

Tourism and Rural Development

Takashi Fujimoto
Osaka University of Economics

Introduction

The principal change in recent years has been a decline of the primary industries and a growth of the service industries in the rural region. Especially, a growth of the tourism industries which utilize rural amenity has been major components for such economic restructuring. And the public financial support has been implemented for the rural tourism development.

This paper examines the economic impacts of tourism on an economically disadvantaged rural region by Input-Output evaluation. There are two discussions for rural economic development by tourism. The first is “increase of tourist numbers and spending”. The second is “increase of economic benefits by defined tourist spending at a local or regional level”. This paper is the approach from the latter side.

This paper, especially, gives attention to the difference between “Hard tourism” and “Soft Tourism”. Hard tourism is seen to be associated with large-scale externally owned tourism development such as large hotels. Hard tourism is developed by governments or large-scale enterprises with top-down approach. Soft tourism, in contrast, is seen to be associated with small-scale internally owned tourism development such as Japanese guesthouses. Soft tourism is developed by indigenous people with bottom-up territorial approach.

Background to Rural Tourism

Green tourism which is representative of the soft tourism has developed since 1980th in Japan. Green tourism is seen as the tourism that small group such as family and friends visits rural regions and intersects with indigenous people through rural activities. The visitors enjoy local foods, agriculture or forestry work experiments, processing agricultural products, shopping local products, and outdoor experiments, so on.

The resource of green tourism is quasi-nature or living culture in commonplace farm villages

or rural communities. The quasi-nature is distinguished from pure-nature, which is brought up by the interactions between human and nature, such as terraced paddy, second-growth forest where firewood for fuel or grass for feed and fertilizer was gathered, and second-growth grassland where grass for straw-thatched roof was gathered. We should pay attention that the bio-diversity is increased by the suitable human disturbance of the ecology. The ridge row is bio-diversified by mowing. The lightning bug or dragonfly is living in quasi-nature or human habitation. The living culture is not culture of upper classes in the past but the unpretentious culture which has been formed by the people living in the rural regions, such as traditional private house, local festival, and traditional technology like charcoal burning.

Background to green tourism has developed is a decline of rural economy. The economically disadvantaged rural regions are suffering from aging and depopulation. The employment opportunities have been decreasing with primary industries (agriculture, forestry, and fishery) have been declining. The most important reason why the rural economy is declining is the simplification of the economy. We had thought “rural area = agricultural area” or “rural area = forestry area”. We should diversify economic activities, such as agricultural or forestry products processing, and tourism development. The rural economy has been being diversified and created employment and income since 1980th in Japan.

Economic Analysis of Tourism Impacts

Now, what kinds of tourism create more economic impacts in the rural economy, hard tourism or soft tourism? This paper examines four types of tourism “One-day trip type”, “Hotel staying type”, “Japanese guesthouse staying type (providing bed and meals in private house)”, and “Camping type”. Hotel staying type tourism can be regarded as hard tourism. Japanese guesthouse staying type tourism can be regarded as soft tourism.

The case study was conducted at Totsukawa village which locates center of Kii peninsula in Nara prefecture. Totsukawa is a economically disadvantaged mountainous region, where is called “solitary island in land”. Totsukawa, however, is abundant in nature, hot spring, and historical and cultural bequest, and have 250 thousands of tourists (contain 80 thousands lodgers).

Model

The economic effects by tourism are divided into “direct effects”, “indirect effects”, and “induced effects”. The direct effects arise in tourism sectors into which tourists put their

money. The indirect effects arise in related sectors which supply goods or services to the tourism sectors, and arise in other sectors which supply goods to related sectors, and moreover extend to diverse sectors through the multiplier effect. The induced effects arise as a result of the spending of income that the above sectors earn.

The methods which have been applied to evaluate those effects are “Multiplier model” and “I-O analysis”. Multiplier model is based on the survey of direct and indirect effects of representative firms, and estimate induced effects by the multiplier. If we don’t have regional I-O table, we depend on Multiplier model. However, if we can generate regional I-O table, I-O analysis is better. Because the survey of direct and indirect effects are extremely expensive and time consuming. And I-O analysis evaluates ultimate indirect effects. This paper applies I-O analysis.

The model is inter-regional noncompetitive import type. The regions are Totsukawa village (short for “inside”) and Japan except Totsukawa (short for “outside”). The balance equation can be formed as:

$$\begin{bmatrix} \mathbf{X}^R \\ \mathbf{X}^N \end{bmatrix} = \begin{bmatrix} \mathbf{Z}^{RR} & \mathbf{Z}^{RN} \\ \mathbf{Z}^{NR} & \mathbf{Z}^{NN} \end{bmatrix} + \begin{bmatrix} \mathbf{F}^{RR} \\ \mathbf{F}^{NR} \end{bmatrix} + \begin{bmatrix} \mathbf{F}^{RN} \\ \mathbf{F}^{NN} \end{bmatrix} \quad (1)$$

where:

\mathbf{X}^R : vector of inside sector i ’s output

\mathbf{X}^N : vector of outside sector i ’s output

\mathbf{Z}^{RR} : matrix of inside sector i ’s product consumed by inside sector j

\mathbf{Z}^{NN} : matrix of outside sector i ’s product consumed by outside sector j

\mathbf{Z}^{NR} : matrix of outside sector i ’s product consumed by inside sector j

\mathbf{Z}^{RN} : matrix of inside sector i ’s product consumed by outside sector j

\mathbf{F}^{RR} : matrix of inside sector i ’s product consumed by inside final demand sectors

\mathbf{F}^{NR} : matrix of outside sector i ’s product consumed by inside final demand sectors

\mathbf{F}^{RN} : matrix of inside sector i ’s product consumed by outside final demand sectors

\mathbf{F}^{NN} : matrix of outside sector i ’s product consumed by outside final demand sectors

$$\mathbf{F}^{RR} = \mathbf{F}_H^{RR} + \mathbf{F}_O^{RR} \quad (2)$$

$$\mathbf{F}^{NR} = \mathbf{F}_H^{NR} + \mathbf{F}_O^{NR} \quad (3)$$

$$\mathbf{F}^{RN} = \mathbf{F}_H^{RN} + \mathbf{F}_O^{RN} + \mathbf{F}_T^{RN} \quad (4)$$

$$\mathbf{F}^{NN} = \mathbf{F}_H^{NN} + \mathbf{F}_O^{NN} + \mathbf{F}_T^{NN} \quad (5)$$

where:

\mathbf{F}_H : vector of household consumption

\mathbf{F}_T : vector of visitor spending in Totsukawa

\mathbf{F}_O : vector of final demand excluding \mathbf{F}_H and \mathbf{F}_T

Based on Leonntief’s assumption of linearity in production cost function, we have the following regionally-defined structural equations.

$$\mathbf{A}^{RR} = \mathbf{Z}^{RR} / \mathbf{X}^R \quad (6)$$

$$\mathbf{A}^{NR} = \mathbf{Z}^{NR} / \mathbf{X}^R \quad (7)$$

$$\mathbf{A}^{RN} = \mathbf{Z}^{RN} / \mathbf{X}^N \quad (8)$$

$$\mathbf{A}^{NN} = \mathbf{Z}^{NN} / \mathbf{X}^N \quad (9)$$

Substituting these structural equations into equation (1), we have:

$$\begin{bmatrix} \mathbf{X}^R \\ \mathbf{X}^N \end{bmatrix} = \begin{bmatrix} \mathbf{A}^{RR} & \mathbf{A}^{RN} \\ \mathbf{A}^{NR} & \mathbf{A}^{NN} \end{bmatrix} \begin{bmatrix} \mathbf{X}^R \\ \mathbf{X}^N \end{bmatrix} + \begin{bmatrix} \mathbf{F}^{RR} \\ \mathbf{F}^{NR} \end{bmatrix} + \begin{bmatrix} \mathbf{F}^{RN} \\ \mathbf{F}^{NN} \end{bmatrix} \quad (10)$$

We have the Leontief's equation which estimates productions created by the visitor spending:

$$\begin{bmatrix} \mathbf{X}^R \\ \mathbf{X}^N \end{bmatrix} = \begin{bmatrix} \mathbf{B}^{RR} & \mathbf{B}^{RN} \\ \mathbf{B}^{NR} & \mathbf{B}^{NN} \end{bmatrix} \begin{bmatrix} \mathbf{F}_T^{RN} \\ \mathbf{F}_T^{NN} \end{bmatrix}$$

where: \mathbf{B} is the matrix of inverse coefficients.

The direct effects can be estimated as:

$$\text{(Income)} \quad Y_D^R = \mathbf{v}_Y^R \mathbf{F}_T^{RN} \quad (11)$$

$$\text{(Employment)} \quad E_D^R = \mathbf{e}^R \mathbf{F}_T^{RN} \quad (12)$$

where:

\mathbf{v}_Y^R : vector of income coefficients

\mathbf{e}^R : vector of employment coefficients

The direct + indirect effects can be estimated as:

$$\text{(Income)} \quad Y_{DI}^R = \mathbf{v}_Y^R (\mathbf{B}^{RR} \mathbf{F}_T^{RN} + \mathbf{B}^{RN} \mathbf{F}_T^{NN}) \quad (13)$$

$$\text{(Employment)} \quad E_{DI}^R = \mathbf{e}^R (\mathbf{B}^{RR} \mathbf{F}_T^{RN} + \mathbf{B}^{RN} \mathbf{F}_T^{NN}) \quad (14)$$

The direct + indirect + induced effects can be estimated as:

$$\text{(Income)} \quad Y_{DII}^R = \mathbf{v}_Y^R (\mathbf{B}^{RR*} \mathbf{F}_T^{RN} + \mathbf{B}^{RN*} \mathbf{F}_T^{NN}) \quad (15)$$

$$\text{(Employment)} \quad E_{DII}^R = \mathbf{e}^R (\mathbf{B}^{RR*} \mathbf{F}_T^{RN} + \mathbf{B}^{RN*} \mathbf{F}_T^{NN}) \quad (16)$$

where: \mathbf{B}^{RR*} and \mathbf{B}^{RN*} are estimated by closed model which is moved households row (income from employment) and column (household consumption) into the transactions matrix of equation (1) and treated them as another industrial sector.

How to Generate Input-Output Table of Totsukawa village?

Regional I-O table of Totsukawa village was generated from Nara prefectural I-O table as following. Firstly, the coefficients were discounted by SLQ (Simple Location Quotient) and CILQ (Cross Industry Location Quotient).

$$SLQ_i = \frac{E_i^R / \sum_{i=1}^n E_i^R}{E_i^N / \sum_{i=1}^n E_i^N} \quad (17)$$

where:

E : employment

i : industry (1,2,3.....n)

R : Totsukawa village

N : Nara prefecture

$$CILQ_{ij} = \frac{E_i^R / E_i^N}{E_j^R / E_j^N} \quad (18)$$

where:

i : selling industry

j : purchasing industry

Secondry, the coefficients generated by the first step were modified based on the survey of representative tourism firms in Totsukawa. The generated I-O table is consist of 90 sectors. The I-O table showing in Table 1 is integrated to 11 sectors.

**Table 1 Input-Output Table: Totsukawa village
Integrated from 90sectors to 11sectors**

(Million Yen)

<div>Purchases by →</div> <div>Sales by ↓</div>	Agriculture, forestry and fishery	Foods and Drinks	Timber and wooden products	Other industrial products	Construction	Public utility service	Commerce, Finance, Real estate	Eating and drinking places	Hotel and other lodging places	Other services	Other	Household Consumption	Other Final Demand	Visitor spending	Other Exports	Gross Outputs
Agriculture, forestry and fishery	10	1	19	0	3	1	0	4	32	0	0	36	2	24	1864	1997
Foods and Drinks	0	0	0	0	0	0	0	2	30	0	0	12	0	68	23	135
Timber and wooden products	0	0	1	0	2	0	0	0	0	0	0	0	0	26	97	126
Other industrial products	0	0	0	0	374	4	2	1	0	0	0	33	13	0	856	1284
Construction	6	0	0	8	47	68	68	2	3	2	0	0	3304	0	8897	12405
Public utility service	91	4	2	78	410	128	60	18	40	13	3	827	1391	0	3096	6161
Commerce, Finance, Real estate	7	6	3	17	58	67	71	19	5	10	3	1378	60	69	564	2337
Eating and drinking places	0	0	0	0	0	0	0	0	0	0	0	113	70	198	0	381
Hotel and other lodging places	0	0	0	0	0	0	0	0	0	0	0	0	0	1179	0	1179
Other services	3	1	0	4	26	230	4	3	1	1	1	111	0	69	57	511
Other	1	0	0	5	30	14	25	6	1	3	0	1	0	0	93	180
Income	828	40	68	363	4879	2918	1287	111	400	213	58	0	0	0	0	11163
Other Value Added	152	7	-4	103	825	928	536	13	137	47	32	0	0	0	0	2776
Imports from other Japan	518	68	18	654	5493	1490	272	184	500	212	78	4668	1757	0	0	15914
Imports from overseas	382	8	18	51	259	312	13	19	29	10	4	336	108	0	0	1550
Total Inputs	1997	135	126	1284	12405	6161	2337	381	1179	511	180	7515	6707	1633	15548	58099

Public utility service : Electricity, gas and heat supply / Water supply and waste disposal services / Transport / communication and broadcasting / Education and research / Public administration

Visitor Survey

The Questionnaire survey was conducted to know how much or to which sector the visitors are spending. The results are showing in Table 2.

Table 2 Spending per visitor (Yen)

Types of Tourism	Inside of the Region								Outside			Total
	Agriculture, forestry and fishery	Foods and Drinks	Timber and wooden products	Other industrial products	Commerce	Eating and drinking places	Hotel and other lodging places	Other services	Foods and Drinks	Timber and wooden products	Other industrial products	
Hotel staying	144	52	115	0	238	1,904	17,112	399	467	29	144	20,606
Japanese guesthouse staying	175	534	187	2	490	2,654	9,203	850	773	48	238	14,444
Camping	73	260	82	1	220	939	2,858	1,575	338	21	104	6,137
One-day trip	76	377	96	2	274	633	176	533	398	25	123	2,258

Results

Effect of Final Demands

The income and employment created in Totsukawa per 1 million yen of final demands are showing in Table 3. The income creation effect, if “Other service sectors” are excluded, is greater in “Agriculture”, “Timber and wooden products”, and “Camping site”. The employment creation effect is greater in “Agriculture”, “Timber and wooden products”, “Eating and drinking places”, and “Japanese guesthouse”. In the light of indirect effect, the income creation effect is greater in “Timber and wooden products”, and “Eating and drinking places”, the employment creation effect is greater in “Foods”, “Timber and wooden products”, “Eating and drinking places”, and “Japanese guesthouse”, which suggest that their backward linkages with other sectors are strong and they offer great potential for improving rural economy.

Table 3 Income and Employment created in Totsukawa per 1 million yen of final demands

Sectors		Income (thousand yen)				Employment (number of workers)			
		Direct	Indirect	Induced	Total	Direct	Indirect	Induced	Total
Agriculture, Forestry, and Fishery	Agriculture	565	30	86	681	0.441	0.010	0.015	0.465
	Logs	408	12	61	481	0.050	0.003	0.011	0.063
	Special forest products	226	31	37	294	0.198	0.005	0.006	0.209
	fishery	482	6	70	558	0.147	0.001	0.012	0.161
industrial products	Foods	293	53	50	396	0.221	0.022	0.009	0.251
	Timber and wooden products	541	90	91	722	0.260	0.018	0.016	0.293
	Cement and cement products	270	26	43	339	0.040	0.006	0.007	0.053
Construction		393	23	60	477	0.042	0.005	0.010	0.057
Tourism Industries	Eating and drinking places	290	77	53	420	0.273	0.024	0.009	0.306
	Hotel	316	32	50	397	0.145	0.013	0.009	0.167
	Japanese guesthouse	415	45	66	526	0.283	0.025	0.012	0.320
	Camp site	710	52	110	872	0.200	0.011	0.019	0.230
Other services	Electricity	269	12	40	321	0.027	0.002	0.007	0.036
	Waste disposal services	707	29	106	841	0.040	0.006	0.018	0.065
	Commerce	596	48	93	736	0.315	0.007	0.016	0.338
	Finance and insurance	654	21	97	773	0.065	0.003	0.017	0.085
	Road transport	633	35	96	765	0.191	0.008	0.017	0.215
	Communication	529	12	78	618	0.015	0.002	0.014	0.031
	Public administration	698	27	104	829	0.088	0.004	0.018	0.110
	Education	764	18	113	895	0.045	0.003	0.020	0.068
	Medical service and social security	469	46	74	589	0.099	0.017	0.013	0.129
	Repair of machine	366	23	56	444	0.096	0.006	0.010	0.112

Effect of Visitor Spending

The income and employment created in Totsukawa per 1 million yen of visitor spending are showing in Table 4. The total income created is from 398 to 676 thousand yen. The distinctive feature is that the indirect effects are so tiny (from 36 to 50 thousand yen). The total employment created is from 0.181 to 0.249. The distinctive feature is also that the indirect effects are tiny (from 0.012 to 0.021). With regard to the comparison by the tourism types, the total effect is greater in “Camping type” and “Japanese guesthouse staying type”, the indirect effect is greater in “Japanese guest house staying type”.

Table 4 Income and employment created in Totsukawa per 1 million yen of visitor spending

Types of tourism	Income (thousand Yen)				Employment (number of workers)			
	Direct	Indirect	Induced	Total	Direct	Indirect	Induced	Total
Hotel staying	313	36	50	398	0.159	0.013	0.009	0.181
Japanese guesthouse staying	375	48	61	484	0.262	0.021	0.011	0.294
Camping	541	50	85	676	0.233	0.012	0.015	0.260
One-day trip	332	45	54	430	0.215	0.013	0.009	0.238

The Income and employment created in Totsukawa per 1 thousand visitors are showing in Table 5. The total effect is greater in “Hotel staying type” and “Japanese guesthouse staying type”, the indirect effect is also greater in “Hotel staying type” and “Japanese guest house staying type”.

Table 5 Income and employment created in Totsukawa per 1 thousand visitors

Types of tourism	Income (Thousand Yen)				Employment			
	Direct	Indirect	Induced	Total	Direct	Indirect	Induced	Total
Hotel Staying	6,440	735	1,033	8,207	3.28	0.27	0.18	3.73
Japanese Guesthouse Staying	5,682	729	923	7,334	3.97	0.32	0.16	4.45
Camping	3,501	323	550	4,374	1.51	0.08	0.10	1.68
One-Day Trip	899	121	147	1,167	0.58	0.03	0.03	0.64

Discussion

The results are showing. Firstly, economic impacts are mainly through the direct effect, inconsequentially through the indirect effect. Because the businesses in the region are small scale and poor diversity, backward linkages of the tourism businesses with the rest of the businesses are weak. The second is that the “Japanese guesthouse staying type tourism” which can be classified into soft tourism creates greater income and employment than other types of tourism. The guesthouse businesses have stronger backward linkages and create greater indirect effect, because they can utilize local products which are supplied unstably by small-scale indigenous businesses or they themselves manage agriculture or forestry or fishery as a side job. And they yield more value-added, in other words the income accounts for greater rate for the output.

Bottom-up type soft tourism has more advantage than top down type hard tourism by the following reasons. Firstly, the soft tourism creates greater income and employment in economically disadvantaged rural regions and has greater backward linkages with other industries in the region. Secondly, the soft tourism causes less environmental load than hard tourism. Thirdly, the soft tourism contributes to the preservation of rural amenity. The hotel may be spoil rural landscape, on the other hand the guesthouse utilized local private house enhances landscape. And local quasi-nature or living culture can be preserved by suitable utilization.

Reference

- Fujimoto, T., "Evaluation of Economic Impacts of Tourism in Mountainous Region" *Journal of rural Problem*, Vol.33, No.1 (The Association for Regional Agriculture and Forestry Economics, 2000), pp.22-31.
- Harrison-Mayfield, L., "Agriculture's Links with the Rural Economy: An Input-Output Approach?", Midmore, P. and Harrison-Mayfield, L. Eds., *Rural Economic Modeling* (CAB INTERNATIONAL, 1996), pp.19-33.
- Isard, W., "Regional and Interregional Input-Output analysis", Isard, W. et al. Eds., *Method of Interregional and Regional Analysis* (Ashgate, 1996), pp.86-94.
- Jensen, R.C., *Regional Economic Planning: Generation of Regional Input-Output Analysis* (Croom Helm, 1979).
- Johns, P. and Leat, P., *An approach to regional economic modeling: the case of Grampian* (North of Scotland College of Agriculture, Economic Report No.144, 1986).
- Slee, B., Snowdon, P. and Farr, H., *Tourism and Rural Development: A Scottish Perspective* (IAAC, Sacramento, 1997).