

Exploratory Responses to Challenges in teaching Tourism Statistics and Tourism Satellite Accounts

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Introduction

While there are approximately 180 Universities with tourism or hospitality programs in the U.S., most do not offer dedicated courses on tourism statistics and Tourism Satellite Accounts. This appears to demonstrate a certain degree of structural disconnect between current tourism/hospitality curriculum and the majority of knowledge in the tourism statistics area contributed by national statistics offices and international organizations such as United Nations World Tourism Organization, World Bank, and the Organization for Economic Cooperation and Development.

There appear to be two kinds of challenges for hospitality-tourism colleges to deliver tourism statistics/I-O/TSA courses, based on the author's teaching experiences associated with a full-time elective course in Hospitality and Tourism schools. One is that only a small number of faculty members in hospitality/tourism colleges have formal training in institutional statistics/input-output, System of National Accounts or Social Accounting Matrix. The other would be that few students are given the opportunities to learn about the importance of those topics. This results in lack of critical volume of demand for such courses which teach important national statistics and tourism-related statistics.

The full-semester fully-remote online course has been taught in Spring 2011 semester with 33 hospitality management students, the majority of which have no prior knowledge on economics, matrix computations and tourism statistics. One of the objectives of the course is to conduct policy analysis quantitatively using I-O/SAM and use tourism statistics as a tool to design a better tourism policy with an aim to share the economic benefits to a host community. The outcome is measured quantitatively by weekly online quizzes, two exams and two simulation projects in which students are given 20 x 20 I/O and 46 x 46 SAM tables respectively to calculate impacts and income distribution effects over local residents and then present the analysis over policy choices. After obtaining usable knowledge on tourism statistics, I/O and SAM, students are asked to reply to survey, which appear to indicate an existence of critical divide between current curriculum contents and the interests of students.

This paper and presentation will present results of both an exploratory course delivery method called a streaming video class, which is designed to disseminate learning contents to students at distance over the high-speed internet and the unique content of the course aimed to deliver knowledge and skills of tourism statistics to hospitality students who do not have prior background on rigorous economics, industry statistics and Tourism Satellite Accounts.

Background

OECD states that around 30% of international trade of services can be attributed to tourism (OECD 2000). It was not until 1991 that Statistics Canada, Canada's national statistics office, presented a proposal on Tourism Satellite Accounts (TSA) at the Ottawa Conference on Tourism, which was followed up by their presentation of results (Lapierre & Hayes, 1994). In 1993, updated version of System of National Accounts was published jointly by the World Bank, the United Nations, OECD, International Monetary Fund, the

Commission of the European Communities. The need for measuring tourism was mentioned in Section B,1 Production and Products, Chapter XXI Satellite Analysis and Accounts (UNSD, 2007). World Tourism Organization (UNWTO) made proposal on TSA and OECD published a manual entitled Measuring the Role of Tourism in OECD Economies.

Concepts and applications of Tourism Satellite Accounts have been advocated by the leadership of government statistical offices. Experience of pioneering efforts by Canada was published in Tourism Economics (Meis, 1999) for tourism scholars, and tourism scholars responded by publishing their views (Frechtling, 1999). Experience of Canada was presented in the research conference in tourism in 1998 (Meis, Wilton, 1998), the Swedish TSA application for 1992-93 was presented (Nordstom, 1996) and US Bureau of Economic Analysis published results of their TSA application (Okubo, Planing 1998). United Nations published recommended methodological framework (United Nations, 2001) Occasional progresses in the world have been presented (Libreros et al, 2006) and textbook which dealt with TSA were published (Vanhove, 2005, Hara, 2008). However, the research and the education on TSA did not appear to have caught significant mainstream momentum in the North American hospitality and tourism field.

This study is to collect responses from undergraduate students at a hospitality management program in the United States and discuss how the current stalemate towards the expansion of tourism statistics education may be mitigated.

Data and Methodology

Data are collected from students who were enrolled in “Tourism Impact Analysis” course (HFT4732-0V61) in spring 2011 semester at the author’s College, which is the largest program of hospitality management in North America with 2,783 full-time students as of Fall 2010. The course is “fully streaming video course” in which students are guided by lectures delivered as streaming video clips to study Input-Output, Social Accounting Matrix and Tourism Satellite Accounts with weekly online quizzes, two economic impact assignments using MS-Excel for matrix computations, and the final exam. First assignment is to ask students to operate 20 x 20 transaction tables and conduct series of matrix operations, starting from standardized A-matrix, Identity matrix, subtraction of two matrices, inverse of the square matrix, and multiplication of inversed Leontief matrix by a set of column vector representing changes in final demands. Second assignment is to ask students to do the same sequence of matrix operations with decomposed household and factors of production data, followed by calculations of relative changes in each household income groups given different sets of final demands. In that way, students can quantify poverty alleviation effects by different policy choices.

While thirty-three students were enrolled, twenty-nine (29) students completed the course with four withdrawals, and 27 responded to the anonymous online-survey. There were no pre-requisites for the course though it is an elective course for seniors. While a fully-online course assumes static course contents displayed in the course delivery software, streaming video course is different in that an instructor can provide students at any distant location with pre-recorded visual contents of lectures over high-speed internet.

Fifteen multiple choices and one open-ended question were in the survey.

[Survey questions]

Q1: How was the level of contents overall for a senior level (4000 level) course?

1. Too easy, 2. Relatively easy, 3. Adequate, 4. Relatively challenging, 5. Too challenging

Q2: Was this your first time to take V-mode (Streaming video) course?

1. Yes, 2. No, I took V-mode before this course

Q3: Have you taken online (W and/or M) courses before?

1. None. , 2. Once, 3. Twice, 4. 3 times, 5. 4 times, 6. 5 times, 7. More than 6 times

Q4: Course delivery as V-mode (fully streaming video) has never been done at Rosen College of Hospitality Management before this class. Having taken one, how do you evaluate the delivery style of V-mode - would you like to see more V-mode or less V-mode courses?

1. V-mode is not good. Thus do not offer them. 2. V-mode can be good. Offer some more courses in this mode. 3. Offer more V-mode sections as a choice for students. 4. Offer more V-mode sections in each of the courses with multiple sections

Q5: Have you studied Input Out/Social Accounting Matrix model before?

1. No, never. This was the first time, 2. Yes.

Q6: How was your MS-Excel level before you conducted two large assignments?

1. Not sufficient, 2. Not too sufficient, but I knew a little, 3. Sufficient for ordinary tasks but not for matrix computations, 4. More than sufficient for business and many of matrix computations, 5. Quite capable for both business and the two assignments. I was already there.

Q7: Did you feel that your MS-Excel skills changed after the Assignments?

1. It deteriorated, 2. No. No changes in my skill level, 3. My skills in MS-Excel improved during the course.

Q8: What you do think about the level of needs for MS-Excel skills in our curriculum?

1. We already have too much MS-Excel assignments. 2. We have more than enough courses which trains our MS-Excel skills. 3. We have not enough courses with MS-Excel requirements. 4. We are definitely in short of MS-Excel related trainings.

Q9: Did you learn Tourism Satellite Accounts in previous courses?

1. No. never. This was my first time, 2. Yes, I heard of it somewhere, 3. Yes, I learned formally in other courses, 4. Yes, I knew about it very well before the course

Q10: This is most probably the only course among the all hospitality & tourism programs in the nation and perhaps one of a few in the world to teach TSA, which has been advocated by the UN World Tourism Organization. Do you think that future hospitality and tourism students should learn about it, even considering that they have to learn about I-O/SAM modeling before learning about TSA?

1. No need. Too difficult. 2. Perhaps, yes. 3. Yes, as it will be useful. 4. Definitely yes. 5. Absolutely yes.

Q11: To what extent did you feel that your knowledge on Input-Output/Social Accounting Matrix helped you understand the TSA (Tourism Satellite Accounts)?

1. No. I-O/SAM knowledge was not necessary, 2. I-O/SAM knowledge was somewhat useful in understanding Tourism Satellite Accounts, 3. I-O/SAM knowledge was highly useful in understanding Tourism Satellite Accounts.

Q12: Have you heard or studied about UN Millennium Development Goals (UNMDG) in other courses?

1. No. Never, 2. Yes, I heard of it somewhere. 3. Yes, I studied about it in other courses at least once. 4. Yes, I studies about it in other courses multiple times.

Q13: What did you think about the application of SAM modeling concepts to mitigate various world problems such as poverty, inequality, unemployment, peace creation?

1. No, I do not care these social issues. 2. I did not either like or dislike to learn about social issues. 3. I liked to learn about social issues.

Q14: While it was fully streamlined video course via online, to what extent did you feel you had to exercise "critical thinking skills" in this course?

1. None. They were not required so I did not use it. 2. Some critical thinking skills were required but not as much as average amount in other courses, 3. Critical thinking skills were required just as much as average amount in other courses, 4. I felt I used critical thinking skills in this course more than in other courses

Q15: I intentionally put lots of tourism issues from the world - beyond our national borders. How would you like to see global-international issues offered in our curriculum in general?

1. No, issues in the world are not relevant, so eliminate them from our curriculum. 2. A bit too much. So reduce global issues from our curriculum. 3. Just appropriate amount of coverage over world issues. Our curriculum should keep the current mix. 4. I would rather see some more global contents in our courses. 5. I would rather see by far more global contents in our courses.

Result and Analysis

Since we do not have large enough data, simple descriptive statistics of the results are shown below.

[Descriptive Statistics]

The course was perceived as relatively challenging by more than half (16 = 59.3%) of the students (Q1). As for modality of the course, it was the first streaming video course for 70% of students, while 96% of students have taken conventional online course at least once in the past (Q2 and Q3). Based on our previous experiences of asking the similar question, we are aware that question such as Q4 asking students' preference of online/streaming video course can be misleading (100% ask for more sections or more courses in "distant learning" mode) because of their preference of convenience such as "no need for driving up to campus, no hassle for parking spaces, increased flexibility to fit their internship working needs" etc.

As for the basic knowledge of Input-Output and Social Accounting Matrix, 96% of students say this is the first time to study such subject (Q5). Even though those who work in national statistics offices and in statistical department of international organizations tend to take knowledge on SNA and extended Input-Output family structure as granted, the knowledge is not very common among scholars and instructors of hospitality and tourism management, thus there are no or few courses to teach those basic knowledge on extended family of Input Output on which TSA will be built.

As for questions on students' MS-Excel skills, 81% of students say they did not have enough MS-Excel skills to calculate matrix operations (Q6) and 77% of students felt improvements of their MS-Excel skills after two large assignments in which they had to conduct series of matrix operations with 20 x 20 matrices, and 40 x 40 matrices (Q7). Over 92% of students think they need to learn more MS-Excel skills (Q8), which surely indicates a need to enhance our overall curriculum toward such direction.

As for the TSA, only two students (7.4%) have heard of it, and 92% of students, many are graduating seniors, never heard of TSA (Q9). We have at least three required courses, freshmen-level Introduction to Hospitality Management, sophomore-level Lodging Management, and junior level Tourism Management, but basically

none of our sample students have learned TSA in any of the required courses. It was rather surprising to note, however, that three-quarter of them believe hospitality and tourism students should study TSA even considering that they have to learn to go through rigorous Input-Output and Social Accounting Matrix exercises (Q10). Regarding the needs for Input-Output/Social Accounting Matrix knowledge as a prerequisite for studying TSA, over 90% of them think it either somewhat or highly useful for them to learn those before studying TSA (Q11). We have to consider that students may be in a situation of “cognitive dissonance” in that they do not want to believe the rigorous exercises of Input-Output/Social Accounting Matrix was useless in learning TSA, but it is also possible that thanks to the structural familiarity of TSA to extended Input-Output framework, students indeed found it useful to learn I-O/SAM before dealing with TSA.

Having simulated income distribution and poverty alleviation effects using Social Accounting Matrix, students viewed some videos made by UNDP and others about United Nations Millennium Development Goals (UNMDG). Once they acquire basic knowledge and skills to use methodology, they can learn how to model effects of how each change in final demands would lead to different effects of poverty alleviation in different income levels of household groups. As for UNMDG, 85% of the students say they have never learned this in their curriculum, though those have been highly emphasized by the United Nations and many national governments for over 10 years (Q12). However, overwhelming majority (96%) of them feel the need to study various world problems such as poverty, inequality, unemployment, conflict resolution (Q13), which appears to be in critical shortage in our mainstream hospitality management curriculum. Majority of the hospitality management curriculum in North America are similar to be along those pioneered by School of Hotel Administration of Cornell University, which is an hospitality-industry oriented applied version of general management curriculum, with accounting, finance, marketing, human resources, plus set of industrial sector specific applications such as restaurant, theme-park, event and convention management. While the curriculum emphasize management, it is rather surprising that all students have “soft heart” portion kept deep in their minds, which can be stimulated with a global topic such as UNMDG.

As for the students’ curiosity to tourism issues beyond the borders (outside of USA), half of them say they want to learn more, while one third say they are fine with the current levels of international coverage (Q15). This reply became rather difficult to interpret due to my oversight in asking questions, as the course contains high amount of coverage of global issues outside of the USA.

As for the degree of critical thinking skills, which is often a challenge in online/streaming video course due to its unilateral structure, majority (59.3%) of students think the course required the same level of critical thinking as other (face to face) courses, due perhaps to usage of Discussion Board, to which students and instructors post their opinions, questions and answers at anytime from anywhere.

[Inferential Statistics]

Due to small numbers of data, I explored associations between one important answer to Q10 (should future students learn TSA?) and all other variables. In other words, we will see if there are any significant associations between the patterns of students’ answers to Q10 and their answers to other questions. Stepwise regression method was used with cutoff of $\alpha = 0.05$.

Results are shown in Table 1 below. When a student has an opinion that future students should also learn about TSA, s/he is more likely to have a perception that knowledge of Input-Output and Social Accounting Matrix should be useful to study TSA, and that s/he appears to perceive higher needs for learning how to use MS-Excel. Those relationships are not indicating any causality among the variables but rather showing significant associations of certain patterns of opinions among those students who studied about tourism

statistics and TSA.

Table 1: Stepwise Regression: TSA (Should Future Students learn?)

Alpha-to-Enter: 0.05 Alpha-to-Remove: 0.05
 Response is TSA (Q10) on 14 predictors, with N = 26
 N(cases with missing observations) = 1 N(all cases) = 27

Step	1	2
Constant	0.6452	-0.443
Q11: I-O/SAM required for TSA?	1.14	0.87
T-Value	3.6	2.76
P-Value	0.001	0.011
Q8: MS-Excel skill requirements		0.52
T-Value		2.2
P-Value		0.038
S	0.974	0.905
R-Sq	35.12	46.36
R-Sq(adj)	32.42	41.7

Source: made by the author

Conclusion, Limitations and Future Research

This study has a fair share of limitations due to a small size of our sample data. Small sample size did not allow us to measure effect of student’s major (29 in BS Hospitality Management, 2 in BS Event Management, 1 in BS Business, 1 in BA Anthropology), academic standing (28 seniors, 5 juniors), nationality (two foreign nationals, the rest are US Citizen). Since I chose anonymous survey, I could not associate each respondent with particular sets of measurement of academic performance, which have been separately measured in terms of 16 weekly quizzes, one final exam, two large individual projects. Effect of lecture contents delivery method being streaming video is hard to measure as I did not have comparable controlled section which was taught in traditional face-to-face environment at the same semester. It would be challenging to decompose students’ sources of satisfaction/dissatisfaction clearly into course contents and course delivery despite the researcher’s attempts to ask their perceptions.

While students in general were favorable with the topics of TSA and tourism statistics, it poses an important question of why this was the first time for them (majority of them being seniors) to learn about TSA. Because this was an elective course for seniors at our College, which is the largest program in the North America, majority of students, roughly 600 per year, are reasonably assumed to graduate from the program without ever learning about TSA, SNA and important basic concepts about tourism statistics. Unfortunately, there are few courses at hospitality and tourism programs which deal with tourism statistics and TSA despite all those efforts made by international organizations and national statistics offices to promote the idea.

There could be several possible factors to explain lack of substantial interests in tourism statistics and TSA among the tourism-hospitality academics, but one of the plausible logics would be their general lack of

knowledge on system of national accounts (SNA) and the input-output framework which is the foundation for SNA and TSA. For those who work at national statistics offices, knowledge on macroeconomics is a prerequisite to build TSA on. Not all researchers in tourism-hospitality were trained in those areas, thus unable to teach how TSA actually works in its different set of tables. Another possible reason for lack of substantial interests by majority of tourism-hospitality researchers in the families of SNA, I-O, SAM and TSA might be the similar reason quoted by Duchin as follows; "Despite the award to Leontief of the Nobel Prize in economics in 1973, input-output economics has failed to maintain the interest of academic theorists, who regard it as a simplistic form of general equilibrium analysis. Curiously many input-output economists have accepted this indictment." (Duchin, 1998).

This study proves that it is not hospitality and tourism students who have either mental or capacity problems to learn tourism statistics. Students, given chances to learn about, would find it challenging but rewarding to study tourism statistics quantitatively, particularly put in the broader social context as means to analyze various global problems such as poverty, inequality, income disparity, unemployment and environmental issues beyond their national borders. Having identified those, it is my assessment that many of the hospitality management curriculum at hospitality and tourism programs today are focused on traditional management objectives of optimal resources allocations and profit maximization, which does not allow time for students to explore issues that many national statistics offices and international organizations are emphasizing, such as TSA, SNA and United Nations Millennium Development Goals.

Tourism as an industry is often one of a few viable export industrial sectors for many of the developing nations and regions, and huge resources have been invested in development of the de jure standard method to measure the tourism activities in the world, TSA, which is based on SNA and Input-Output framework. National statistical offices and international organizations are missing precious opportunities to systematically develop audience bases for the future consumption of tourism statistics data (Tourism Satellite Accounts), as many as 10,000 per year of graduates from 170+ hospitality and tourism programs in universities in the United States alone, due to disconnect between current academic curriculums in most of those academic programs and strategic outreach by national/international statistical offices. A handful of national statisticians and academic researchers notably tried to fill the gap in the last decade and there have been some good research papers published as shown in the literature review. Majority of students did not appear to have an opportunity to be exposed to learn tourism statistics before they graduate based on our survey from a small sample.

National statistical offices as well as international organizations may as well invest just a little more resources into strategic outreach towards increased awareness among tourism-hospitality scholars to include topics of tourism statistics in their curriculum, or the critical gap will remain unfilled to leave tens of thousands of potential consumers of tourism statistics, who are current students but will become large numbers of taxpayers in the future.

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RÉSUMÉ (ABSTRACT) — optional**Tadayuki (Tad) Hara**

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[Appendix: Samples of Streaming Video Course HFT4732 Tourism Impact Analysis Spring 2011]

Lecture Week 3: Is Tourism Always good?

Lecture WK-3 MAIN: <http://tegr.it/y/2toe> (31:09)

Lecture WK-3 (V1): Tourism Means Business (04:29) <http://tegr.it/y/2toi>

Lecture WK-3 (V2): Tourism Enriches by UNWTO (01:01) <http://tegr.it/y/2tom>

Lecture WK-3 (V3): Choices by National Geographic Video (02:31) <http://tegr.it/y/2toq>

Lecture WK-3 (V4): **Tourism in Cancun, Mexico – Success or Disaster (04:31)** <http://tegr.it/y/2tou> (*This was perhaps one of the most provoking videos to which many students commented*)

Lecture Week 4: Introduction to Input Output

Lecture WK-4 MAIN: <http://tegr.it/y/2y4l> (54:29) this is a main lecture.

Solution for Exercises in Lecture 4: <http://tegr.it/y/2y4p> (08:53) this is a supplementary explanation on how to calculate matrix operations by head, hand, pen and paper.

Lecture WK-4 (V1) See Machu Picchu: <http://tegr.it/y/2y55> (3:36) this one has nothing to do with Input-Output, but it is an inspirational short video for students to continue to learn about tourism.

Lecture 5 Lab 5 Part 2: <http://tegr.it/y/3t2k> (12:59) Technical display of how the Inverse and Matrix multiplications are done in MS-Excel.

In case the link would not start the course automatically, please do the followings;

(1) Copy the link and paste it into the Browser (such as Internet Explorer)

(2) Allow all pop-ups and Java to run, or say “yes” to all those warnings which may come up as pop-ups.