

THE IMPACT OF TOURISM ON ECONOMIC IN NORTH SULAWESI: INPUT-OUTPUT ANALYSIS PERSPECTIVE

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ABSTRACT

The North Sulawesi Tourism Sector is a tourism rising star in Indonesia with a 600% growth of foreign tourists visiting North Sulawesi. The growth of tourists will encourage the growth of tourist expenditure which will have an impact on the economy. Research on the impact of tourism on the economy has been carried out. In general, research on the economic impact of tourism activities uses a sector approach related to tourism economic activities such as hotels, restaurants, transportations, and recreational activities sectors. This study uses an approach by forming the tourism sector independently to obtain the results of a more accurate calculation and analysis of the economic impact of the tourism sector. Input-Output Analysis is used as an instrument of linking and multiplier analysis of outputs and incomes of the people of North Sulawesi in 2018. Linkage analysis (forward and backward linkage) shows that the tourism sector in the economy of North Sulawesi is a key sector. The output multiplier and income multiplier are created by tourist expenditure in 2018 are 1.83 for the multiplier output and 1.88 for the multiplier income. With a tourist expenditure of 4.56 trillion rupiahs in 2018, it will create an economic output of 8.38 trillion rupiahs and create an income of 1.28 trillion rupiah.

Keywords: Tourism, Economic Impact, North Sulawesi, Multiplier Analysis, Input-Output Analysis

JEL Classification: C67, R11, Z32

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Introduction

The tourism sector is currently one of the economic sectors with the largest development and has the fastest growth rate in the world. According to data from the [United Nations and World Tourism Organization \(2019\)](#) the total contribution of the tourism sector to world gross domestic product (GDP) in 2018 reached 10.4 percent or the US \$ 8.8 trillion with revenues from international tourist visits accounting for 27.2 percent of total world service exports. Besides, according to [WTTC \(2019\)](#) in its publication entitled Travel and Tourism Global Economic Impact and trends stated that tourism activities have created 10 percent of the total jobs created throughout the world in 2018.

As one of the popular tourist destinations in Indonesia according to a study by the Ministry of Tourism in [Heriawan \(2004\)](#) North Sulawesi Province has enormous potential in the tourism sector. North Sulawesi Province has 3A advantages (attractions, accessibility, and amenities) in the tourism sector. On attractions, North Sulawesi has tourist attractions including

Bunaken National Park, Manado Tua Island, Siladen Island, Mount Tumpa Region, and Flower Festival of Tomohon City. In terms of accessibility, North Sulawesi has the Sam Ratulangi international airport as a northern hub that serves 15 domestic flight destinations and 9 direct international flights to and from Singapore and 8 cities in China (Chengdu, Chongqing, Guangzhou, Hong Kong, Wuhan, Nanchang, Changsha, and Macau). For Amenities, North Sulawesi has complete tourism facilities including travel services, water tourism, entertainment, and leisure businesses, and MICE and is supported by accommodation facilities as many as 129 star and non-star hotels with a total of 5,000 rooms. In 2017, Dive Magazine awarded North Sulawesi as the best diving tourism destination in the world. Besides, Siladen Resort and Spa won first place in the Best Center or Resort category according to the world-class diving magazine from the United Kingdom by winning 820 votes out of 3,117 votes.

The beauty of nature and cultural diversity in North Sulawesi is a magnet attracting tourists to come to North Sulawesi. North Sulawesi has major tourism products as a marine tourism destination, especially Bunaken Sea Park as a world-class marine tourism and an icon of North Sulawesi tourism. In addition to the Bunaken Sea Park, there are still many good tourist destinations, international festivals, cultural tourism and ecotourism such as Siladen Island, Waruga Ancient Tomb, Mahawu Cave, Tumbak Sea Park, Lembeh Island, The Top of Tetetana, Kumelembuai Nature Tourism, Paal Beach and Pulisan Beach in North Minahasa, Mane'e Festival, Tulude Festival, Tomini Festival in East Bolaang Mongondow, Tangkoko National Park, Lake Tondano, Lake Linow, Tomohon City Flower Festival, Mahangetan Underwater Volcano and various other tourist destinations.

Table 1: International Tourism Event at North Sulawesi, 2009 to 2019

Year	Event
2009	<i>World Ocean Conference (WOC) and Coral Triangle Initiative (CTI) Summit, Sail Bunaken</i>
2010	<i>Asia Pacific Conference (ASPACC) on Health Law, Pacific Partnership</i>
2011	<i>Indonesia MICE and Corporate Travel Mart (IMCTM), ASEAN Regional Forum Disaster Relief Exercise (ARF DiREx), Celebrate The Sea Festival, ASEAN Economic Ministers (AEM)</i>
2012	<i>ASEAN Tourism Forum (ATF)</i>
2013	<i>3rd Asia Pacific Choir Games</i>
2014	<i>World Coral Reef Conference (WCRC)</i>
2017	<i>Manado Fiesta, Mari Jo Ka manado, Manado International Conference on Tourism (MICT)</i>
2018	<i>Festival Pesona Bunaken, Archipelagic and Island States (AIS) Forum Startup and Business Summit</i>
2019	<i>Tomohon International Flower Festival (TIFF), Festival Selat Lembeh, Festival Bunaken</i>

The development of the tourism sector is one of the main priorities of the North Sulawesi Government. In the North Sulawesi Province RPJMD in 2016-2021, one of the 2016-2021 development missions is to realize North Sulawesi as a competitive investment and tourism destination. In the past decade, the Government of North Sulawesi has been aggressively organizing events and conferences in the field of tourism at the national and international level to encourage the progress of the tourism sector. Starting with the holding of the World Ocean Conference (WOC), the Coral Triangle Initiative (CTI) Summit, and Sail Bunaken in 2009 almost every year in the North Sulawesi Province a tourism conference was held. National and international level activities and conferences held in North Sulawesi can be seen in Table 1.

In 2019, North Sulawesi received an award as "The Rising Star" in the tourism sector by the Ministry of Tourism for its achievements, which recorded a growth in foreign tourist visits

of 600 percent over the past four years. Besides increasing the number of foreign tourist arrivals, another factor that also affects the tourism sector is the movement of domestic tourists. According to BPS data and the Ministry of Tourism, the growth of tourist arrivals both foreign and domestic in 2018 to North Sulawesi is very rapid. In 2018 the number of foreign tourists visiting North Sulawesi Province grew 53.25 percent, while the growth of tourist arrivals in North Sulawesi reached 47.29 percent. The number and growth of foreign and domestic tourists visiting the Province of North Sulawesi can be seen in Table 2.

Table 2: Total and Growth of Tourist Arrivals in North Sulawesi, 2015-2018

Year	Foreign Tourist		Domestic Tourist	
	Total	Growth (%)	Total	Growth (%)
2015	19.465	12,65	n.a	-
2016	40.624	108,70	2.628.569	-
2017	79.377	95,39	2.767.320	5,27
2018	122.100	53,82	4.075.993	47,29

The tourism sector has an important role in line with the development and contribution made by the tourism sector through foreign exchange earnings, regional income, regional development, as well as in the absorption of investment and labor and business development. The tourism sector has a synergic strength because it has close links with various fields. The development of the tourism sector will encourage the development of other economic sectors, ranging from agriculture, industry, transportation, hotels and accommodation, and other service sectors. In this context tourism becomes a synergistic factor in spurring economic movement for a country, both nationally, Industrial, and locally (Sutowo, 2000).

The tourism sector or often called the tourism economy in the economy matters can be categorized into the concept of a demand-side economy (Yoeti, 2006). This means that the tourism economy was initially created by the demand for tourist consumption and tourism investment that must be fulfilled by the production sectors that provide goods and services. Demand components based on aggregate demand theory have a multiplier coefficient on output, income, and labor so that the tourism economy as a subset of aggregate demand certainly can influence output (Yoeti, 2008a). The amount of its ability depends on the amount of demand created by tourism and the effectiveness of its expenditure. The next issue is how far the role of tourism and the impact of tourism demand in influencing or driving the economy as a whole.

Research on the impact of tourism activities that have been carried out in general uses a sector approach related to tourism activities such as the hotel, restaurant, transportation, and recreation services sectors as the object of analysis. Research with sector approaches related to tourism activities becomes inaccurate and tends to overestimate because: 1. economic activities in these sectors is not only tourism activities but also non-tourism economic activities, 2. Tourism economic activity products in these sectors are not only consumed by tourism economic subjects but also consumed by non-tourism economic subjects. Research on the economic impact of tourism activities by aggregating tourism economic activities into a single tourism sector (independent with other sectors) is very rarely because of the difficulty in separating the output of economic activities in the tourism sector for tourism and non-tourism economic subjects which will be aggregated into the output of the tourism sector.

Table 3: The Total Coverage of Tourism Economic Activities Based on the KBLI 2015 and International Recommendations for Tourism Statistic (IRTS)

Code	Sector	Total Economic Activities	Total Tourism Economic Activities
G	Wholesale and Retail Trade, Repair of Motor Vehicles and	267	41
H	Transportation and Storage	96	48
I	Accommodation and Food Service Activities	27	27
J	Information and Communication	42	1
K	Financial and Insurance Activities	63	3
L	Real Estate	4	3
MN	Business Activities	90	13
P	Education	31	3
Q	Human Health and Social Work Activities	33	2
R,S,T,U	Other Service Activities	88	55
Total		741	196

Source: [Badan Pusat Statistik \(2018\)](#)

This study is focusing on analyzing the tourism sector in the economy of North Sulawesi Province and calculating the impact of tourist expenditure on output and income in North Sulawesi Province in 2018. The tourism sector in this study is a separate sector formed from the aggregation of economic activities in the tourism sector for tourism subjects in related economic sectors. The formation of the tourism sectors separately is based on the Scope of Tourism Activities in the 2015 Business Field Standard Classification (KBLI) compiled by the Central Statistics Agency and the Ministry of Tourism and the North Sulawesi Input-Output (SKIO) Special Survey 2015 conducted by the North Sulawesi Provincial Statistic and BAPPEDA North Sulawesi. The scope of Tourism Activities in the 2015 Business Field Standard Classification (KBLI) is used to identify tourism economic activities on the supply side and SKIO is used to separate the output of tourism economic activity products consumed by tourism economic subjects and non-tourism economic subjects. The total coverage of tourism economic activities based on the KBLI in tourism can be seen in Table 3.

Literature Review

Tourism Concept

According to Indonesia Republic Law No. 10 of 2009 concerning tourism, what is meant by tourism is the activity of a trip or a portion of the activity carried out by a person or group of people by visiting a particular place for recreational purposes, personal development, or enjoying the uniqueness of the tourist attraction visited for a while. Tourism is all forms of activities related to tourism, including businesses providing tourist objects and attractions as well as related business.

[Yoeti \(2008b\)](#) explained that tourism is a trip that is carried out for a while, which is held from one place to another, with the intention not to try or make a living in the place visited but solely to enjoy life's journey for sightseeing and recreation or fulfill diverse desires. In other words, tourism is a leisure activity which results in expenditure or consumptive action. According to Cooper in [Rahayu \(2006\)](#), tourism was a series of travel activities carried out by individuals or families or groups from their original place of residence to various other places to make tourist visits and not to work or earn a living at the destination. The visit in question

is temporary and will return to its original residence. Based on the description, there are two important elements, namely: the journey undertaken and temporary residence at the destination with various tourist activities.

Tourism as an Economic Sector

Getz (1986) gave a limitation to tourism as an industry/sector only to describe tourism activities. So that the idea to give the term the tourism sector, aims more to provide attraction so that tourism can be considered as something meaningful to the economy of a region. A sector must have a product that has a sale value that will have a positive impact on the economy. The impact of a sector is mainly due to the multiplier effect caused. This is what then drives tourism activities into a sector. Industry/sector is an activity of processing or processing goods using facilities and equipment to produce certain products (Kamus Besar Bahasa Indonesia, 2005). According to Prayogo (1976) Tourism activity products cannot be measured significantly, but are a series of services that not only have economic value but also social, psychological, and natural values, which are interrelated into a tourism product. According to Wahab (2003) tourism is one type of industry/new economic sector that can provide rapid economic growth in providing employment opportunities, income, the standard of living, and stimulating sectors.

Tourism Economy Subjects

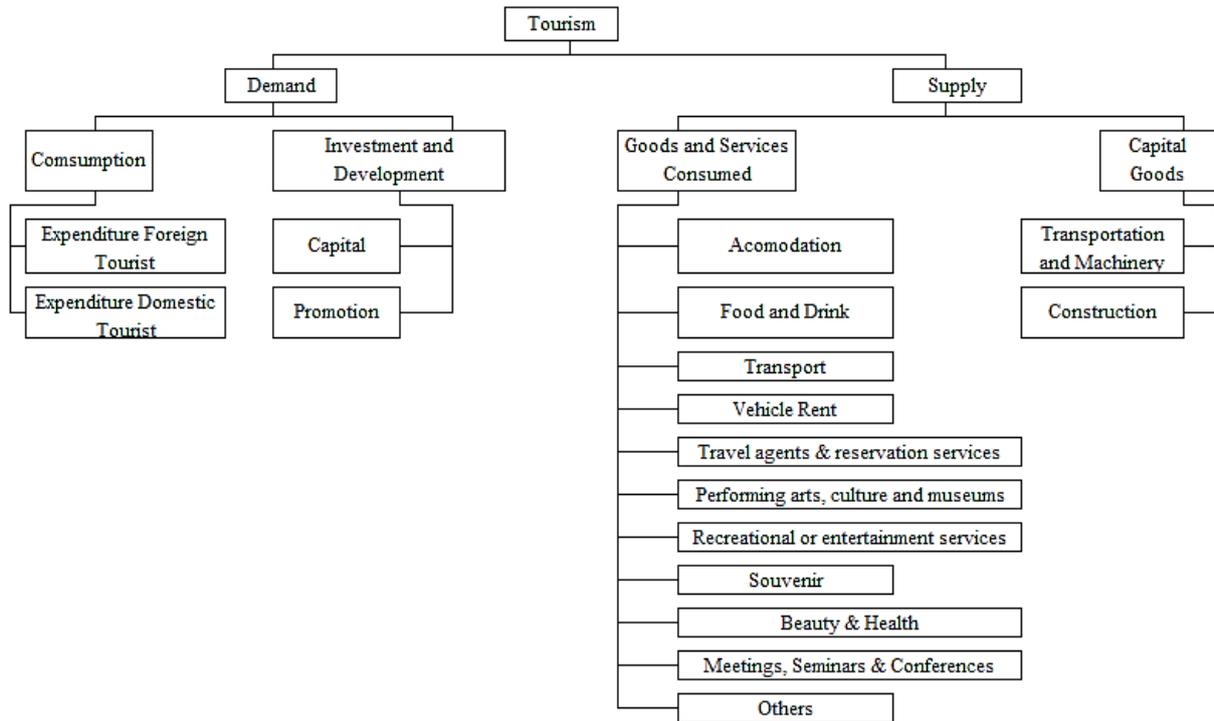
Tourism economic subjects according to Damanik (2009) include Tourists, consumers, or users of tourism products and services. Tourists become parties who create demand for tourism products and services. Tourists can be divided into domestic tourists, national tourists, and foreign tourists. Tourism Sector/Service Providers, i.e. all economic activities that produce goods and services for tourism. Supporting Tourism Services is a business that does not specifically offer tourism products and services but often depends on the consumption of tourists as users. The government. Local people, namely people who live in tourist areas. Local people are the direct owners of tourist attractions that are visited at once consumed by tourists. Non-Governmental Organizations, namely: non-governmental organizations that often carry out community activities in various fields of tourism, such as the Nature Lovers Group, Walhi, and others.

Tourism Demand and Supply

In transactions between tourism subjects and tourism economic activities (tourism sector), not all products and services of these economic activities are consumed by tourism subjects, because there are subjects outside of tourism who also consume products and services in these economic activities. As an example of economic activity, museum activities managed by the government (KBLI code 91021) are economic activities in the field of tourism whose offer is not only consumed by tourism subjects but also economic subjects outside of tourism, for example, economic agents of educational services (Badan Pusat Statistik, 2018). *Supply* (supply or offer) and *demand* for tourism activities describe the balance of economic transactions between the tourism sector with tourists to meet their needs. The increasing number of tourists significantly impacts the growth of the tourism industry, both in quantity and quality.

The concept of tourism from the supply side (supply-side tourism) focuses on the structure of the output of goods and services provided by economic sectors to meet the demand for tourist consumption, as well as investment and promotion related to tourism carried out by the government and the private sector. While on the demand side or tourist demand is the

demand for goods and services by tourists to be consumed directly. In a simple description of the demand (demand) and supply (supply) of tourism activities can be seen in Figure 1.



Source: Badan Pusat Statistik (2019)

Figure 1: Tourism Demand and Supply

The Role of the Tourism Sector

Tourism activities have an important role in line with the development and contribution of the tourism sector through foreign exchange earnings, the balance of payments, regional income, regional development, as well as in the absorption of investment and labor and business development. Tourism activities can provide direct and indirect encouragement to the development progress or improvement of seaports (sea or air), roads, local transportation, hygiene or health programs, cultural facilities, and environmental sustainability projects, etc., all of which are all can provide benefits and good pleasure for tourists (Pendit, 2003).

In general, there are three roles of tourism, including: first, the role of the economy, namely as a source of foreign exchange, tourism can increase community and government income and tourism development also has a positive effect on expanding business and employment opportunities; secondly, social role, namely as job creation, because facilities and infrastructure such as hotels, restaurants, and travel agents are “labor-intensive” businesses, which requires a lot of manpower to run this type of business so that more tourists visit, more and more tourists also the employment created; third, the role of culture, which is to introduce culture and art, encourage cultural preservation and historical heritage and encourage environmental preservation (Hutabarat, 1992). There are three impacts of the tourism sector on a region’s economy, namely direct effects, indirect effects, and induced effects (Stynes, 1997).

Data and Research Methods
Input Output Table

Many methods have been used to analyze the economic impact of tourism activities in a variety of literature, one of which is a commonly used method is the analysis of Input-Output (I-O). I-O analysis has been applied in a number of studies to estimate the economic impact of a sector in the economy (Chang et al., 2016). The I-O approach is relatively easier to implement and is considered more appropriate in capturing the economic impact of a sector (Dwyer, Forsyth, and Spurr, 2004). Also, according to Rose in Chang et al, (2016a), I-O analysis can fully calculate the value of inter-sectoral relations more simply and transparently and take into account all inputs in production compared to other methodologies in identifying inter-sectoral relations and seeing the effects of induction on production, value-added, and labor.

Table 4: Illustration of Input-Output Table

Struktur Input		Permintaan Antara				Permintaan Akhir	Total Output
		Sektor Produksi					
		1	2	....	n		
Input Antara	Sektor 1	x_{11}	x_{12}	....	x_{1n}	F_1	X_1
	Sektor 2	x_{21}	x_{22}	....	x_{2n}	F_2	X_2

	Sektor n	x_{n1}	x_{n2}	....	x_{nn}	F_n	X_n
Input Primer		V_1	V_2	....	V_n		
Total Input		X_1	X_2	....	X_n		

As an illustration of table I-O with n economic sectors shown in Table 4. In the row, sector 1 consists of sector 1 output of X_1 . Of that amount, X_{11} is used as input by sector 1 itself, amounting to X_{12} by sector 2 up to by sector n. The remaining F_n is used to meet the final demand in the form of household consumption, government consumption, investment, and exports. In Column, sector 1 output of X_1 is generated by requiring inputs from sector 1, sector 2 to sector n respectively X_{12} , X_{21} to X_{n1} and the required primary input of . Equation according to the line in Figure 2. Can be written as follows:

$$\begin{aligned}
 x_{11} + x_{12} + \dots + x_{1n} + F_1 &= X_1 \\
 x_{21} + x_{22} + \dots + x_{2n} + F_2 &= X_2 \\
 \dots & \\
 x_{n1} + x_{n2} + \dots + x_{nn} + F_n &= X_n
 \end{aligned}
 \tag{1}$$

Or it can be written in the form:

$$\sum_{j=1}^n x_{ij} + F_i = X_i, \text{ for } i = 1, 2, \dots, n
 \tag{2}$$

x_{ij} is sector i output used as sector input j, F_i is the value of the final demand for sector land X_i is total sector output i. In the I-O analysis, the term input coefficient is known, ie the ratio of each input to the total output of a sector. Input coefficient values are formulated as $a_{ij} = x_{ij} / X_i$

X_j or can be written down $x_{ij} = a_{ij} X_j$, a_{ij} is the input coefficient value. If the input coefficient is substituted in equation (1), we will get the equation:

$$\begin{aligned} a_{11}X_1 + a_{12}X_2 + \dots + a_{1n}X_n + F_1 &= X_1 \\ a_{21}X_1 + a_{22}X_2 + \dots + a_{2n}X_n + F_2 &= X_2 \\ \dots & \\ a_{n1}X_1 + a_{n2}X_2 + \dots + a_{nn}X_n + F_n &= X_n \end{aligned} \tag{3}$$

Or it can be written in the form:

$$\begin{pmatrix} a_{11} & \dots & a_{1n} \\ \vdots & \ddots & \vdots \\ a_{n1} & \dots & a_{nn} \end{pmatrix} \begin{pmatrix} X_1 \\ \vdots \\ X_n \end{pmatrix} + \begin{pmatrix} F_1 \\ \vdots \\ F_n \end{pmatrix} = \begin{pmatrix} X_1 \\ \vdots \\ X_n \end{pmatrix} \tag{4}$$

Equation (4) can be simplified into,

$$(I - A)^{-1}F = X \tag{5}$$

I is the identity matrix, F is the final demand matrix, X is the output matrix, A is the input coefficient matrix and $(I-A)^{-1}$ is the reverse matrix Leontief or multiplier matrix.

Linkage Analysis

One of the benefits of Input-Output analysis is its ability to see the strength of each sector in its linkage with other sectors (Badan Pusat Statistik, 2008). The strength is measured by the power of dispersion or also called backward linkage and degree of sensitivity or also called forward linkage. Backward linkage is a measure of the strength of a sector in influencing the creation of outputs and incomes in all sectors due to demands on the products of that sector. The power distribution index of sector j can be formulated in the equation:

$$BL_j = \frac{n \sum_{i=1}^n a_{ij}}{\sum_{i=1}^n \sum_{j=1}^n a_{ij}} \tag{6}$$

BL_j is a sector dispersion power index j , a_{ij} is inverse Leontief matrix. $BL_j \text{ value} > 1$ shows the dispersion power of sector j is above the average of all sectors or sector j has a relatively high dispersion power.

The degree of sensitivity (forward linkage) indicates the sensitivity of a sector in responding to product demand in other sectors. The index level sensitivity sector i can be formulated as follows:

$$FL_j = \frac{n \sum_{j=1}^n a_{ij}}{\sum_{i=1}^n \sum_{j=1}^n a_{ij}} \tag{7}$$

FL_i is an index of the degree of sensitivity of the sector i , $FL_i \text{ value} > 1$ indicates the degree of sensitivity of sector i is above the average of all sectors or the degree of sensitivity of sector i is relatively high. An economic sector can be said to be a leading sector (key sector) or a leading sector in the economy of a region if it has a power distribution index value and a degree of sensitivity greater than 1 ($FL > 1 < BL$).

Output Multiplier Analysis

Output multiplier analysis is used to see the impact of changes in a sector’s demand on the output of other economic sectors. When demand for one sector increases, it will have an

impact on increasing production in other sectors. Products from other sectors are needed as production input for that sector. In the I-O analysis the output multiplier can be written as follows:

$$X = (I - A)^{-1}F \tag{8}$$

X is the output matrix, F is exogenous variables, $(I - A)^{-1}$ is multiplier matrix.

Income Multiplier Analysis

Revenue multiplier analysis is used to see the impact of changes in a sector's demand on people's income. Increased demand for a sector of products will encourage an increase in output of economic sectors which will ultimately have an impact on increasing wages/salaries as well as business surpluses (income) of a region's community. The income multiplier can be formulated as follows:

$$\begin{pmatrix} V_1 \\ \vdots \\ V_n \end{pmatrix} = \begin{pmatrix} \hat{V}_1 & \dots & 0 \\ \vdots & \ddots & \vdots \\ 0 & \dots & \hat{V}_n \end{pmatrix} \begin{pmatrix} X_1 \\ \vdots \\ X_n \end{pmatrix} \tag{9}$$

$$V = \hat{V} X$$

\hat{V} is a coefficient of income that is the ratio of the value of people's income to output, which can be written in the equation $\hat{V} = V_1/X_1$. Equation 10 can be substituted in the form of:

$$V = \hat{V}(I - A)^{-1}F \tag{10}$$

V is the value of people's income multiplier.

Tourism Sector Data and Classification

In this study, the analysis instrument used was the 2014 North Sulawesi Province Input-Output table 18 sectors, namely 17 economic sectors plus one tourism sector. To form the tourism sector in the Input-Output table we used the 2015 KBLI in tourism, the 2015 North Sulawesi Input-Output Survey (SKIO), National Socio-Economic Survey (SUSENAS), Nusantara Tourist Survey (WISNUS), Passenger Exit Survey (PES), and Mobile Position Data (MPD). In terms of supply/economic sector, the tourism sector is formed by separating the components of economic activities that are included in the tourism sector and those that are not tourism in the economic sectors related to the tourism sector based on the 2015 Indonesian Business Field Standard (KBLI) in the tourism sector. The Indonesian Standard for Business Fields (KBLI) in the tourism sector in 2015 there were 196 economic activities in the tourism sector in 10 economic sectors (Table 2). The 2015 North Sulawesi Input-Output (SKIO) Special Survey which has information on the output value of the tourism sector in each of the economic activities in the tourism sector is used to separate the output value of the economic activity in the tourism sector which is consumed by tourism economic actors and not tourism economic actors.

After knowing the value of the output of economic activity in the field of tourism consumed by tourism economic actors then the aggregation of the output value is carried out to get the value of the output of the tourism sector. On the demand side, SKIO data and the 2014 North Sulawesi Input-Output Table is used to calculate the demand between the tourism sector which is used as an input for the tourism sector itself and other economic sectors in producing output. We used SKIO 2015 to create the tourism sector independently and aggre-

gate it to establish an 18 sector Input-Output Table. Besides, SUSENAS 2018, WISNUS 2018, PES 2018, and MPD 2018 are used to calculate the final tourist expenditure in 2018. Tourist expenditure in 2018 is used as a shock simulation in computing the output multiplier and income multiplier in the economy of North Sulawesi.

Finding and Discussion

Linkage Analysis (Backward and Forward Linkage)

The analysis of the linkages of the North Sulawesi I-O table is shown in Table 3. The power of dispersion index (backward linkage) of the tourism sector has a value above the average (relatively high) of 1.1355. This shows that demand in the tourism sector has a strong influence in creating output in all sectors of the North Sulawesi economy.

Table 5: Forward Linkage and Backward Linkage by Sector Economic in North Sulawesi

Sector	Backward Linkage			Forward Linkage		
	Value	%	Index	Value	%	Index
Agriculture, Forestry, and Fishery	0.0995	5.39	0.7940	0.0057	0.35	1.6088
Mining and Quarrying	0.0008	0.04	0.7820	0.0073	0.45	0.6806
Manufacturing	0.0630	3.41	1.1440	0.0252	1.54	1.5720
Electricity and Gas Supply	0.0026	0.14	1.3488	0.0436	2.67	0.6558
Water Supply, Sewerage, Waste Management, and Remedial Activities	0.0004	0.02	1.0417	0.0299	1.83	0.6193
Construction	0.0171	0.93	0.9887	0.0184	1.13	1.0059
Wholesale and Retail Trade, Repair of Motor Vehicles and Motorcycles	0.0889	4.82	1.0092	0.0459	2.81	1.7349
Transportation and Storage	0.3757	20.36	1.2168	0.1286	7.86	1.8598
Accommodation and Food Service Activities	0.0189	1.03	1.0078	0.0220	1.35	0.7004
Information and Communication	0.0154	0.84	0.9006	0.0381	2.33	0.8851
Financial and Insurance Activities	0.0315	1.71	0.8392	0.0109	0.67	0.8990
Real Estate	0.0211	1.15	0.7559	0.0045	0.28	1.0421
Business Activities	0.0030	0.16	1.0212	0.0583	3.57	0.6303
Public Administration and Defense, Compulsory Social Security	0.0078	0.42	0.9219	0.0203	1.24	0.7647
Education	0.0021	0.11	0.9516	0.0162	0.99	0.7324
Human Health and Social Work Activities	0.0190	1.03	1.2026	0.0679	4.15	0.8695
Other Service Activities	0.0066	0.36	0.9386	0.0200	1.22	0.7335
Tourism	1.0718	58.08	1.1355	1.0718	65.57	1.0059
Total	1.8453			1.6347		

Source: Data Linkage Analysis 18 Sector Input-Output Table

The backward linkage index of the tourism sector in the economy of North Sulawesi is ranked 5th after the electricity and gas procurement sector (1,3488); transportation and storage (1,2168); health services and social activities (1,2026) and the manufacturing sector (1,1440).

Table 3 shows that in addition to having a high distribution power, the tourism sector also has a degree of sensitivity above the average (relatively high). The degree of sensitivity index of the tourism sector is ranked 7th with a value of 1.0059. This shows that the tourism

sector, including sectors that have high sensitivity in responding to the demands of other economic sectors. The power distribution index and the tourism sector sensitivity index that is above the average / relatively high (value above 1) shows that the tourism sector is a leading sector (key sector) or leading sector in the economy of North Sulawesi. A sector if the coefficient of the value of the power distribution and degree of sensitivity is greater than 1, then the sector is a leading sector (key sector) or can be said as the leading sector in the economy in the region concerned because it has a high level of forwarding linkage and backward linkages (Didit and Devi, 2008). Tourism sector as a leading sector in the economy of North Sulawesi which has the power to encourage the growth of other sectors economies and the economic growth of North Sulawesi Province.

The economic sectors that have high backward linkages with the tourism sector are the transportation and storage sector (20.36 percent); agriculture, forestry, and fisheries sector (5.39 percent); and the trade sector (4.82 percent). The three sectors are supporting the production activities of the tourism sector. The growth of the tourism sector will encourage the development of these sectors, and if there are shocks in the tourism sector will have an impact on the decline in the production of these three sectors. The economic sectors that have high forward linkages with the tourism sector are the transportation and storage sector (7.86 percent); health service sector and social activities (4.15 percent); and the corporate service sector (3.57 percent). The three sectors are sectors that are affected by the production activities of the tourism sector. The production of the tourism sector will have a significant influence on these three sectors. Based on backward linkage and forward linkage, the transportation and storage sector is the sector that has the highest linkages with the tourism sector. The growth of the tourism sector will significantly encourage growth in the transportation and storage sector, conversely shocks to the tourism sector will significantly result in a slowdown in the transportation storage sector.

Tourist Expenditure Structure

The expenditure structure of tourists both foreign and domestic tourists visiting North Sulawesi Province in 2018 is shown in Table 6. The total expenditure of tourists visiting North Sulawesi in 2018 reached 4.56 trillion rupiahs. The distribution of tourist expenditure is dominated by domestic tourist expenditure which reached 64.94 percent or 2.96 trillion rupiahs. While the contribution of foreign tourist expenditure to total tourist expenditure reached 1.60 trillion rupiahs or 35.06 percent. The largest expenditure for tourists visiting the Province of North Sulawesi in 2018 used to consume products and services in the tourism sector reached 70.64 percent or IDR 3.22 trillion. Furthermore, the second-largest expenditure is used to consume products and services in the industrial processing sector, which is 1.01 trillion rupiahs or 22.11 percent. The third-largest tourist expenditure is the consumption of goods and services in the transportation and storage sector, which is 154.06 billion rupiahs or 3.37 percent.

The contribution of tourist spending which is dominated by domestic tourists' spending is driven by the number of domestic tourists which is far more than the number of foreign tourists. North Sulawesi Province tourism sector with natural resources and tourist attraction still has huge potential to increase the number of foreign tourists visiting. The contribution of domestic tourist expenditure is higher than foreign tourist expenditure need to be addressed by the government to pay attention to the improvement and expansion of tourist service activities that attract domestic tourists in addition to the promotion of tourism to attract foreign tourists as has been done so far.

Multiplier Analysis

Analysis of the impact (multiplier) of tourist expenditure in 2018 on output and income of the people of North Sulawesi Province is presented in table 7 and table 8. Tourist expenditure has a multiplier of 1.83 towards the creation of output and 1.88 of the income creation of the people of North Sulawesi Province.

Table 6: Expenditure Structure of Foreign Tourists and Domestic Tourists Visiting North Sulawesi Province in 2018

Sector	Foreign Tourist	Domestic Tourist	Total	Percent (%)
Agriculture, Forestry, and Fishery	15.28	28.60	43.88	0.96
Mining and Quarrying	0.00	0.00	0.00	0.00
Manufacturing	230.47	778.92	1009.39	22.11
Electricity and Gas Supply	0.00	0.00	0.00	0.00
Water Supply, Sewerage, Waste Management, and Remedial Activities	0.00	0.00	0.00	0.00
Construction	0.00	0.00	0.00	0.00
Wholesale and Retail Trade, Repair of Motor Vehicles and Motorcycles	0.00	0.00	0.00	0.00
Transportation and Storage	23.79	130.27	154.06	3.37
Accommodation and Food Service Activities	0.00	0.00	0.00	0.00
Information and Communication	18.53	46.67	65.19	1.43
Financial and Insurance Activities	11.39	14.94	26.33	0.58
Real Estate	0.00	0.00	0.00	0.00
Business Activities	0.04	0.92	0.97	0.02
Public Administration and Defense, Compulsory Social Security	0.00	0.00	0.00	0.00
Education	0.00	5.10	5.10	0.11
Human Health and Social Work Activities	0.19	1.52	1.72	0.04
Other Service Activities	1.33	32.38	33.72	0.74
Tourism	1299.33	1925.29	3224.61	70.64
Total	1600.36	2964.60	4564.97	100.00

Source: Statistic Indonesia, 2018

Output Multiplier

Total expenditures of tourists visiting North Sulawesi Province in 2018 amounted to 4.56 trillion rupiahs, encouraging the creation of an output of North Sulawesi's economy of 8.38 trillion rupiahs. The tourism sector is the sector that creates the highest output as a result of tourist expenditure that is equal to 3.50 trillion rupiahs or 41.81 percent of the total output created. The transportation and storage sector is the sector with the second-largest output creation in the economy, amounting to 1.55 trillion rupiahs or 18.49 percent of the total output created. The electricity and gas procurement sector became the sector with the creation of output as the third-largest tourist expenditure impact, namely with the creation of output of 1.44 trillion rupiahs or 17.24 percent of the total output created. The sector with the next largest output creation was the agriculture, forestry, and fisheries sector, with a total output created of 605.88 billion rupiahs or 7.23 percent. Followed by the wholesale and retail trade

sector, car and motorcycle repair with output creation of 520.26 trillion rupiahs or 6.21 per cent.

Table 7: Impact of Tourist Expenditure on Output North Sulawesi Province in 2018

Industry	Impact of Tourist Spending on Output (billion)				
	Early	Direct	Indirect	Total	Percent
Agriculture, Forestry, and Fishery	43.88	345.76	260.12	605.88	7.23
Mining and Quarrying	0.00	5.57	3.70	9.27	0.11
Manufacturing	1009.39	181.69	1263.89	1445.57	17.24
Electricity and Gas Supply	0.00	5.54	4.97	10.52	0.13
Water Supply, Sewerage, Waste Management and Remedial Activities	0.00	0.54	1.34	1.87	0.02
Construction	0.00	26.91	46.82	73.73	0.88
Wholesale and Retail Trade, Repair of Motor Vehicles and Motorcycles	0.00	293.00	227.26	520.26	6.21
Transportation and Storage	154.06	925.06	625.16	1550.22	18.49
Accommodation and Food Service Activities	0.00	53.03	14.98	68.01	0.81
Information and Communication	65.19	36.52	105.94	142.46	1.70
Financial and Insurance Activities	26.33	57.70	95.71	153.41	1.83
Real Estate	0.00	45.99	46.59	92.58	1.10
Business Activities	0.97	5.98	6.06	12.04	0.14
Public Administration and Defense, Compulsory Social Security	0.00	14.41	20.06	34.47	0.41
Education	5.10	4.26	10.45	14.70	0.18
Human Health and Social Work Activities	1.72	46.54	34.31	80.85	0.96
Other Service Activities	33.72	17.93	44.82	62.75	0.75
Tourism	3224.61	124.58	3380.89	3505.47	41.81
Total	4564.97	2191.00	6193.06	8384.06	100.00

Source: Data Multiplier Analysis 18 Sector Input Output Table

Income Multiplier

The impact of tourist expenditure in 2018 on the income of the people of North Sulawesi Province can be seen in table 8. Initially, a tourist expenditure of 4.56 trillion rupiahs encouraged the creation of public income from the production of goods and services amounted to 680.70 billion rupiahs. With the multiplier in the economy, the impact of tourist expenditure on public income increased to 1.28 trillion rupiahs. The biggest impact of tourist expenditure on community income in the province of North Sulawesi occurred in the tourism sector with community income created at 578.23 billion rupiahs or 45.15 of total income. Furthermore, sectors with the creation of public income as the second to fourth largest tourist expenditure impact were the transportation and storage sector amounting to 231.79 billion rupiahs (18.10 percent); processing industry 132.45 billion rupiah (10.34 percent); agriculture, forestry, and fisheries 101.49 billion rupiahs (7.93 percent).

The increasing number of tourists visiting North Sulawesi Province will increase tourist expenditure, which in turn will encourage output creation and income generation in the economic sectors. Based on Table 6 and Table 7, Tourist expenditure has a big impact on the

creation of output and income in the tourism sector, transportation and storage sector, and the manufacturing sector. The creation of high output and income due to the expenditure of tourists in the transportation and storage sector is driven by the high interconnection of the tourism sector and the transportation and storage sector. Every tourist activity in tourism will always be in tandem with transportation activities, starting from the arrival and departure of tourists in a tourist area either by air transportation or other transportation until the transportation of tourists in visiting tourist objects or attraction. The manufacturing sector is another economic sector that has a high value of output creation and income creation as a result of tourist expenditure. Tourist expenditure is used to satisfy the demand for consumption of tourist goods and services, which are mostly products and services of the manufacturing industry sector, such as consumption of snacks, consumption of drinks, souvenir, etc. Tourist expenditure will be in line with the creation of output and income in the manufacturing sector. The more expenditure of tourists to consume goods and services of industrial products, the creation of output and income in the manufacturing sector will be higher.

Table 8: Impact of Tourist Expenditure on Income North Sulawesi Province in 2018

Industry	Impact of Tourist Spending on Income (billion)					
	Income Coefficient	Early	Direct	Indirect	Total	Percent
Agriculture, Forestry, and Fishery	0.1675	7.35	57.92	43.57	101.49	7.93
Mining and Quarrying	0.2217	0.00	1.24	0.82	2.05	0.16
Manufacturing	0.0916	92.49	16.65	115.80	132.45	10.34
Electricity and Gas Supply	0.0534	0.00	0.30	0.27	0.56	0.04
Water Supply, Sewerage, Waste Management and Remedial Activities	0.2467	0.00	0.13	0.33	0.46	0.04
Construction	0.1179	0.00	3.17	5.52	8.69	0.68
Wholesale and Retail Trade, Repair of Motor Vehicles and Motorcycles	0.1834	0.00	53.72	41.67	95.40	7.45
Transportation and Storage	0.1495	23.04	138.32	93.47	231.79	18.10
Accommodation and Food Service Activities	0.1568	0.00	8.31	2.35	10.66	0.83
Information and Communication	0.1494	9.74	5.46	15.83	21.29	1.66
Financial and Insurance Activities	0.2013	5.30	11.62	19.27	30.88	2.41
Real Estate	0.0422	0.00	1.94	1.97	3.91	0.31
Business Activities	0.2176	0.21	1.30	1.32	2.62	0.20
Public Administration and Defense, Compulsory Social Security	0.5417	0.00	7.81	10.87	18.67	1.46
Education	0.4697	2.40	2.00	4.91	6.91	0.54
Human Health and Social Work Activities	0.2467	0.42	11.48	8.46	19.94	1.56
Other Service Activities	0.233	7.85	4.18	10.44	14.62	1.14
Tourism	0.165	531.90	20.55	557.68	578.23	45.15
Total		680.7	346.1	934.55	1280.6	100.00

Source: Data Multiplier Analysis 18 Sector Input Output Table

Conclusion

The tourism sector is a sector that has developed and developed very rapidly in recent years. North Sulawesi Province as one of the popular tourist destinations in Indonesia has a very rapid growth of foreign tourist arrivals reaching 600 percent over the past 4 years. This study uses the Input-Output Analysis method to analyze the tourism sector and the impact of tourist expenditure on community output and income. Based on the analysis of the linkage (linkage) in this research, the tourism sector is a leading sector or key sector in the economy of North Sulawesi. This is concluded from the value of the power distribution index (forward linkage) and the degree of sensitivity (backward linkage) of the tourism sector with a value above 1. A sector if the coefficient of the value of the power distribution and degree of sensitivity is greater than 1, then the sector is a leading sector (key sector) or can be said as the leading sector in the economy in the region concerned because it has a high level of forwarding linkage and backward linkages (Didit, 2008). Tourism sector as a leading sector in the economy of North Sulawesi which has the power to encourage the growth of other sector's economies and the economic growth of North Sulawesi Province.

The tourism sector through tourist expenditure has a multiplier of 1.83 to output and 1.88 to community income in the economy of North Sulawesi Province. Tourist expenditure of 4.56 trillion has an impact on the creation of the economic output of 8.38 trillion rupiahs. The economic sector that has the biggest output impact is the tourism sector with the creation of output of 3.50 trillion rupiahs (41.81 percent), then followed by transportation and storage sector of 1.55 trillion rupiahs (18.49 percent), and manufacturing sector of 1.44 trillion rupiahs (17.24 percent.)

Tourist expenditure initially created an income of 680.70 billion rupiahs. The multiplier in the economy resulted in income created as a result of tourist expenditure increasing to 1.28 trillion rupiahs. The tourism sector is the sector with the largest income creation, amounting to 578.23 billion rupiahs (45.15 percent). Then followed by transportation and storage sector by 231.79 billion rupiahs (18.10 percent), and manufacturing sector by 132.45 billion rupiahs (10.34 percent).

In general, the impact analysis of input-output in addition to computing the output multiplier and income multiplier also computes the labor multiplier. This research has not computed the multiplier effect on labor due to limited labor data so that for further research it can be considered to compute labor multiplier.

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