

ECONOMIC IMPACT MODEL OF TOURISM

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TODAY'S AGENDA

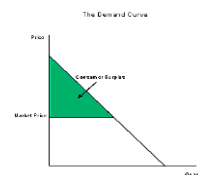
- Resource evaluation-TCM, CVM, and CCM
- Understand multipliers
- Know about tourism satellite accounts

RESOURCE EVALUATION

- Economic value is one of many possible ways to define and measure value.
- Economic value is measured by the most someone is willing to give up in other goods and services in order to obtain a good, service, or state of the world.
- It is often incorrectly assumed that a good's market price measures its economic value. (the market price only tells us the *minimum* amount that people who buy the good are willing to pay for it.)

RESOURCE EVALUATION

- The economic benefit to individuals is often measured by **consumer surplus**. This is graphically represented by the area under the demand curve for a good, above its price.
- The economic benefit to individuals, or consumer surplus, received from a good will change if its price or quality changes.
- If the price of a good increases, but people's willingness to pay remains the same, the benefit received will be less than before.



EVALUATION MODELS

- Travel cost model (TCM)
- Contingent valuation model (CVM)
- Contingent choice model (CCM)

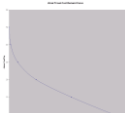
TCM

- The basic premise of the travel cost method is that the time and travel cost expenses that people incur to visit a site represent the "price" of access to the site.
- Peoples' willingness to pay to visit the site (demand curve) can be estimated based on the number of trips that they make at different travel costs.
- Three types of TCMs:
 - A simple zonal travel cost approach, using mostly secondary data.
 - An individual travel cost approach, using a more detailed survey of visitors.
 - A random utility approach using survey and other data, and more complicated statistical techniques.

TCM

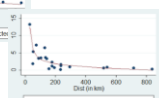
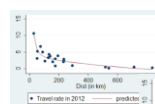
- Because the travel and time costs will increase with distance, this information allows the researcher to calculate the number of visits "purchased" at different "prices." This information is used to construct the demand function for the site, and estimate the consumer surplus.

| Zone | Round Trip Travel Distance | Round Trip Travel Time | Distance times Cost/Mile (\$/30) | Travel Time times Cost/Minute (\$/15) | Total Travel Cost/Trip |
|------|----------------------------|------------------------|----------------------------------|---------------------------------------|------------------------|
| 0 | 0 | 0 | 0 | 0 | 0 |
| 1 | 20 | 30 | \$6 | \$4.50 | \$10.50 |
| 2 | 40 | 60 | \$12 | \$9.00 | \$21.00 |
| 3 | 80 | 120 | \$24 | \$18.00 | \$42.00 |



TCM CASE

Estimating the Benefits of Recreation at a World Heritage Site: A Travel Cost Analysis of Visits to Mount Fuji.



TCM CASE

- Aggregate CS: sum and zonal
- Consumer Price Index (CPI) data used to deflate 2012 value
- A total increase of 50.20% in consumer surplus from 2012 to 2013

| Prefecture name | ename | CS2012 | CS2013 |
|-----------------|------------------------|---------------|-----------------|
| 東北地方/北海道 | Tohoku/Hokkaido | \$14,031,583 | \$12,209,407 |
| 茨城 | Ibaraki | \$22,691,808 | \$30,723,439 |
| 栃木 | Tochigi | \$14,429,214 | \$30,324,997 |
| 群馬 | Gunma | \$16,827,015 | \$18,007,039 |
| 埼玉 | Saitama | \$66,414,011 | \$73,079,480 |
| 千葉 | Chiba | \$39,488,646 | \$49,373,857 |
| 東京 | Tokyo | \$232,499,763 | \$433,264,425 |
| 神奈川 | Kanagawa | \$72,251,199 | \$91,729,661 |
| 新潟 | Niigata | \$14,204,719 | \$17,139,646 |
| 富山 | Toyama | \$9,570,914 | \$11,613,018 |
| 石川 | Ishikawa | \$6,666,538 | \$8,052,892 |
| 福井 | Fukui | \$5,331,093 | \$6,313,594 |
| 山梨 | Yamanashi | \$17,313,239 | \$13,720,653 |
| 長野 | Nagano | \$21,222,222 | \$21,205,826 |
| 岐阜 | Gifu | \$13,475,472 | \$14,976,423 |
| 静岡 | Shizuoka | \$64,260,524 | \$64,832,033 |
| 愛知 | Aichi | \$42,453,472 | \$69,291,992 |
| 関西地方 | Kinki | \$66,483,294 | \$139,907,573 |
| 中国地方 | Chugoku | \$13,627,947 | \$27,103,997 |
| 四国地方 | Shikoku | \$7,083,211 | \$12,751,858 |
| 九州地方/沖縄 | Kyushu/Okinawa | \$11,652,280 | \$28,272,509 |
| | Sum (at current price) | \$772,598,603 | \$1,165,108,928 |
| | Sum (at 2012's price) | \$772,598,603 | \$1,160,449,488 |

CVM

- The contingent valuation method involves directly asking people, in a survey, how much they would be willing to pay for specific services/attributes.
- It is called "contingent" valuation, because people are asked to state their willingness to pay, contingent on a specific hypothetical scenario.
- Different from TCM, a "revealed preference" method, CVM is referred to as a "stated preference" method

CVM

- Step 1: Define the valuation problem.
- Step 2: Make preliminary decisions about the survey itself, including whether it will be conducted by mail, email, phone or in person.
- Step 3: Actual survey design. After a number of focus groups, and the researchers have reached a point where they have an idea of how to provide background information, describe the hypothetical scenario, and ask the valuation question, they will start pre-testing the survey.
- Step 4: Actual survey implementation.
- Step 5: Compile, analyze and report the results.
- From the analysis, the researchers can estimate the average value for an individual or household in the sample, and extrapolate this to the relevant population in order to calculate the total benefits from the site. For example, if they find that the mean willingness to pay is \$.10 per capita, the total benefits to all citizens would be \$26 million.

CVM

- Like contingent valuation, it is a hypothetical method – it asks people to make choices based on a hypothetical scenario.
- However, it differs from contingent valuation because it does not directly ask people to state their values in dollars. Instead, values are inferred from the hypothetical choices or tradeoffs that people make.
- The contingent choice method asks the respondent to state a preference between one group of services or characteristics, at a given price or cost to the individual, and another group of characteristics at a different price or cost.

| Characteristics | Package A | Package B | |
|--|--|--|---------------------------|
| | Canary Islands | Cyprus | |
| Price per person | \$600 | \$750 | None of these two options |
| Beach space for yourself (squared meters on average) | 4 sq. meters | 25 sq. meters | |
| Services available in the accommodation complex | Standard Services | Full Services | |
| Theme Parks | Yes | No | |
| Preservation of natural landscapes | Low | Low | |
| Time to entertainment and shopping centers | Between 10 and 30 m walk (or 5-10 minutes by car or bus) | Between 10 and 30 m walk (or 5-10 minutes by car or bus) | |
| Management of urban environments | Excellent quality | Excellent quality | |
| Please Mark your Choice | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

| Authors | Before September 11 |
|------------|----------------------------|
| Beach | -3.23 (4.48, 5.81) |
| Services | 20.39 (19.52, 21.14) |
| Theme | 12.41 (16.47, 18.34) |
| Landscapes | -2.06 (22.71, 25.90) |
| Time | -17.53 (-16.98, -18.10) |
| Urban Env | 13.47 (12.25, 14.70) |

WRAP UP

- Advantages and Disadvantages
- TCM, CVM, CCM
- Revealed vs. Stated preference methods

WHY QUANTIFY IMPACT?

- By monitoring tourism's economic impact, policy makers can make informed decisions regarding the funding and prioritization of tourism development.
- It can also carefully monitor its successes and future needs.
- In order to do this, tourism must be measured in the same categories as other economic sectors – i.e. tax generation, employment, wages, and gross domestic product.

CHALLENGES

- Most economic sectors such as financial services, insurance, or construction are easily defined within a country's national accounts statistics.
- Tourism is not so easily measured because it is not a single industry. It is a demand-side activity which affects multiple sectors to various degrees.
- Tourism spans nearly a dozen sectors including lodging, recreation, retail, real estate, air passenger transport, food & beverage, car rental, taxi services, travel agents...

TOURISM IMPACT

- Travelers create direct economic value within a discreet group of sectors. This supports a relative proportion of jobs, wages, taxes, and GDP in each sector.
- Each directly affected sector also purchases goods and services as inputs (e.g. food wholesalers, utilities) into production. These impacts are called indirect impacts.
- Lastly, the induced impact is generated when employees whose incomes are generated either directly or indirectly by tourism, spend those incomes in the state economy.



ECONOMIC MULTIPLIERS

- An economic injection impacts the economy by fostering internal spending. The new money remains in the economy by being spent and re-spent.
- Direct Effect
 - Result from visitors spending money in tourist enterprises and providing a living for the owners and managers and creating jobs for employees
- Indirect Effect
 - This is the **multiplier** impact. This is where visitor spending circulates and recirculates
- Employment Multiplier
- Income Multiplier

SIMPLE MULTIPLIER

$$\text{Multiplier} = \frac{1}{1-C+M+T}$$

where

- M = marginal propensity to import
- T = marginal rate of income tax
- C = marginal propensity to consume
- S = savings (money out of circulation) S=1-C

- Why not all money can be re-spent?
- Think about the leakage!

Example

\$1,000 of tourist expenditure and C=0.8, M=0.2, and T=0.1.

$$\text{Multiplier} = \frac{1}{1-0.8+0.2+0.1} \times \$1,000 = \$2,000$$

DIFFERENT METHODS

- Tourist survey based methods
- Input-output analysis (I-O analysis)
- Tourism Satellite Account

I-O ANALYSIS

- The I-O table records the transactions between large numbers of industries and provides valuable information to trace the economic impact of the tourism industry upon other affected industries and the economy as a whole.
- It provides a reduced-form picture that is tractable and representative of the overall economic structure, interdependencies, and flows between economic sectors.
- Apart from the traditional use of I-O analysis in the direct assessment of tourism economic multipliers, another important I-O application in tourism studies is the expenditure-based analysis of income/employment redistribution from tourism.

I-O ANALYSIS

- A typical I-O table

| To From | Intermediate use | | | | Final use | | | | Total | |
|-------------|------------------|----------|-----|----------|-----------|----------|-------------|------------|-------|---------|
| | 1 | 2 | ... | j | ... | n | Consumption | Investment | | Exports |
| 1 | a_{11} | a_{12} | ... | a_{1j} | ... | a_{1n} | c_1 | i_1 | e_1 | X_1 |
| 2 | a_{21} | a_{22} | ... | a_{2j} | ... | a_{2n} | c_2 | i_2 | e_2 | X_2 |
| ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| j | a_{j1} | a_{j2} | ... | a_{jj} | ... | a_{jn} | c_j | i_j | e_j | X_j |
| ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| n | a_{n1} | a_{n2} | ... | a_{nj} | ... | a_{nn} | c_n | i_n | e_n | X_n |
| Value added | v_1 | v_2 | ... | v_j | ... | v_n | | | | V |
| Imports | m_1 | m_2 | ... | m_j | ... | m_n | | | | M |
| Total | X_1 | X_2 | ... | X_j | ... | X_n | C | I | G | E |

I-O ANALYSIS

- From a simple I-O table, we can get:
 - Inter-sector linkage of a particular sector
 - Economic multiplier of a particular on the overall economy
 - Income multiplier, employment multiplier, export multiplier, output multiplier
 - How demand from multiple sectors impacts the overall economy

I-O ANALYSIS: EXAMPLE

- Evaluating the economic impacts in NY
 - Employment definitions. The basis of data and modeling is the Regional Economic Information System (REIS), Bureau of Economic Analysis, U.S. Department of Commerce. BEA data shows (for example) state accommodations employment at \$9,124. (Can be different from state statistics)
 - International methodology. The approach (through Travel Industry Association calculations) is based the estimates on direct survey responses to the Department of Commerce **International flight survey and Statistics Canada data** - constrained to BEA international balance of payments data.
 - Bottom-up vs. top-down. Based on tourism expenditure analysis from surveys and controls to known industry measurements for key tourism sectors.

EXAMPLE

- Local taxes are a build-up of individual categories (sales, occupancy, property). The model is not equipped to deal with individual exemptions such as Indian gaming.
- Second home expenditures are based on the stock of seasonal second home inventory. Annual average expenditures for housing are pro-rated to the season length to account for various levels of expenditures not accounted in visitor surveys.
- Lodging sector. Vary from certain bed tax estimates of total revenue for several reasons. One is that the bed tax may only be based on room revenue while total sales for the industry may include other revenue sources (room service, phone, etc.). Another is that certain smaller establishments may not fully report or be required to report their revenue.

EXAMPLE

- The analysis requires an examination of visitor spending (the demand side) and related industry sales, value added, wages, and employment (the supply side).
- Economic modeling is used to quantify the linkages between visitor spending and industries and among industries.
- Utilize the IMPLAN input-output model for New York State to track the flow of sales through the economy to the generation of GDP, employment, wages, and taxes:
 - Direct impact:** The immediate benefit to persons and companies directly providing goods or services to travelers.
 - Indirect impact:** The secondary benefit to suppliers of goods and services to the directly-involved companies. For example, a food wholesaler providing goods to a restaurant. The model is careful to exclude imports from the impact calculations.
 - Induced impact:** The tertiary benefit to the local economy as incomes in the prior two levels of impact are spent on goods and services. For example, a restaurant employee spends his wages at a grocery store, generating additional economic output.

VISITOR SPENDING BY SECTOR

- Lower prices across the board fueled declines in visitor spending. Airfares, room rates, fuel prices, and retail incentives all accentuated the declines in gross visitor spending.

| Visitor Spending | | | | | | |
|------------------|-----------|-----------|--------------|-------------------------|-----------|---------------|
| | Transport | Lodging | Food Service | Retail & Serv. Stations | TOTAL | Annual Growth |
| 2003 | \$ 8,150 | \$ 9,200 | \$ 8,035 | \$ 3,540 | \$ 7,284 | \$ 36,223 |
| 2004 | \$ 8,790 | \$ 10,299 | \$ 8,715 | \$ 4,000 | \$ 8,182 | \$ 40,200 |
| 2005 | \$ 9,210 | \$ 11,575 | \$ 9,663 | \$ 4,259 | \$ 8,714 | \$ 43,431 |
| 2006 | \$ 9,493 | \$ 12,832 | \$ 10,562 | \$ 4,668 | \$ 9,100 | \$ 46,574 |
| 2007 | \$ 10,515 | \$ 14,361 | \$ 11,367 | \$ 5,191 | \$ 9,717 | \$ 51,081 |
| 2008 | \$ 10,881 | \$ 14,710 | \$ 11,462 | \$ 5,330 | \$ 10,689 | \$ 53,308 |
| 2009 | \$ 9,681 | \$ 12,208 | \$ 10,511 | \$ 4,668 | \$ 9,710 | \$ 45,777 |
| 2009 % change | -11.0% | -17.0% | -8.5% | -12.5% | -18.9% | -13.8% |

TOURISM GDP

| Tourism GDP (Value Added) | | | | | |
|------------------------------------|---------------|--------------|--------------|---------------|---------------|
| | Direct | Indirect | Induced | Total | % change |
| Agriculture, Fishing, Mining | 124 | 66 | 190 | 380 | -0.1% |
| Construction and Utilities | 392 | 213 | 804 | 1,409 | -0.1% |
| Manufacturing | 865 | 371 | 776 | 1,912 | -0.8% |
| Wholesale Trade | 629 | 668 | 1,236 | 2,533 | -0.8% |
| Air Transport | 2,481 | 14 | 19 | 2,484 | +12.2% |
| Other Transport | 1,779 | 581 | 175 | 2,535 | -7.5% |
| Retail Trade | 1,283 | 158 | 1,011 | 2,452 | +13.5% |
| Gasoline Stations | 603 | 6 | 36 | 645 | -18.3% |
| Communications | 1,200 | 518 | 368 | 2,086 | -0.1% |
| Finance, Insurance and Real Estate | 1,720 | 1,381 | 819 | 3,920 | -6.7% |
| Business Services | 2,729 | 793 | 3,522 | 7,044 | -9.4% |
| Education and Health Care | 10 | 1,748 | 1,738 | 3,486 | -7.6% |
| Recreation and Entertainment | 2,861 | 147 | 121 | 3,129 | -12.2% |
| Lodging | 4,865 | 55 | 65 | 4,985 | -10.2% |
| Food & Beverage | 5,521 | 165 | 335 | 6,021 | -8.5% |
| Personal Services | 142 | 337 | 479 | 958 | -0.3% |
| Government | 181 | 1,805 | 1,967 | 3,953 | -7.5% |
| TOTAL | 22,421 | 8,166 | 9,488 | 40,075 | -11.4% |
| % change | -13.4% | -9.5% | -7.6% | -11.4% | |

- The tourism sector generated state GDP of \$40 billion in 2009. This is 4% of the state economy.

TOURISM EMPLOYMENT

| Tourism Employment | | | | | |
|------------------------------------|----------------|---------------|----------------|----------------|--------------|
| | Direct | Indirect | Induced | Total | % change |
| Agriculture, Fishing, Mining | 3,259 | 1,439 | 4,697 | 9,395 | -3.2% |
| Construction and Utilities | 4,728 | 3,464 | 8,192 | 16,384 | -3.3% |
| Manufacturing | 4,728 | 3,464 | 8,192 | 16,384 | -3.1% |
| Wholesale Trade | 28,789 | 169 | 220 | 30,158 | -6.6% |
| Air Transport | 62,289 | 18,656 | 2,219 | 83,164 | -3.5% |
| Other Transport | 22,415 | 3,203 | 20,408 | 46,026 | -4.6% |
| Retail Trade | 10,559 | 117 | 879 | 11,555 | -3.5% |
| Gasoline Stations | 10,559 | 2,605 | 1,216 | 14,380 | -3.2% |
| Communications | 7,390 | 9,395 | 7,307 | 24,092 | -2.3% |
| Finance, Insurance and Real Estate | 23,863 | 10,209 | 44,712 | 78,784 | -3.2% |
| Business Services | 252 | 33,428 | 33,678 | 67,358 | -2.7% |
| Education and Health Care | 65,259 | 4,218 | 3,334 | 72,811 | -5.1% |
| Recreation and Entertainment | 87,328 | 726 | 887 | 88,941 | -4.0% |
| Lodging | 170,148 | 5,883 | 11,253 | 187,284 | -2.0% |
| Food & Beverage | 1,977 | 10,288 | 14,244 | 26,509 | -2.9% |
| Personal Services | 1,977 | 10,288 | 14,244 | 26,509 | -2.2% |
| Government | 1,977 | 10,288 | 14,244 | 26,509 | -3.7% |
| TOTAL | 455,437 | 81,823 | 113,256 | 650,516 | -3.7% |
| % change | -4.9% | -3.5% | -2.6% | -3.7% | |

- The tourism sector supported 660,915 jobs, or 7.8% of all private non-farm employment in New York State last year.

TOURISM SATELLITE ACCOUNT (TSA)

- The TSA was conceived by the UNWTO and has since been ratified by the UN, Eurostat, and OECD.
- The standard has been adopted by over fifty countries around the world and a growing number of US States.
- The TSA deals with the challenge of measuring tourism in two important ways:
 - Defines the tourism economy
 - Provides methodology for calculating tourism GDP in a way that is consistent with economic accounts

TSA

Benefits

- Enables comparisons of the importance of tourism to other sectors of the economy in terms of GDP, employment, and income.
- Allows for benchmarking to other destinations.
- Tracks the economic contribution of tourism over time.
- Monitors strength by tracking capital investment.
- Allows for extension analysis for of the full impact of tourism.



TSA- 10 AGGREGATES

1. Accommodation for visitors (including paid and imputed rent)
2. Food and beverage serving industry
3. Railway passenger transport
4. Road passenger transport
5. Water passenger transport
6. Air passenger transport
7. Transport equipment rental
8. Travel agencies & other reservation services
9. Cultural industry
10. Sports and recreation industry

Key Terms

The following key terms are used to describe the travel and tourism satellite accounts.

Domestic tourism. Domestic tourism includes travel and tourism undertaken by U.S. residents within the borders of the United States, Puerto Rico, the U.S. Virgin Islands, and other U.S. territories are outside of this defined boundary and are classified in "international travel". The travel and tourism accounts break out all expenditures on domestic travel and tourism by type of visitor: resident households, business, and government.

Inbound tourism. Travel-related expenditures by non-residents traveling within the United States and expenditures by nonresidents on international transportation purchased from U.S. providers. These expenditures exclude expenditures for travel to study in the United States and for medical reasons.

Internal tourism. The sum of domestic tourism expenditures and inbound tourism expenditures (net of all international transportation expenditures).¹

National tourism. The sum of domestic tourism demand and outbound tourism demand (including all international transportation expenditures). The calculation of outbound tourism includes all expenditures on international transportation, whether purchased from foreign or U.S. providers. This is to create consistency between expenditures by U.S. residents traveling within the United States (domestic tourism) and expenditures by U.S. residents traveling abroad (outbound tourism).

Outbound tourism. Travel-related expenditures by U.S. residents traveling abroad and expenditures by U.S. residents on international transportation purchased from foreign providers.

Tourism commodities. Goods and services that are typically purchased by visitors, such as airline passenger transportation, hotel accommodations, and meals.²

Tourism employment. Total tourism-related employment consists of direct tourism employment plus indirect tourism employment. Direct tourism employment comprises all jobs where the workers are engaged in the production of direct tourism output (for example, hotel staff and airline pilots), and indirect tourism employment comprises all jobs where the workers are engaged in the production of indirect tourism output (for example, workers producing hotel toiletries and delivering fuel to airlines).

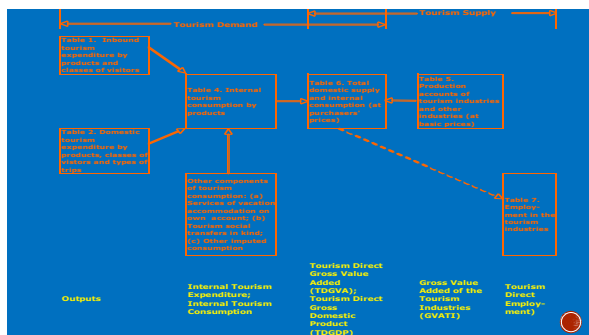
Tourism output. Total tourism-related output consists of direct tourism output and indirect tourism output. Direct tourism output comprises all domestically produced goods and services purchased by travelers (for example, traveler accommodations and passenger air transportation), and indirect tourism output comprises all output required to support the production of direct tourism output (for example, toiletries for hotel guests and fuel for airplanes).

Usual environment. The area of normal, everyday activities within 50-100 miles of home.

Visitor. A person who travels outside of his or her usual environment for less than a year or who stays overnight in a hotel or motel. The visitor may travel for pleasure or business (private sector or government). Visitors exclude travelers who expect to be compensated at the location of their visit (such as migrant workers, persons traveling to new assignments, and diplomatic and military personnel traveling to and from their duty stations and their home countries).

TSA-KEY TERMS

- Gross value added of tourism industries (GVATI) is a sum of value added (in basic prices) of all economic entities in tourism industry regardless of degree to which production, i.e. value added of that activity is generated by tourism consumption.
- Direct tourism gross domestic product (DTGDP) is equal to the sum of value added of tourism and other activities generated by internal tourism demand and net tax on products (difference between tax and subsidy) included in value of tourism costs by purchase prices.
- Tourism GDP only measures direct effects of tourism consumption, and these are only internal, not entire tourism demands. It does not consider indirect and induced tourism effects.



COMPUTER PROGRAMS

- The larger the local economy, the larger the multiplier. Some industries have larger multipliers than others
- Generally generated by computer models
 - RIMS II: [Regional Input-Output Modeling System](#), Bureau of Economic Analysis
 - IMPLAN Pro: [Minnesota IMPLAN Group](#)
 - MITEIM: [Michigan Tourism Economic Impact Model](#)
 - Expert Judgment: Any expert near you

CASE STUDY

- Estimating the Direct Impacts of a Community Event
- Direct Impacts of Patron Expenditures
 - Event patron expenditures are generally measured in common units : party-visits may be the best unit of measure
- Direct Impacts of Vendors and/or Exhibitors
- Estimating the Number of Visits: Single-Venue vs. Multi-Venue Events
- Using Surveys to Estimate Patron Spending
- Capture rate represents the proportion of local expenditures that will have a direct impact on the local community using computer programs like MITEIM, IMPLAN, and RIMS II.

