Respondents and Distribution of Group Types in the WIAS Study

Group Type	N Groups	Percent	Ave Group Size	Total Polled Individuals
<i>TMA Tech.</i>				
Locals (Overall)	<u>302</u>	<u>30.6%</u>	3.59	1,083
Convenience	179	18.1%	3.76	673
Destination	123	12.5%	3.33	410
Non-Locals	<u>686</u>	<u>69.4%</u>	3.74	2,566
Day Trippers	576	58.3%	3.65	2,104
Overnight	110	11.1%	3.84	422
Total	988	100.0%	3.69	3,649
<i>Crompton Tech.</i>				
Locals	63	<u>6.4%</u>	3.62	228
Non-Locals	925	<u>93.6%</u>	3.48	3,221
Totals	988	100.0%	3.69	3,649

If these groups can be better defined by the TMA technique, then expenditure patterns should reveal differences. If “locals” were really acting like “locals” then the expenditure patterns between convenience and destination “locals” should be similar and those of day trip and overnight visitors different. The overall expenditure per group for the air show was \$125.99 or \$34.14 per person. There was no significant difference in the expenditures for the convenience locals (M=\$56.22 per group, SD=\$99.61, median = \$30) and destination locals (M=\$56.33 per group, SD=\$56.63, median = \$45); $t(300)=0.04167$, $p = 0.9668$. On the other hand, day trip groups spent on average \$118.16 per group (\$32.33 per person) and overnight groups spent \$294.88 per group (\$76.86 per person). The differences in expenditures by category were expected and occurred in food and drink expenditures before and after the event, transportation costs, and overnight accommodations (See Table 2).

When the expenditures were compared by “locals” and “non-locals” by the Crompton Technique and the TMA Technique, differences were found. First, when the TMA markets (convenience and destination) were combined and compared to the Crompton Technique market of locals, there were no differences found. There was no statistical difference between the Crompton (mean = \$51.92) and convenience trade market area (mean = \$56.22) group classification at the $p<.05$ level [$F(1, 240) = 0.096$, $p = 0.75746$] for group expenditures. This seems to suggest that Crompton’s and convenience trade market area are measuring roughly the same local markets. Under the combined condition, there was no statistical difference between the Crompton’s locals (mean = \$51.92) and convenience/destination (combined mean = \$56.39) trade market area group

classification when combined at the $p < .05$ level [$F(1, 363) = 0.146, p = 0.7026$] for group expenditures. As noted the locals in both classification systems seem to be measuring local groups with similar expenditure patterns. However, the non-local spending patterns in the Crompton Technique are affected more by classifying those who are more like locals as “non-locals” with the simplified zip code definition of locals. The TMA locals spend on average \$56.39 per group (\$15.71 per person) and the Crompton Technique locals spent on average \$51.92 per group (\$14.34 per person). However, when the non-locals were compared, the TMA non-locals spent on average \$146.71 per group (\$39.23 per person) while the Crompton non-locals spent on average \$124.79 per group (\$33.72 per person). The overall impact here appears to suggest that the Crompton Technique labels too many “locals” as “non-locals” and the effect is an overall lowering of the non-local estimates. This technique also likely violates the premise that locals be excluded when estimating economic impacts. Thus, the local and non-locals markets should be assessed more like the local economy operates or through the use of a trade market application. See Table 3 for the comparisons of the Crompton Technique and the Trade Market Analysis Technique for estimating local expenditures in EIS.

Table 2. The Average Expenditures by Category for Locals and Non-Locals by TMA Technique Classification

Category:	NonLocals			Locals			Overall Averages
	All	Day Trip	Overnight	All	Local(CTM)	Reg(DTM)	
Groups (n)	686	576	110	302	179	123	988
Ave. Grp.	3.74	3.65	3.84	3.59	3.76	3.33	3.76
Expenditure Categories:							
Refreshments	\$26.28	\$26.26	\$24.91	\$20.16	\$19.82	\$20.65	\$25.45
Food/drinks before/after event	24.06	20.48	42.94	10.72	10.69	10.76	\$21.20
Souvenirs or gifts	16.53	14.84	25.45	9.47	8.39	11.06	\$15.27
Clothing or accessories	5.66	5.29	7.79	4.63	5.14	3.89	\$5.70
Transportation	36.59	25.58	93.87	7.53	6.44	9.12	\$29.24
Local attractions...	3.44	3.01	4.59	0.51	0.87	0.00	\$2.73
Overnight accommodations..	26.98	17.14	79.32	1.51	2.29	0.37	\$20.56
Other	7.16	5.56	16.01	1.85	2.59	0.79	\$5.87
Total.....	\$146.71	\$118.16	\$294.88	\$56.39	\$56.22	\$56.63	\$125.99
Ave. \$/Person...	\$39.23	\$32.33	\$76.86	\$15.71	\$14.95	\$17.01	\$34.14
		Sign = .000 level			Not Sign = .05 level		

Visiting Friends and Relatives in the Local Market. Another fundamental question about assessing the local market brought into consideration was the impact of visiting friends and relatives (VFR market). Do these “locals” who have VFRs act more like locals or non-locals? Additional questions arise when considering these groups, such as how large is this potential market? How do hosts react when VFRs are in residence? The biggest savings for a VFR group is likely to be found in food and lodging, but who pays for the event? Therefore, additional lines of questions were asked in this survey and the expenditure patterns examined.

When “locals” were compared to the “local VFRs” differences were found in the expected group size, but also in expenditures overall. On average, the convenience market had nearly 10% of this market and was comprised of VFR groups who spend on average \$111.71 per group (\$21.73 per person) with an average group size of 5.14 persons. This compares to the average

local convenience market expenditure per group of \$56.63 or \$17.01 per person. On average, the destination market had 27.5% of this market comprised of VFR groups who spent on average \$101.50 per group (\$16.24 per person) with an average group size of 6.25 persons. This compares to the average destination market expenditure per group of \$56.22 or \$14.95 per person. While these differences are different than the regular locals, they do not reach the same spending levels as the overall grouping of non-locals in the TMA technique. They are comparable to the day trip expenditure patterns noted above in Table 2 of \$118.16 per group. Some of the differences here are accounted for by the overall group size. Since these groups are larger, the per person expenditure patterns are more like those of locals. See Table 4 here.

Table 3. Average Expenditures Compared – Crompton Technique vs. TMA Technique

Category	Number of Groups and Average Group Size			
	TMA Non- Locals	Crompton Non-Locals	TMA Locals ^a	Crompton Locals
Groups (n)	686	925	302	63
Ave. Group Size	3.74	3.70	3.59	3.62
% of Total (w/in category)	69.4%	93.6%	30.6%	6.4%
	\$ Per Group			
Refreshments	\$26.28	\$25.22	\$20.16	\$15.41
Food/drinks before/after event	24.06	20.43	10.72	16.08
Souvenirs or gifts	16.53	15.04	9.47	6.37
Clothing or accessories	5.66	5.30	4.63	6.67
Transportation	36.59	29.64	7.53	3.35
Local attractions	3.44	2.75	0.51	0.00
Overnight accommodations	26.98	20.71	1.51	0.00
Other	7.16	5.69	1.85	4.10
Total	\$146.71	\$124.79	\$56.39	\$51.92
Average Expenditures per Person	\$39.23	\$33.72	\$15.71	\$14.34
Significance	Sign = .05 level		Not Sign. = .05 level	

^aLocals defined here include both types of locals (locals - convenience trade market area groups and regionals - destination trade market area groups).

Table 4. Visiting Friends and Relatives Expenditures and Group Size Effects

	Non-local	CTM	DTM	All
Number of Groups	686	123	179	988
Expenditures Per Group: Typical average expenditures per group	\$146.71	\$ 56.63	\$ 56.22	\$125.99
Average expenditures per group with VFR	N/A	\$111.71	\$101.50	N/A
Added group income from VFR market/group	N/A	\$55.08	\$45.28	N/A
Group Size, Expenditures and %	Non-Local	CTM	DTM	All
Number of VFR Attendees in Sample	NA	62	88	150
Typical group size per type	3.74	3.76	3.33	3.69
Average group size of VFR markets	NA	5.14	6.25	NA
Average group expenditure per person	\$39.23	\$17.01	\$14.95	\$34.14
Average expenditure per group person w/in VFR	NA	\$21.73	\$16.24	NA
Percent Visiting VFR attendees	NA	9.9%	27.5%	5.2%

CTM = Convenience Trade Market and DTM = Destination Trade Market.

Registered Versus Intercepts Versus Late Registrations. When is the best time to assess the attendees' expenditure patterns? This is an important question raised in nearly all EIS. Some feel that on-site interviewing is the best method. However, it is difficult to obtain a quality, sizable, representative sample, and there are challenges when the event is both participatory and spectator dominated at the on-site location. In this study, three separate groups were measured: 1) regular or early registration groups (those who registered from 3 months to 3 weeks prior to the event); 2) on-site intercept groups (those who were randomly selected during the event); and 3) later registration groups (those who registered within the 3 week period prior to the event). No differences were found between the early and late registration groups. On average later registrant groups spent \$135.48 per group or \$38.82 per person and the early registrant groups spent \$139.43 per group or \$39.17 per person. However, the on-site intercepts were found to spend much less than either of the two registration groups. The intercept groups spent on average \$75.13 per group or \$17.51 per person. While these differences were substantial, they may have been found to the result of two major issues in this study. First, uniformed military personnel performed data collection. And second, the weather may have affected the sampling process. While military personnel were trained to approach every 10th or 20th person at the main entrance points, there were few refusals. Also, since there were incentives for participating, the personnel likely over sampled "locals." Second, in retrospect the weather for the event created a sampling concern. Heavy rain was expected on day two of the event; thus, the bulk of the crowds came on day one. Day one was a Saturday and many more were locals that day. Crowd estimates differed by over 190,000 on day one and only 75,000 on day two. This is a limitation to this study, and had adjustments and more aggressive sampling been conducted and adjusted according to the weather, the outcomes and measures may have differed as well. Table 5 contains the results from the sampling groups of registered, intercepts and late registered groups.

One additional check was conducted to determine if these differences were real or more a matter of the size of the samples. Due to group sample sizes in this additional check, initially only the registered groups were compared with the intercept groups; however, one additional data analysis step was taken. Here, matched zip code samples within each of these groups were taken. It was assumed that the differences would be controlled by the zip code of the home residency to determine if the technique differed substantially. Matched zip codes of 215 groups from each of the registered and intercept groups were sampled. No significant differences were found between registered (mean = \$88.55; SD = 91.68) and intercepts (mean = \$75.13; SD = 86.39); $t(427) = 1.23564$, $p = 0.21727$. Table 6 contains these comparisons.

Inside and Outside Market Area Purchases. Crompton, et al. (2001) recommends that all EIS expenditure data be collected using a two column approach. This is a challenge for some respondents to estimate. However, it was also part of the analysis to compare two different methods. The one column method places an emphasis on requiring the respondent to only include expenditures spent locally. The other approach recommended by Crompton, et al. (2001) requires two columns of expenditure data being collected with one column indicating expenditures inside the area and one column emphasizing expenditures outside the area and the reference area here would be the Westfield area. Here again, due to differences in the sample size matched zip code samples were further selected from each pool of respondents.; those in the registered group (one column expenditure estimate), those in the intercept group (one column expenditure estimate) and those in the late registrant group (two column expenditure estimate).

The number of groups include in each matched zip code sample was 115. Each sample found that the overall expenditures were in the \$90 per group range. The differences suggest that respondents provide estimates based on the trip more than where the expenditures were made.

The registered group spent on average \$97.10 per group overall. The intercept group spent on average \$91.68 overall. The combined inside/outside group spent on average \$94.15 overall.

Table 5. Average Expenditures Comparing Different Sample Groups

Category	Number of Groups and Average <u>Group Size</u>			
	Registered	Intercepts*	Late Registered	Overall
Groups (n) Sampled	1,788	569	330	2,687
Groups (n) Responding	866	215	163	1,244
Ave. Group Size	3.56	4.29	3.49	3.62
% of Total (across)	62.6%	19.6%	17.8%	100.0%
Response Rate (within)	48.4%	37.8%	49.4%	46.3%
% Completed within week				
	Registered	Intercepts*	Late Registered	Overall
		--\$Per Grp --		
Refreshments	\$25.98	\$23.80	\$32.45	\$25.45
Food/drinks before/after event	24.72	12.20	27.33	21.20
Souvenirs or gifts	17.35	10.23	14.59	15.27
Clothing or accessories	6.37	3.73	8.79	5.70
Transportation	35.15	17.45	31.82	29.24
Local attractions	3.27	1.93	1.15	2.73
Overnight accommodations	26.80	4.86	14.81	20.56
Other	6.92	3.70	4.53	5.87
Total	\$139.43	\$75.13	\$135.48	\$125.99
Average Expenditures per Person	\$39.17	\$17.51	\$38.82	\$34.80
Significance	Sign = .05 level		Not Sign = .05 level	

*Intercept sample was a modified sample – intercepts collected emails with followup survey.

Table 6. Average Expenditures Comparing Different Sample Groups – Matched Group Sizes by Zip Codes

Category	Registered	Intercepts	Overall
Groups (n) Sampled	1,788	569	2,687
Groups (n) Responding	866	215	1,244
Ave. Group Size	3.56	4.29	3.62
% of Total (across)	62.6%	19.6%	100.0%
Response Rate (within)	48.4%	37.8%	46.3%
% Completed within week			
	Registered*	Intercepts*	Overall
	(n=215)	(n=215)	
Refreshments	\$22.93	\$22.80	\$25.45
Food/drinks before/after event	16.02	11.81	21.20
Souvenirs or gifts	14.93	9.90	15.27
Clothing or accessories	3.93	3.60	5.70
Transportation	20.12	16.68	29.24
Local attractions	.55	1.87	2.73
Overnight accommodations	7.78	4.70	20.56
Other	2.27	3.58	5.87
Total	\$88.55	\$75.13	\$125.99
Average Adjusted Group Size	3.60	4.20	
Average Expenditures per Person	\$24.60	\$17.88	\$34.80
Significance	Not Sign = .05 level		

*Registered and Intercepts matched by zip codes to compared expenditures – each group n=215.

However, when the expenditures in the inside/outside group were further analyzed, \$57.35 was spent locally and \$36.79 was spent outside the region. This suggests that the Crompton, et al. (2001) was correct in using this technique to estimate local expenditures. See Table 7 here.

Table 7. Average Expenditures Comparing Different Sample Groups – Matched Group Sizes by Zip Codes

Category	Number of Groups and Average Group Size				
	Registered	Intercepts	Estimate Inside Westfield	Estimate Outside Westfield	Overall
Groups (n) Sampled	1,788	569	330	330	2,687
Matched Sample by Zip Code	115	115	115	115	345
Group Size	3.62	4.39	3.47	3.47	3.82
	Registered*	Intercepts*	Estimate Inside Westfield	Estimate Outside Westfield	Combined In & Outside Wstfld
	(n=115)	(n=115)	(n=115)	(n=115)	(n=115)
Refreshments	\$27.69	\$26.42	\$20.95	\$ 4.27	\$25.22
Food/drinks before/after event	15.64	12.86	10.36	6.48	16.84
Souvenirs or gifts	14.88	12.77	7.10	.38	7.49
Clothing or accessories	2.72	4.13	3.37	2.27	5.64
Transportation	23.56	22.05	8.44	16.44	24.88
Local attractions	.14	2.23	0.00	1.28	1.28
Overnight accommodations	11.19	7.70	5.08	5.24	10.32
Other	1.29	3.53	2.05	.50	2.55
Total	\$97.10	\$91.68	\$57.35	\$36.79	\$94.15
Average Adjusted Group Size	3.62	4.39	3.47	3.47	
Average Expenditures per Person	\$26.82	\$20.88	\$16.53	\$10.60	\$24.65

*Registered and Intercepts matched by zip codes to compared expenditures – each group n=115.

Expenditure Recall During Data Collection. While on-site interviewing avoids the recall problem associated with estimating expenditures, other critical questions addressed in this study are whether recall in a post-event survey would effect the estimates and would they be different over time? This study was fully implemented beginning two days after the event and reminder emails were sent weekly over a six week period. Of the 1,240 surveys collected, 1,002 were collected within the first week. The estimated average expenditures during the first week were \$120.20, and over the final five weeks when 238 additional surveys were added the estimated average total expenditures were \$122.40. There appears to be no deterioration in the ability to recall expenditures. However, with appropriate incentives and email survey analysis timing, a sufficient sample can be obtained in an EIS study in roughly one week. See Figure 1 here.

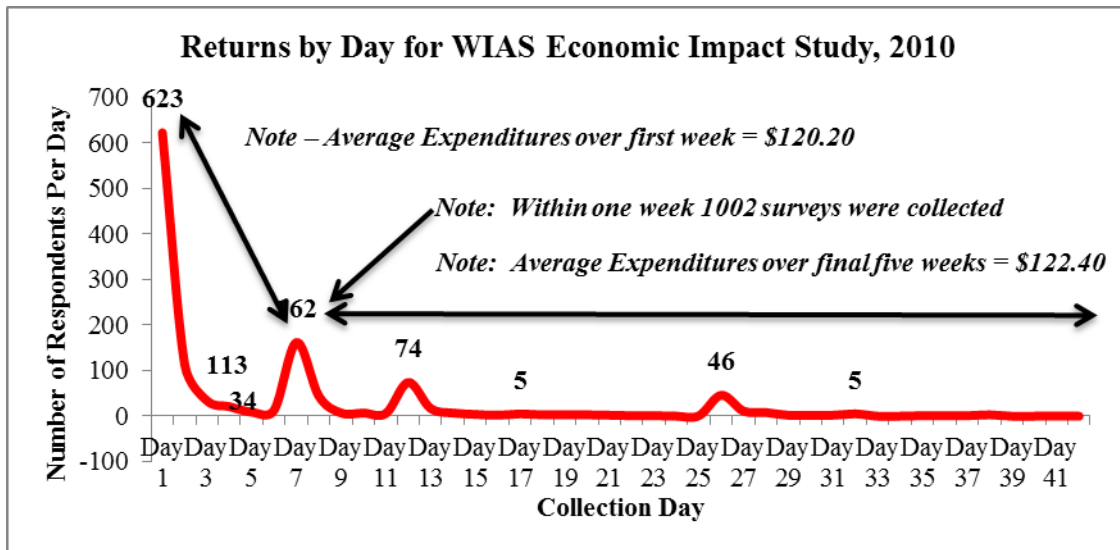


Figure 1. Data Collection Over 6-Week Period and Average Expenditures Per Period.

CONCLUSIONS AND RECOMMENDATIONS

This study was undertaken to further examine and update the research concepts and measurement issues associated with assessing the economic impact and significance of tourism special events. Specifically, the issues examined within the context of the implementation of economic impact studies to improve overall estimations with particular attention to the data collection methods and measurement terms.

Non-Attendee Analysis and Recommendation. Specifically non-attendee analysis was undertaken to determine if those who do not attend were different than those who did attend. Particularly, what were the reasons for planned attendance, why they did not attend and if they would attend in the future. Through the registration process and the full online survey analysis, it was found that there were a number of non-attendees in the sample. Such analysis would not be available or would be difficult to obtain if only intercept interviews were to be utilized in an EIS study. While few differences were found between non-attendees and those who did attend, the reasons for non-attendance and if this sample would attend future air shows, why they would attend and the likelihood of attending were obtained. Therefore, it is recommended that in the application of EIS studies at least a portion of the sample should contain a registration group and if the registration group is of substantial size, non-attendees will be found. Through an online survey platform they can be interviewed to obtain valuable information for planning and marketing purposes.

Locals and Non-Locals Definition and Recommendation. The application of a TMA Technique improves the analysis and definition of locals and non-locals in an EIS. Locals do not shop, nor is the local economy only defined by the most local zip codes, as recommended by Crompton. It is better to think of the local economy as a “trade market area” where various types of shopping and buying occur. This may include both destination and convenience market areas. The identification in this study proved that these markets are real locals. They spend in a pattern that is nearly identical to locals of both convenience and destination. Furthermore, more definition can also help identify non-locals as in this study, where day trip and overnight attendees were identified. The effect of not following this improved technique would result in more locals being counted in the non-local market and not differentiating the non-locals into more distinct groups. This impact would further distort the application of these expenditures into an EIS model such as

an Input Output Model. It is recommended that the TMA Technique be applied to the identification and exclusion of locals and that day-trip and overnight attendees differentiate non-locals. The exclusion of TMA locals provides better estimates of the “new money” coming into the local economy and the definition of the non-locals would further provide improved definition and impacts. These differences are significant and especially important in short-term special events.

Inclusion of VFRs in Local Market and Recommendation. The identification of VFRs in large attendance special events may be significant and the size of this segment may be substantial especially if there is a shortage of local accommodations or an event that has the potential of attracting extended family members or groups of friends. VFR groups are larger than locals and non-local groups and they spend significantly more than a comparable local group. It is recommended that questions in an EIS ask about the attendance of VFRs in the group and also about who pays (host or visitor) and how long the stay in the area may be.

Data Collection by Registration Period or Intercepts and Recommendation. There were no differences between expenditures of registrations or late registrations. However, findings in data collection by intercepts versus registered attendees uncovered some differences. Care should be exercised in training staff to conduct intercepts. Adjustments may be needed if changes occur in attendance and/or weather patterns, as was the case in this study. The use of uniformed military personnel was helpful in collecting a substantial sample of attendees. However, care must be exercised as to not over-sample locals when easily identified local personnel are used.

Inside and Outside Area Expenditure Estimates and Recommendation. Findings from this study suggest that Crompton’s two-column method is the best method for estimating expenditures inside the local area. The findings from this study suggest that respondents estimate their expenditures on the whole trip and do not necessarily consider the difference or the definition of the local area even when asked to do so. Therefore, Crompton was correct and it is best to apply a two-column estimate and more detail instructions to differentiate the expenditures inside and outside the local area while attending a special event.

Recall and Survey Implementation Recommendations. The estimates of expenditures over time does not appear to deteriorate over a six-week period. However, if an online, post-event survey is conducted with proper implementation and incentives, the bulk of surveys can be obtained within a seven-day period and an extended period would not be necessary. In addition, the online survey process increases participation and sample sizes, allows for non-attendees to be assessed, can be applied to different populations, and may allow for special probing on particular questions.

REFERENCES

- Crompton, J. L. (2006). “Economic Impact Studies: Instruments for Political Shenanigans?” *Journal of Travel Research* 45 (1): 67-82.
- Crompton, J. L., & S. Lee (2000). “The Economic Impact of 30 Sports Tournaments, Festivals, and Spectator events in Seven U.S. Cities.” *Journal of Park & Recreation Administration* 18 (2): 107-126.
- Crompton, J. L., S. Lee, & T. J. Shuster (2001). “A guide for undertaking economic impact studies: The Springfest example. *Journal of Travel Research* 40 (1): 79-87.
- Dillman, D. (2000). *Mail and Internet Surveys: The Tailored Design Method*. New York: Wiley.

- Stynes, D. J. (1997). "*Economic Impacts of Tourism*. Retrieved 2012, from Michigan State University: www.msu.edu/course/prr/840/econimpact/pdf/ecimpvol1.pdf.
- Stynes, D. J. (1999). "*Guidelines for Measuring Visitor Spending*." Retrieved 2012, from Michigan State University: www.msu.edu/course/prr/840/econimpact/pdf/ecimpvol3.pdf.
- Tyrrell, T. J., & R. J. Johnston (2006). "The Economic Impacts of Tourism: A Special Issue. *Journal of Travel Research* 45 (1): 3-7.
- University of Wisconsin, Ohio State University, and University of Minnesota Extension Services. (2012). "Downtown Market Analysis/Trade Area Analysis." Retrieved 2012, from University of Wisconsin: <http://fyi.uwex.edu/downtown-market-analysis/understanding-the-market/trade-area-analysis/>.