PILOT TESTING A METHODOLOGY TO MEASURE THE MARGINAL INCREASE IN ECONOMIC IMPACT OF RURAL TOURISM SITES

April Evans
Department of Recreation and Leisure Studies
East Carolina University
Greenville, NC, 27858

Hans Vogelsong, Ph.D.
East Carolina University

Abstract.—Rural tourism is a rapidly expanding industry which holds some promise of improving the economy in small towns and farming regions. However, rural communities have limited funding available for promotional efforts. To understand if limited funds are effective in producing the desired economic impacts, it is important that rural communities evaluate their promotional efforts to insure the future viability of the tourism market in their area. To this end, the purpose of this project was to conduct a pilot study to test a method for measuring the marginal increase in economic impact resulting from the promotional campaign of the HomegrownHandmade program in North Carolina. In addition to presenting the formula used to test this methodology and the results of applying it to HomegrownHandmade, discussion will focus on potential difficulties with sampling and data collection at rural tourism destinations.

1.0 INTRODUCTION

Since 2003, the HomegrownHandmade (HGHM) program has been developing and maintaining a website featuring a network of trails that encourage visitors to experience the arts and agricultural venues in rural North Carolina. These are not actual trails per se, but are virtual trails themed around geographical and artistic venues. Currently, sites in 72 counties are being showcased through this Internet promotional effort including farms, art galleries, retail stores, restaurants, and lodging venues, among others.

To determine how effective this promotional effort has been, the Golden LEAF (Long-term Economic Advancement Foundation) funded an economic analysis project to create and test a model to measure the outcomes and benefits of this ongoing effort. The project was designed to measure the economic impact of the HGHM website promotion within North Carolina, to provide preliminary estimates of what those impacts could be, to address the utility of the model, and to investigate how the model could be improved and implemented for future uses. Specific research questions were:

1. Do visitors to the website fulfill their online investigation with actual site visits?
2. Is there an increase in tourism or economic growth in communities featured on the website?
3. Do venues represented on the website receive direct benefits, such as increased income or visitors?
4. Is there a relationship between program participants and other community cultural assets?

2.0 METHODOLOGY

The data gathered through this project provide information about visitors' direct, indirect, and induced expenditures within the region. Data were collected through a combination of on-site interviews, follow-up mail-back questionnaires completed by visitors to HGHM sites, and a Internet survey completed by self-selected visitors to the HGHM website. Data collection took place during a 25-week period from June through November, 2006.

2.1 On-site Survey and Follow-up Mail-back Questionnaire

Three HGHM sites were used to collect on-site survey data and follow-up mail-back questionnaire data. Those sites were Mike's Strawberry Farm in Onslow County, the Imperial Center for Arts and Sciences in Rocky Mount, and the NC Arts Incubator in Siler City. Research assistants conducted brief on-site interviews with visitors. Data gathered at this stage included demographic information, visitors' points of origin, and names and addresses. Respondents were also given a self-administered follow-up survey to complete after their trip and mail back to the researchers. The follow-up questionnaire was designed to collect more in-depth information regarding visitors' expenditure patterns and characteristics. To maximize the response rate, additional copies of the questionnaire along with a cover letter were sent to visitors who had not responded within an appropriate time after their initial interviews. This methodology is based on the Dillman (1978) Total Design Method, and yielded an overall response rate of 53 percent for the on-site survey and the follow-up mail-back questionnaire.

2.2 Website Survey

In addition to the on-site interviews and mail-back surveys, an online survey was offered to individuals who visited the HGHM website during the study period. Site administrators provided the research team with 105 valid email addresses of self selected individuals who had visited the website. We sent potential respondents an introductory email with a link to the survey and an invitation to participate, and two follow-up emails with reminders to complete the survey. As an added incentive to participate, all respondents were placed into a drawing for a sampling of NC products. This method produced a total of 53 respondents for a 51 percent response rate. The primary purpose of the online survey was to determine whether or not HGHM website users actually visited real-world places promoted on the website.

3.0 RESULTS

3.1 Results of the On-site Survey and Follow-up Mail-back Questionnaire

We had initially intended to interview visitors at four real-world sites but encountered some difficulties. Some of the sites had very low visitation rates and researchers could find few or no visitors to interview. On occasions when more visitors were expected, one site proprietor requested that interviewing be postponed so that the interviews would not interfere with visitors' shopping behavior. The project's limited time frame also did not allow for multiple repeated site visits over a long period of time to increase sample size. The result was that we reduced the number of target sites to three and ended up with far fewer completed surveys than anticipated. Although the original sampling goals were not met, the project yielded enough completed surveys to adequately test the model. Table 1 provides a summary of the surveys completed for this project.

One of the first steps in analyzing the data was to create a profile of visitors to the HGHM sites. Table 2 provides a summary of demographic variables about the visitors to the sites, which were later used as independent variables in comparing expenditure data. There was quite a bit of variance in visitors' demographic characteristics. Notably, there were more than twice as many females as males. The average age was 45 years old and there were very few visitors under the age of 23 (less than 3 percent). The majority of visitors attended the sites in groups of 2-4 people and reported that they were repeat visitors. Almost 90 percent of the visitors were residents of North Carolina who had traveled an average of 62 miles to the site where they were surveyed.

Table 1.—Data collection and response rate

Site	On-Site Surveys	Mail Back Surveys	Mail Back Response Rate
Mike's Strawberry Farm	56	28	50%
Rocky Mount Arts Center	31	19	61%
NC Arts Incubator	17	8	47%
Total	104	55	53%

Table 2.—Visitor sample profile

Age	N	%
18-22	1	2.4
23-30	7	17.1
31-40	10	24.4
41-50	8	19.5
51-60	11	26.8
>60	4	9.8
Mean age = 45		

Gender	N	%
Male	30	29.1
Female	73	70.9

Group size	N	%
By self	12	11.5
2 people	26	25.0
3-4 people	31	29.8
5-6 people	17	16.4
>6 people	18	17.3
Mean Group Size = 4.79		

State of residence	N	%
North Carolina	92	88.5
Virginia	1	1.0
Other	11	10.5

Travel distance	N	%
>20	43	42.3
20-60	43	42.1
61-120	8	7.9
121-180	1	1
181-240	1	1
241-300	2	2
301-360	0	0
>360	4	4
Mean travel distance = 62.13		

First-time visitor	N	%
Yes	47	45.6
No	55	53.4

Another important component of the study was determining whether or not visiting the HGHM site was the primary purpose of the trip. Table 3 provides the results of this question for all three HGHM sites.

Overall, 86 percent of respondents indicated that their visit to the HGHM site was the primary purpose of their trip. This suggests that, in general, the HGHM sites are acting as true visitor destinations rather than just stopovers or ancillary targets for people who happen to be in the area or are just passing through. However, this finding was not uniform across all three sites. Although 96 percent of visitors to Mike's Strawberry Farm indicated that their visit to the site was the primary purpose for their trip, this was true of only 65 percent of NC Arts Incubator visitors.

Based on a review of relevant literature, we developed a list of questions regarding visitors' spending characteristics and incorporated them into the survey instrument. These questions were designed to determine the amount of money visitors to HGHM sites spent in the region during their trip (direct impacts) in different expenditure categories such as food, accommodations, gas, souvenirs, etc. We asked participants to estimate the spending of their entire traveling party including expenses that were directly related to the site where they were interviewed and expenses that they incurred on the rest of their trip to the region that were not directly related to the interview site.

The responses for the entire traveling party were then divided by the number of people in each traveling party to calculate a per person visitor expenditure summarized in Tables 4 and 5. On average, each visitor to HGHM sites spent $10.79 at the HGHM site and an additional $37.35 on the rest of their trip to the region.

Table 3.—Was HGHM site primary purpose of trip

	Mikes Strawberry Farm		Rocky Mount		NC Arts Incubator		Total	
Visit to PFS site was primary purpose	N	%	N	%	N	%	N	%
Yes	53	96.4	25	80.6	11	64.7	89	86.4
No	2	3.6	5	16.1	6	35.3	13	12.6
Total	63	100	237	100	31	100	331	100

Table 4.—Per-person visitor expenditures directly related to site where interviewed

Types of expenditures	Average expenditures
Food and beverage (includes restaurants, taverns, groceries, etc)	$6.34
Shopping (includes clothing, personal items, souvenirs, etc)	$2.02
Lodging (includes hotels, motels, B&Bs, etc)	$.36
Transportation (includes parking fees, gasoline, etc)	$1.53
Entertainment and recreation	$.53
All other expenses related to your visit	$.01
Total	$10.79

Table 5.—Per-person visitor expenditures not directly related to site but incurred during the trip

Types of expenditures	Average expenditures
Food and beverage (includes restaurants, taverns, groceries, etc)	$7.03
Shopping (includes clothing, personal items, souvenirs, etc)	$5.25
Lodging (includes hotels, motels, B&Bs, etc)	$20.98
Transportation (includes parking fees, gasoline, etc)	$2.89
Entertainment and recreation	$1.07
All other expenses related to your visit	$.13
Total	$37.35

3.2 Results of the Website Survey

The primary purpose of this project was to determine the economic impacts of the website promotion, rather than total economic impact of HGHM sites. Therefore, we used the online survey to estimate the influence of the website on the number of visitors to the real-world sites. In a series of questions, we asked respondents whether or not the website had influenced their travel behavior (see Table 6). Almost 56 percent reported that the website *did* influence their travel plans. They were asked a series of follow-up questions to ascertain *how* the website influenced their plans (Table 7). Notably, 54 percent reported that the website had influenced them to visit a region *that they would otherwise not have traveled to*.

Table 6.—Influence of visit to the HomegrownHandmade.com website on travel plans

Did Visit influence Travel Plans	Number	Percentage
Yes	29	55.8
No	23	44.2
Total	52	100

Data provided by the HGHM website administrators indicates that the site averages 273 hits per day or about 100,000 hits per year. Extrapolating from the online survey findings, if the website influenced the travel plans of 56 percent of website visitors (more than 55,000 people per year), and 54 percent of them

Table 7.—Type of influence on travel

	Yes		No		Total	
How did the website influence your travel plans?	n	%	n	%	n	%
The website introduced sites/activities to me that I was previously unaware of	28	93.3	2	6.7	30	100
I used the website to find out more information about s ites/activities that I was already interested in	26	89.7	3	10.3	29	100
I used the website to help me choose between two or more regions that I was already thinking about visiting	15	53.6	13	46.4	28	100
The website influenced me to visit a region that I otherwise would not have visited	15	53.6	13	46.4	28	100
The website influenced me to visit an individual site/business that I otherwise would not have visited	24	82.8	5	17.2	29	100

changed their travel plans, the website could end up attracting almost 30,000 additional people per year to real-world HGHM sites. Further extrapolating from the on-site interview questions about visitors' spending habits discussed above, we can estimate that 30,000 additional visitors would spend more than $300,000 per year at HGHM sites plus more than $1.1 million in incidental expenses during their trips to the region. Of course, these estimates are very rough and the calculations assume that (1) each hit to the website represents a new person who has not been to the site before; and (2) that visitors to the website will follow the travel behavior and spending patterns of our survey respondents and interview participants. Nonetheless, the implication is that the website has the potential to influence people's behavior in a way that could translate into substantial positive economic impacts for the region.

For this project, the indirect and induced impacts, as well as the number of new jobs created through economic activity, were calculated through the Implan® software package. This software incorporates an input/output social matrix model that takes into account the types of industries within a region and estimates indirect, induced, and employment impacts due to increases in demand for locally produced products and services. Tables 8 and 9 provide a summary of the total economic impacts resulting from the increase in visits due to the presence of the HGHM website.

As Tables 8 and 9 indicate, total economic impacts directly related to HGHM site visits by website-converted visitors are estimated at $489,822.37 with the creation of 7.4 new on-site jobs. An additional $1,558,882.05 of impacts and 22.5 off-site jobs are expected to be generated by trips to the region taken by website-converted visitors. While these numbers are not 100 percent attributable to the website promotion, we expect that promotional information can be successfully conveyed on the website and will translate into real-world economic impacts at promoted sites.

Table 8.—Total economic impacts directly related to visits to HGHM sites

Impact type	Economic	Jobs created
Direct	$321,574.37	5.7
Indirect	$87,796	.8
Induced	$80,452	.9
Total	$489,822.37	7.4

Table 9.—Total economic impacts not directly related to site but incurred during visit

Impact type	Economic	Jobs created
Direct	$1,113,142.05	17.9
Indirect	$167,310	1.5
Induced	$278,430	3.1
Total	$1,558,882.05	22.5

4.0 DISCUSSION AND RECOMMENDATIONS

The purpose of this project was to test a model for measuring the economic impact of a website promotion and to provide some preliminary estimates of what these impacts may be. Because nearly all economic impact studies produce inexact figures regarding expenditures, these figures need to be regarded as estimates based on the best available data. However, the average spending figures that are extrapolated to the entire population of visitors are based on mean spending data provided by visitors, and nearly always have very high standard deviations. Secondly, it is very difficult for any model of this type to capture an increase in spending at a specific venue that can be attributed to a single event. Thus, while we stand behind the model as a measuring tool to estimate regional impacts attributed to the website, it cannot be used to estimate the website's economic impacts on a specific real-world site.

The largest problem that we encountered with testing the model was achieving data collection goals. The most frequent problem associated with the data collection was that in the rural areas where HGHM sites are located, visitation rates are very low. When

researchers were on site, there were often few or no visitors, and when researchers were not at the sites there was sometimes increased visitation. One possible solution to this problem is to have the HGHM site management distribute surveys to the visitors on a continuing basis. Daily distribution of mail back surveys coupled with on-site surveys conducted by the project manager could lead to a more complete picture of visitation at these sites. However, this requires a strong commitment on the part of the site proprietors who may have concerns about inconveniencing their customers or not having well trained employees to carry out the survey tasks.

During the data collection, the researchers found varying degrees of awareness about the HomegrownHandmade website. Despite the fact that a tool kit for participating sites and materials for site visitors are available, these resources were not evident during the researchers' site visits. Employees and visitors at the various sites were very interested in learning more about HGHM. Site proprietors may need to be reminded periodically to replenish the marketing materials and to encourage employees to distribute available brochures and promotional items.

We also suggest using a different method to obtain email addresses from website visitors. While the current method of asking visitors to voluntarily submit their email addresses provided an ample number of respondents to pilot test the instrument, it did not produce enough addresses to adequately represent the entire population of website visitors. The voluntary submission of addresses also creates questions about nonresponse bias and about how well the sample represents the target population.

For future users of this model, we would also recommend some changes to the data collection instruments. To more accurately measure where expenditures are taking place, we suggest that respondents should be asked to classify their trip expenditures as either at home, enroute, or on-site.

In summary, the method developed and tested through this project can be used to estimate increases in economic impact resulting from specific internet based promotional efforts. However, the success of future implementation of the method depends on several issues:

- A much larger sample of both on-site and website visitors is needed. We suggest that a minimum of 1,000 individuals for each sample would greatly increase the accuracy of the method in estimating the economic impacts.
- The mail-back instrument should be adjusted to collect more detailed information about where expenditures are occurring.
- A larger number of HGHM venues should be chosen as data collection sites. We suggest surveying at least 30 sites.
- Participating sites should receive information about research requirements before the research team's visit in order to enlist proprietors' and employees' help in getting a large sample size.

5.0 CITATIONS

Dillman, D.A. (1978). **Mail and telephone surveys - The total design method.** New York: John Wiley and Sons.