



2017

**Tourism Satellite Account
and
Tourism Input Output
Indicators of The Maldives**

MALDIVES BUREAU OF STATISTICS

Ministry of National Planning, Housing & Infrastructure
Republic of Maldives



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List of Acronyms

ADB	Asian Development Bank
EUROSTAT	Statistical Office of the European Communities
GDP	Gross Domestic Product
HIES	Household Income and Expenditure Survey
IO	Input Output
IRTS	International Recommendations for Tourism Statistics
MBS	Maldives Bureau of Statistics
MIRA	Maldives Inland Revenue Authority
MMA	Maldives Monetary Authority
MoT	Ministry of Tourism
OECD	Organization for Economic Cooperation and Development
SNA	System of National Accounts
SUT	Supply and Use Table
TDGDP	Tourism Direct Gross Domestic Product
TDGVA	Tourism Direct Gross Value Added
TGST	Tourism Goods and Services Tax
TSA	Tourism Satellite Account
TSAM	Tourism Satellite Account of The Maldives
TSA: RMF	Tourism Satellite Account: Recommended Methodological Framework
UNWTO	United Nations World Tourism Organization

Preface

The Tourism Satellite Account of the Maldives 2017 (TSAM) culminates the long-term objective of developing a preliminary pilot Tourism Satellite Account (TSA) and was compiled as an official measure of tourism's contribution to the Maldivian economy. Initiated in 2013, a feasibility study was undertaken by the Ministry of Tourism (MoT) in collaboration with the Maldives Bureau of Statistics (MBS) and with the technical assistance of the United Nations World Tourism Organization (UNWTO). In 2018 MBS worked with the United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP) in capacity building and compilation of Tourism Satellite Account for the Maldivian economy. The initial draft tables have been improved by the Asian Development Bank and used to compile the Input Output Table for Tourism Industries

The compilation of TSAM presents the contribution of tourism industries to the Maldivian economy. It is developed to analyze in detail all the aspects of demand for goods and services associated with the activity of visitors, to observe the operational interface with the supply of tourism goods and services within the Maldivian economy; and to describe how this supply interacts with other economic activities (TSA: RMF). The TSAM covers employment, the expenditures of visitors, and the expenditures of Maldivian residents abroad. It also includes the production accounts of tourism industries and other tourism industries in the Maldives.

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1

Introduction

As defined by UNWTO, tourism is a social, cultural, and economic phenomenon related to the movement of visitors or travelers to countries and places outside their usual environment for less than a year for business, leisure, or other personal purposes. From this definition, it can be interpreted that tourism is a temporary activity of visitors or travelers to a destination apart from the area where they conduct regular life routines.

Tourism as a phenomenon can be viewed from two perspectives. From the demand side, it refers to the activities of visitors and the acquisition of goods and services. From the supply side, it refers to the set of productive activities that cater mainly to visitors.

While the System of National Accounts (SNA) shows the interface between the demand and supply of goods and services within an economy, tourism is not explicitly identified as a separate activity. The concept of the usual environment makes tourism unique as the SNA classifies transactors based on their residence. Thus, satellite accounts as an extension to the SNA are necessary to record transactions between visitors or travelers in an economy and businesses or industries that provide their services.

This report sets out the methodology and findings of the TSA in the Maldives. In 2008, the UNWTO issued two documents setting out international standards for tourism statistics on supply and demand. The International Recommendations on Tourism Statistics (IRTS) 2008 provides a comprehensive methodological framework in collecting and compiling tourism statistics. The Tourism Satellite Account: Recommended Methodological Framework (TSA: RMF) 2008, which was developed by the World Tourism Organization (UNWTO), Organization for Economic Cooperation and Development (OECD), Statistical Office of the European Communities (EUROSTAT), and the United Nations Statistics Division, provides the standard statistical framework in constructing the TSA. It likewise links tourism statistics with the concepts, classifications, definitions, tables, and aggregates of the SNA 2008.

The backbone of the Maldivian economy remains to be the tourism sector. Dating back to the early 1970s, the country developed two islands as resorts in 1972 in Kaafu Atoll to accommodate tourists. From having

its first 1,000 tourists by the end of that year, the country reached 1.38 million tourists' arrivals by 2017. Aside from providing more than a third of government revenue, it contributes approximately a quarter of its Gross Domestic Product (GDP). The tourism industry is also a major source of foreign exchange earnings and has provided employment opportunities. To measure the direct impact of tourism on the Maldivian economy, the MoT has been working on developing a TSA since 2013.

The TSA is comprised of ten tables. The first six tables provide a detailed presentation of the supply and consumption of goods and services acquired by visitors (TSA Tables 1-4) and the industries that produce them (TSA Table 5). At the 'core' of system is the TSA Table 6, which reconciles domestic supply and internal tourism consumption. Overall, these six tables provide macroeconomic aggregates to depict a robust picture of the size and contribution of tourism to the overall economy. Employment in tourism industries (TSA Table 7) is also compiled to capture its strategic importance in offering employees a wide variety of occupations.

2

Available data sources

The reference for the construction of the TSA tables and tourism indicators relies on numerous sources of data. The authors made use of the data and resources available and supplied by MBS.

To compile the Tourism Satellite Account 2017, the following data sources were explored and utilized:

- Preliminary 2017 Supply and Use Tables (unpublished)
- Tourism GST data from the Maldives Inland Revenue Authority (MIRA)
- 2017 Maldives Visitor Survey
- 2016 Study on Domestic Tourism
- Published tourism data and statistics from the Ministry of Tourism (MOT)
- Balance of Payments from the Maldives Monetary Authority (MMA)
- 2016 Household Income and Expenditure Survey (MBS)
- 2014 Census data (MBS)
- Various Resorts data from Maldives Association for Tourism Industries (MATI)
- Various Financial statements
- Hajj Tourism data from Maldives Hajj Corporation Limited

3

Methodology

The Tourism Satellite Account (TSA) is compiled using the Supply and Use tables and various data sources.

Using the data sources and the recommended methodological framework, the 2017 TSA of Maldives provides a detailed presentation of expenditure or consumption in terms of goods and services acquired by visitors and the industries that produce them.

- Inbound tourism expenditure
- Domestic tourism expenditure
- Outbound tourism expenditure
- Internal tourism consumption
- Production accounts

When the demand for goods and services associated with tourism is reconciled with the supply of such goods within and outside the economy, the size contribution of tourism can be measured, such as the tourism direct gross value added (GVA) and tourism direct GDP. Given the importance of the tourism industry in economic development and job generation for the Maldives, employment in tourism industries is also developed using the 2014 Census data.

Same day visitors or excursionists are not covered in TSA Tables 1-4 due to insufficient data. Moreover, HIES does not include pilgrimage trips and only covers personal expenses.

Given the unpublished preliminary SUT, a symmetric industry by industry National Input-Output table was derived using proportional allocation of margins, taxes less subsidies on products, and imports, as well as fixed product sales structure assumptions.

The 2017 Maldives' Input-Output (IO) tables were used to generate the tourism industry indicators and multipliers. Two IO tables were used for reference:

- Tourism IO with 41 sectors (40 sectors and 1 tourism sector)
- Tourism IO with 62 sectors (18 sectors and 22 sectors decomposed into tourism and non-tourism components)

Building on the approach of Van Truong and Shimizu (2017), the tourism IO tables were compiled by disag-

gregating the rows and columns of the NIOT 2017 to separate the tourism and non-tourism component of the following industries:

- Processing and preserving of fish, crustaceans and molluscs
- Manufacture of other food products
- Manufacture of beverages
- Manufacture of textiles, wearing apparel & leather goods
- Manufacture of products of wood and products of wood
- Manufacture of other non-metallic mineral products
- Other manufacturing products
- Wholesale and retail trade; repair of motor vehicles and motorcycles
- Land transport and transport via pipelines
- Water transport
- Air transport
- Warehousing and support activities for transportation
- Resorts
- Other accommodation services
- Food & beverage serving services
- Programming and broadcasting activities, telecommunications, computer programming & information
- Real estate activities
- Professional, scientific and technical activities
- Administrative and support service activities
- Education
- Human health and social work activities
- Arts, entertainment and recreation & Other service activities

It was assumed that the share of internal tourism consumption to total output would approximate the tourism component of that industry. In terms of demand (column), the inputs purchased by an economic activity for the production of its output would be the same whether the output is provided to visitors or non-visitors. The supply (row) of output for intermediate use of economic activities will be served to domestic visitors only. On the other hand, the supply (row) of output for final use excluding exports will be served to domestic leisure visitors only. However, with limited information on domestic business, the row disaggregation of intermediate use and final use excluding exports will be the same. Lastly, the supply (row) of output for export will take into consideration the share of inbound tourism expenditure to total output. The tourism IO table with 62 sectors was manually balanced. All tourism components were then summed up to produce a single tourism sector.

3

Inbound Tourism

According to the IRTS, an inbound trip refers to a visitor’s travel from the time of arriving in a country to the time of leaving. These visitors are defined as non-residents traveling for less than a year in the country’s economic territory of reference.

A major source of inbound tourism statistics would be the tourist arrivals or departure card (monthly/annual) and the visitor survey. In 2017, tourist arrivals in the Maldives reached 1,389,542. The inbound tourism in the Maldives is dominated by the European market, as presented in Figure 1, with over 646,346 or approximately 47% of the total tourist arrivals. The Asian market held over 42%, while the remaining 11% are from Africa, America, Oceania, Middle East, and others.

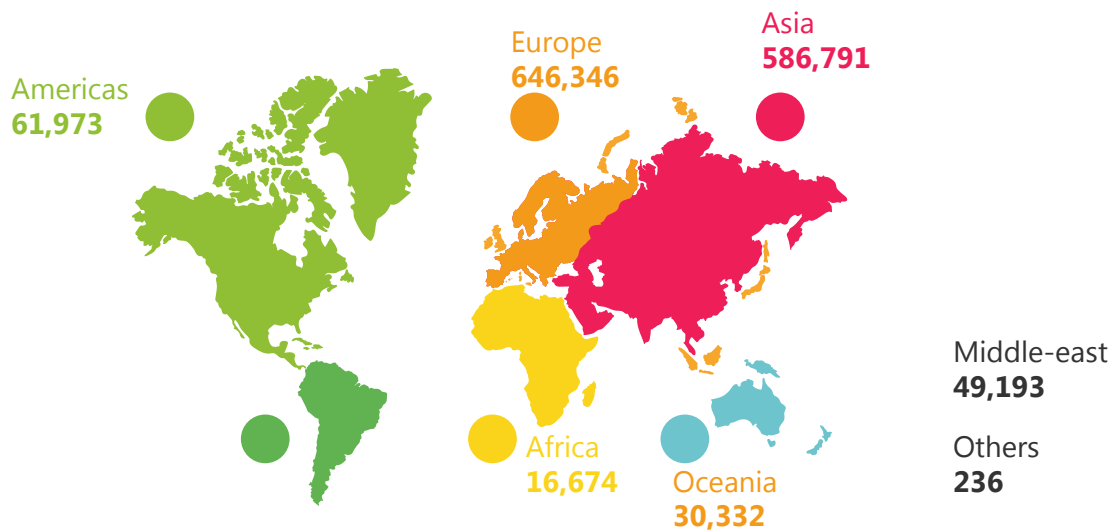
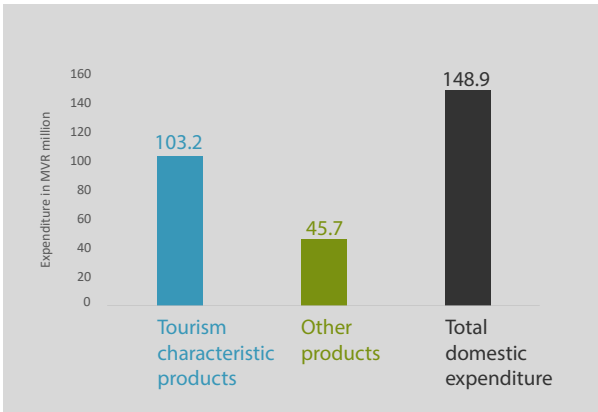


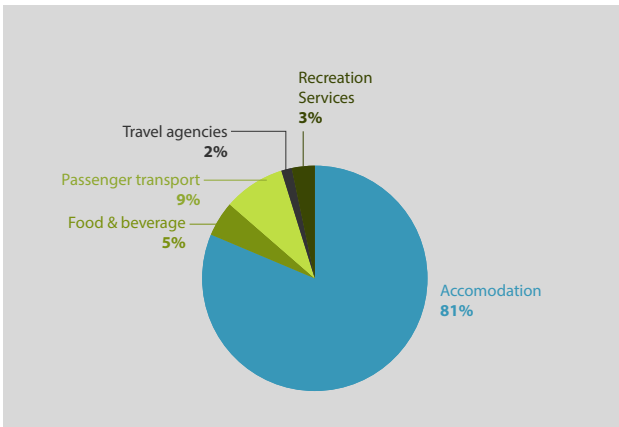
Figure 2 presents the inbound tourism expenditure by type of products of international visitors within the Maldives in 2017 in MVR million.

Figure 2:
Inbound tourist expenditure by type of products, 2017



The inbound tourism expenditure of the Maldives in 2017 is estimated at MVR 55,448 million. Figure 3 shows the percentage of inbound tourist expenditure on tourism characteristic products comprised of accommodation, food and beverage, passenger transport, travel agencies, and recreational services. Among the five tourism characteristic products identified, accommodation services make up the highest share of inbound tourism expenditures, contributing 81% of the expenditure. This is followed by passenger transport with 9% of the expenditure and food and beverage services with 5%. Spending on recreational services and travel agency services are estimated at 3% and 2% respectively.

Figure 3:
Share of tourism characteristic products, 2017



4

Domestic Tourism

Domestic tourism consists of residents traveling to and staying in places within the Maldives but outside their usual environment (resident island) for not more than 12 consecutive months for leisure, business, or other purposes. Expenditure in this form of tourism involves resident visitors within the economy of reference.

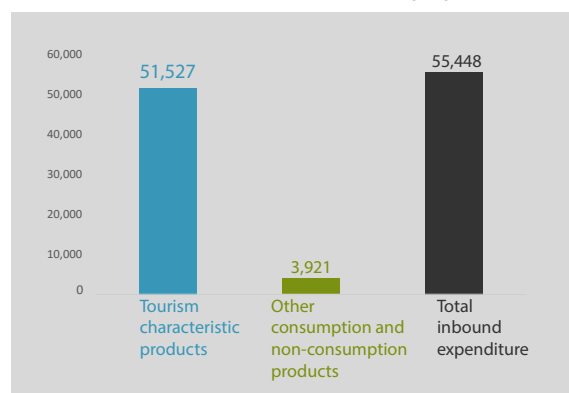
The very first study on domestic tourism in the country was conducted in 2016 to gather baseline data. According to the Study on Domestic Tourism in the Maldives 2016 Report, 75% of the households in the Atolls made at least one domestic trip (overnight or excursion) while 60% of households who live in Malé traveled domestically. The average of domestic trips undertaken by households in the Atolls was 3.77 while households residing in Malé had 1.40.

For the TSA, domestic tourism expenditure was compiled using the 2016 Household Income and Expenditure Survey (HIES), excluding non-residents or those staying within the Maldives for less than a year. Growth in population and consumer prices were used to extrapolated domestic tourism expenditure.

Figure 4 below shows that domestic tourism expenditure in the Maldives in 2017 reached MVR 148.9 million. Among the tourism characteristic products identified, 62% is attributed to passenger transport, amounting to MVR 69 million. This was followed by food and beverage services and accommodation, amounting to MVR 19 million (19%) and MVR 15 million (15%), respectively. Domestic tourist expenditure on other products was MVR 45 million in 2017, where tourism-connected goods and services included shopping, education, and training.

It should be noted that domestic tourism expenditure in relation to business travel is incorporated into this estimate inasmuch as it is captured by the HIES. However, the HIES does not capture same day visitors or excursionists.

Figure 4:
Domestic tourist expenditure by type of products, 2017



5

Outbound Tourism

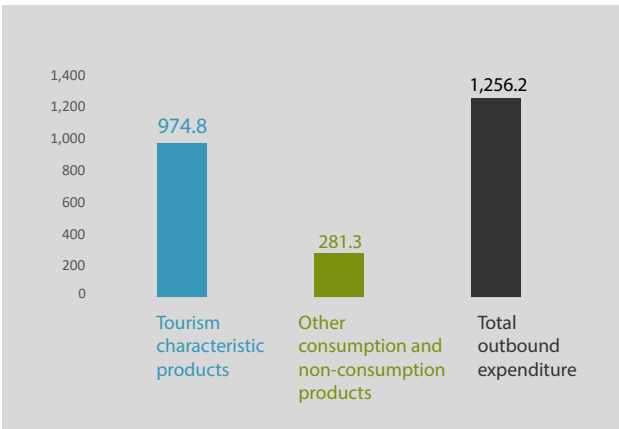
While inbound tourism includes visits within the country of reference, outbound tourism refers to trips of resident visitors outside the economy of reference, either as part of a domestic trip or as part of an out-bound tourism trip.

According to the Study on Domestic Tourism in the Maldives 2016 Report, 59% of males’ households engaged in outbound trips. In the same report, the most popular reason or purpose why Maldivians, both Malé and Atoll households, embark on outbound travel is for seeking medical treatment. This is followed by those who take outbound trips for leisure and vacation purposes.

The outbound tourism expenditure was compiled using data from the 2016 HIES for the TSA. While data is available on the Maldivians Traveling Abroad (MTA) survey, this was not applied due to some limitations. Similar to the compilation on domestic tourism, non-residents or those staying within the Maldives for less than a year were not included in the estimation. Since the HIES did not include pilgrimage trips, a report by Maldives Hajj Corporation Limited included hajj tourism data and captured pilgrim tourists.

In Figure 5, the total outbound tourism expenditure of the Maldives in 2017 was estimated at MVR 1,256.2 million. MVR 974.8 million or 78% accounted for tourism characteristic products while the other consumption and non-consumption products reached MVR 281.3 million or 22%.

Figure 5:
Outbound tourist expenditure by type of products, 2017



6

Internal Tourism Consumption Expenditure

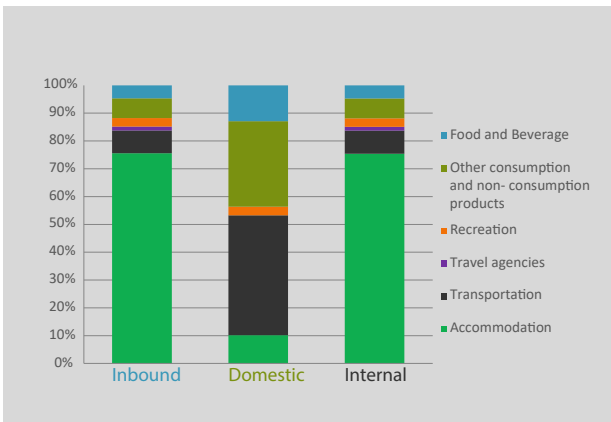
In the TSA: RMF 2008, internal tourism consumption is defined as the central aggregate to describe the size of direct visitor acquisition within a country of reference. Combining the inbound and the domestic tourism expenditure brings us the fourth TSA table, which records the internal tourism expenditure by expenditure item. This key aggregate will be the basis for estimating the Tourism Direct Gross Value Added (TDGVA) and Tourism Direct Gross Domestic Product (TDGDP).

As shown in Figure 6, the total internal tourism expenditure of Maldives is MVR 55,597 million, of which MVR 55,524 million is expenditure on tourism characteristics products. At the same time, MVR 149 million is expenditure on other consumption and non-consumption products. Expenditures on accommodation recorded the largest, contributing 75% of the total internal tourism expenditure.

When comparing expenditure pattern by type of trip, in the case of inbound tourism, 76% of inbound tourism expenditure is spent on accommodation, followed by transportation with 8%, food and beverage serving services with 5%, and recreational services with 3%. Only 1% is estimated for expenditure on travel agencies.

On the other hand, in domestic tourism, transportation accounts for around 43%, followed by food and beverage services with 13%, accommodation services with 10%, and approximately 3% on recreational services.

Figure 6:
Proportion of Inbound, Domestic, and Internal Tourism expenditure, by type of products, 2017



Due to data limitations, other components of tourism consumption such as services associated with vacation accommodation on own account, tourism social transfers in kind (except refunds), and other imputed consumption were not included in the estimation.

7

Production Accounts of Tourism Industries and Other Industries

TSA Table 5 (refer to Annex) presents the production accounts, which detail the supply of products by industry. Of the 40 industries in the Supply and Use Table 2017 of Maldives, nine industries were classified as tourism characteristic activities, namely, Resorts, Other accommodation services, Food, and beverage serving services, Land passenger transport, Water passenger transport, Air passenger transport, Support activities for transportation, Support service activities, and Arts, entertainment, and recreation.

Table 1:
List of tourism characteristic products, activities, and industry in SUT

Products	Activities	Industry in SUT 2017
Accommodation services for visitors	Accommodation for visitors	Resorts Other accommodation services
Food and beverage serving services	Food and beverage serving activities	Food and beverage services
Land passenger transport services	Land passenger transport	Land transport
Water passenger transport services	Water passenger transport	Water transport
Air passenger transport services	Air passenger transport	Air transport
Travel agencies and other reservation services	Travel agencies & other reservation service activities	Warehousing & support activities for transportation Administrative and support service activities
Cultural, sports, and recreational services	Cultural, sports, and recreational activities	Arts, entertainment and recreation & Other service activities

Table 1 lists categories of tourism characteristic consumption products and tourism characteristic activities.

TSA Table 5 shows the detailed breakdown of production (output) value and the total inputs spent on the production process. It also shows the value-added generated in an industry.

8

Domestic Supply and Internal Tourism Consumption

TSA Table 6 extends tourism and other industries’ production accounts (Table 5) and reconciles it with internal tourism consumption to measure the value-added of tourism industries and tourism direct gross value added (TDGVA).

According to TSA: RMF 2008, TDGVA captures the part of gross value added generated by tourism and other economic industries that directly serve visitors. Another key aggregate measured using TSA table 6 is the Tourism Direct Gross Domestic Product (TDGDP) which refers to the part of gross value added (at basic prices) generated by all industries plus the amount of net taxes on products and imports included within the value of this expenditure at purchasers’ prices.

Table 2:
Tourism Direct Gross Value Added (TDGVA) and Tourism Direct Gross Domestic Product, 2017

Indicator	Value in MVR million
Tourism Direct Gross Value Added	22,976.74
Gross Domestic Product	75,864.86
TDGVA as percent of GDP	35.16%
Tourism Direct Gross Value Added plus tourism goods and services tax	27,159.74
Gross Domestic Product	75,864.86
TDGDP as percent of GDP	35.80%

The TDGVA in 2017 is at MVR 22,976.7 million or 35.16% of the total GDP. Adding the Tourism Goods and Services Tax (TGST) collected for 2017, TDGDP is MVR 27,159.7 million and accounts for 35.8% of the total GDP.

9

Employment in the Tourism Industries

TSA Table 7 (refer to Annex) presents the employment in tourism industries using the 2014 census data. The employment section in the questionnaire applies to persons aged 15 and above.

The working-age population reached a total of 205,570, of which 146,059 (71%) were male workers while 59,511 (29%) were female workers. Moreover, 142,726 (71%) are Maldivians while 58,244 (29%) are foreigners.

Out of the reported working-age population, 81,673 are from the Malé (urban), while 123,897 are from Atolls (rural), including Administrative and Non-Administrative Islands.

Out of the 200,970 that disclosed their employment status, 74% were employees, 22% were either own-account or contributing family workers. Only 3% were employers or owners with employees. Around 4,600 did not provide employment status.

Out of all the economic activities, employment was heavily concentrated in the Accommodation services sector with 34,692 employees, followed by Food and Beverage services with 6,636 employees, Sea and coastal water transport with 4,293 employees, Support activities for transportation with 4,112 employees, and Passenger air transport with 2,332 employees.

According to Census 2014, 34,692 employees worked in the Accommodation industry; of which, 31,391 are male and 3,301 are female workers.

Males worked an average of 9.5 hours per day, which is longer than the average of 6.5 hours for female workers.

10

Direct and Total Linkages

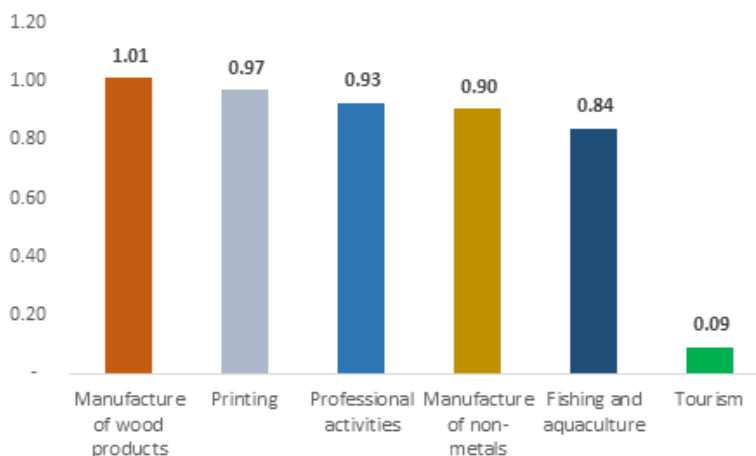
Direct forward linkage of the tourism sector

Direct forward linkage refers to the value of total inter-industry sales by sector i to other sectors j as a proportion of the value of the total output of sector i . In other words, it provides information on the proportion of sector i 's output that goes to other sectors j . It follows that if there is a change in final demand for sector i , sector i adjusts its output to fulfill that change. Additionally, when there is additional output by sector i , there is increased supply for interindustry or intermediate inputs for its buyers. Buyers do not include final consumption. Direct forward linkage describes sector i 's interconnection with its downstream sectors.

The strength of sector i 's direct forward linkage is measured using the sum of the elements in the i th row of the **direct-output coefficients matrix** or the **B matrix**. To derive the forward linkages of each sector, take the row sum of each sector in the B matrix. Since the coefficients in the B matrix allocate sectors i 's total output across sectors j that purchase intermediate inputs from sector i , the row sums take the direct forward linkages.

In 2017, the tourism industry contributed 9% of the economy's total output, ranking 30th out of 41 industries. **Manufacture of wood products** takes the top spot as the industry with the highest direct forward importance in the Maldives (Figure 7).

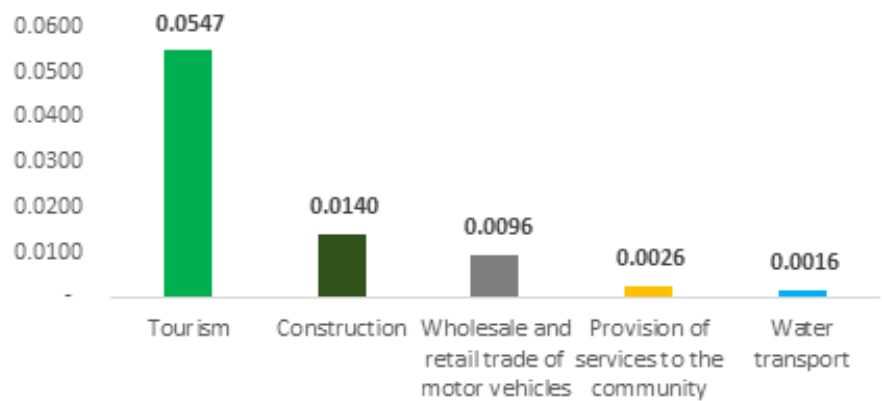
Figure 7:
Direct forward linkages of top 5 sectors and tourism, 2017



Taking tourism subsectors into one sector ("**tourism industry**"), we obtain the proportion of tourism's output to other sectors by taking each element in row 41 of the B matrix. The sum of all elements in this row is the direct forward linkage of the tourism industry.

A one million MVR increase in the tourism sector increases the direct output of other sectors by MVR 0.0915 million, particularly in **Construction** at MVR 0.0140 million, and **Wholesale and retail trade of motor vehicles** at MVR 0.0096 million. The majority of the increase in output is attributable to Tourism itself, at MVR 0.0547

Figure 8:
Top 5 purchasing industries with the highest tourism-related increase in direct output, 2017



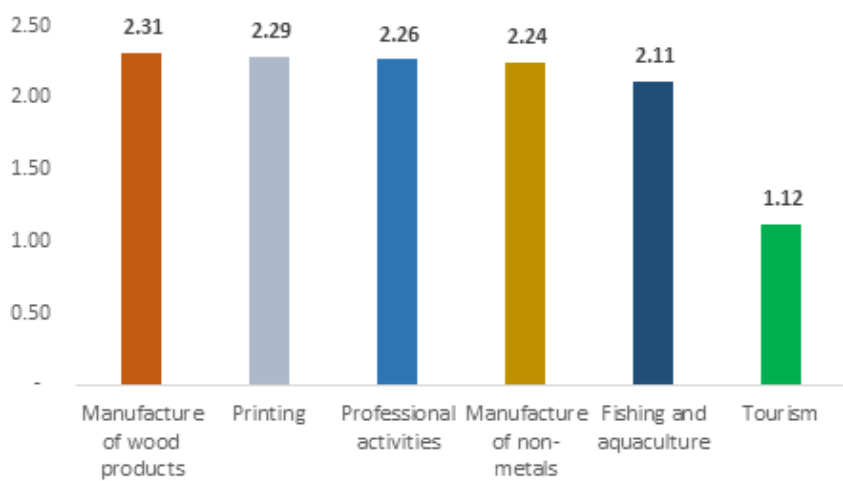
Total forward linkage of the tourism sector

A sale of output by sector i to another sector leads to the production of output that can be used further down the value chain. This indirect effect is not captured in the direct forward linkage. The total forward linkage reflects the direct and indirect output of sector i that is sold to its buyers per output in sector i. It shows the value of total output used by other industries as intermediate inputs to their production.

The strength of sector i's total forward linkage is measured using the sum of the elements in the ith row of the **output inverse, or the Ghosh matrix**. To derive the total forward linkages of each sector, take the row sum of each sector in the Ghosh matrix. Since the coefficients in the Ghosh matrix take the total value of production that comes about in sector j per unit of primary input in sector i, the row sums take the total forward linkages. Considering both direct and indirect effects, it shows the total contribution to the economy (or specific industry j, as the case may be) of industries linked to tourism.

In 2017, the total forward linkage of the tourism sector was 1.12, ranking 30th out of 41 industries. **Manufacture of wood products** has the highest total forward importance in the Maldives (Figure 9).

Figure 9:
Total forward linkages of top 5 sectors and tourism, 2017



We obtain the proportion of tourism’s output going to downstream sectors by taking each element in row 41 of the Ghosh matrix. The sum of all elements in this row is the total forward linkage of the tourism industry. A one million MVR increase in the tourism sector increases the total output of other sectors by 1.12 million MVR, particularly in **Construction** at MVR 0.02 million, and **Wholesale and retail trade of motor vehicles** at MVR 0.01 million. The majority of the increase in output is attributable to **Tourism** itself, at MVR 1.07 million (Figure 10).

Figure 10:
Top 5 purchasing industries with the highest tourism-related increase in total output, 2017



Notice that the difference in direct and total output for the top sectors excluding tourism is very low. The indirect effect can be measured by taking the difference between total forward and direct forward linkage (Figure 11). The indirect forward linkage of tourism is larger than its direct forward linkage, suggesting that the impact of an increase in final demand for tourism leads to further and subsequent effects on the total output of its downstream industries.

Figure 11:

Indirect output of top 5 purchasing industries with the highest tourism-related increase in total output, 2017



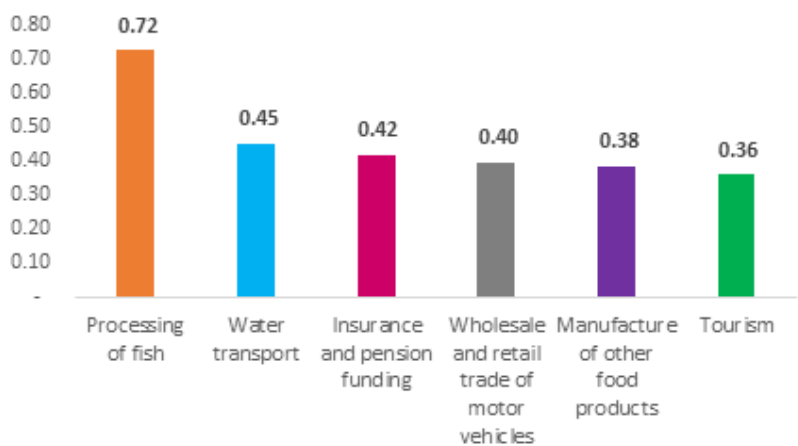
Direct backward linkage of the tourism sector

Direct backward linkage refers to the value of total intermediate purchases by sector i as a proportion of the value of the total output of sector i. In other words, it provides information on the proportion of another sector j’s output that goes to sector i. It follows that if there is a change in final demand for sector i, sector i adjusts its output to fulfill that change. In the process, there is increased demand for intermediate inputs from supplying sectors j. Direct backward linkage describes this interconnection of sector i with its upstream sectors.

The strength of sector i’s direct backward linkage is measured using the sum of the elements in the ith column of the **direct-input coefficients matrix** or the **A matrix**. To derive the backward linkages of each sector, take the column sum of each sector in the A matrix. Since the coefficients in the A matrix take the proportion of the total intermediate inputs purchased by sectors i from sectors j to sectors i’s outputs, the column sums take the direct backward linkages.

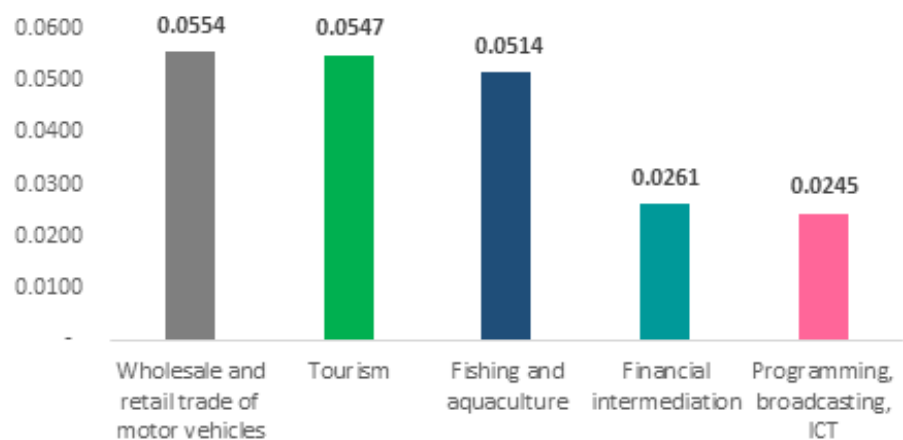
In 2017, the direct backward linkage of the tourism sector was 0.36, ranking 6th out of 41 industries. The **Processing of fish** has the highest direct backward importance in the economy (Figure 12).

Figure 12:
Direct backward linkages of the top 5 sectors and tourism, 2017



We obtain the purchase of sector i from other sectors by taking each element in column 41 of the A matrix. The sum of all elements in this column is the direct backward linkage of the tourism industry. One million MVR increase in the tourism sector increases the direct output of supplying sectors by MVR 0.36 million, particularly in **Wholesale and retail trade of motor vehicles** at MVR 0.0554 million, and **Tourism** at MVR 0.0547 million (Figure 13).

Figure 13:
Top 5 supplying industries with the highest tourism-related increase in direct output, 2017



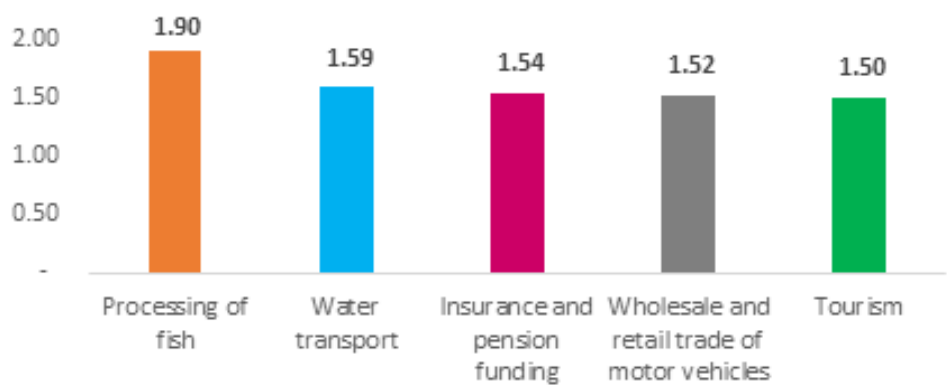
Total backward linkage of the tourism sector

A purchase of input by sector i from another sector leads to output production by other upstream sectors further up the value chain to satisfy the purchase. This indirect effect is not captured in the direct backward linkage. The total backward linkage reflects the direct and indirect output of sectors j purchased by sector i as inputs per output in sector i. It shows the value of total output used by sector i as intermediate inputs to its production.

The strength of sector i's total backward linkage is measured using the sum of the elements in the ith column of the **total requirements matrix**, or the **Leontief inverse**. To derive the total backward linkages of each sector, take the column sum of each sector in the Leontief inverse. Since the coefficients in the Leontief inverse take the direct and succeeding or indirect effects on the economy given by a change in output, the column sums take the total backward linkages. Considering both direct and indirect effects, it shows the total backward dependence of tourism on the economy (or specific industry j, as the case may be).

In 2017, the total backward linkage of the tourism sector was high at 1.50, ranking 5th out of 41 industries. The **Processing of fish** has the highest total backward importance in the Maldives (Figure 14).

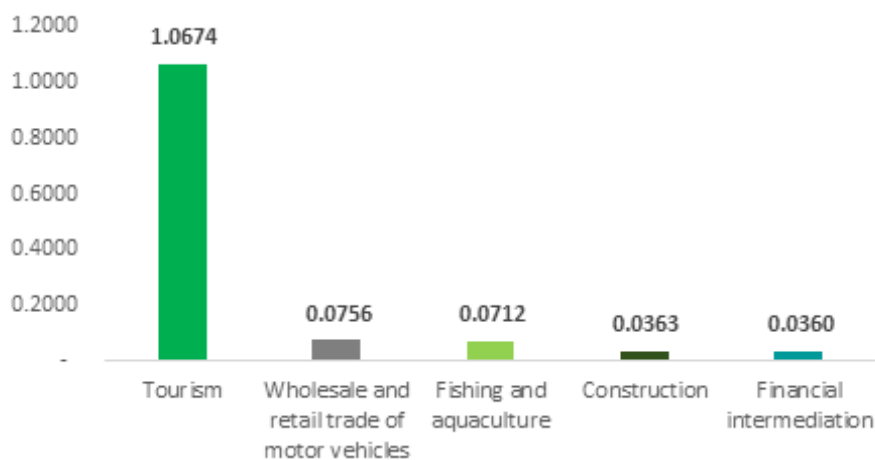
Figure 14:
Total backward linkages of the top 5 sectors, 2017



The total backward linkage measure is also the simple output multiplier. Thus, total backward linkage can be interpreted as the impact of any change in tourism output on the sectors producing its input requirements. Tourism has a high backward linkage of 1.50, which means that the production of one million MVR of output in the tourism industry generates 1.5 times the demand for intermediate inputs from upstream suppliers than the production of one million MVR of output in the other industries.

Of the MVR 1.50 million of demand generated, tourism overtakes **Wholesale and retail trade of motor vehicles**, with 71% of demand being met by inputs from tourism sub-sectors (Figure 15). This also reveals that the indirect effect on supplying tourism sub-sectors is significant.

Figure 15:
Top 5 supplying industries with the highest tourism-related increase in total output, 2017



Like our observation earlier, the indirect backward linkage of tourism is larger than its direct backward linkage. This suggests that the impact of an increase in final demand for tourism leads to further and subsequent effects on the total output of its upstream industries. The other sectors exhibit significantly lower indirect effects (Figure 16).

Figure 16:
Indirect output of top 5 supplying industries with the highest tourism-related increase in total output, 2017



We expect backward linkages to be higher due to their dependence on upstream sectors for inputs. To view the relative importance of the tourism sector to the economy, we also interpret normalized and net backward linkages.

11

Interindustry Linkages of Tourism

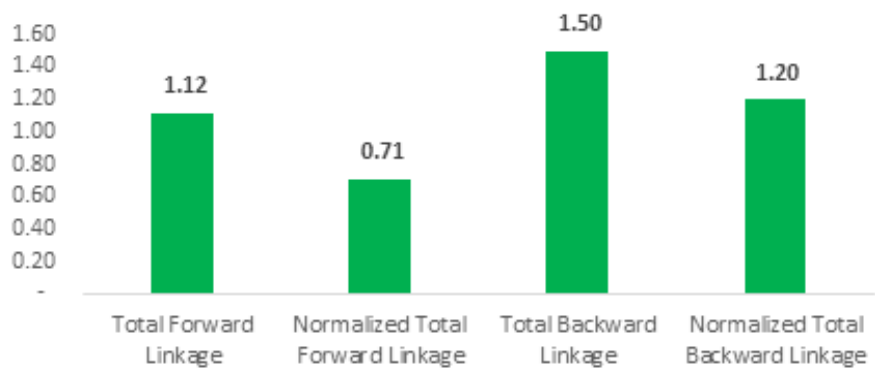
Normalized forward and backward linkages

Using normalized values of the linkages can indicate the strength of a sector’s interindustry linkages relative to other sectors. Normalized forward and backward linkages, also called the **forward** and **backward indices**, respectively, are calculated by dividing the total forward and backward linkage over all industries’ mean forward and backward linkage. A value larger than one (1) means above-average linkage for both normalized backward and forward linkages, and a value below one (1) means a below-average linkage. This would indicate whether an industry is independent of other industries (with a below-average or weaker linkage) or is more interconnected with other industries (with an above-average or stronger linkage).

Normalized forward linkage of the tourism sector

The normalized total forward linkage of tourism, at 0.71, is surpassed by most sectors with a rank of only 30 out of 41 sectors. Thus, a unit increase in tourism production generates fewer sales to downstream buyers than a unit of output in other industries.

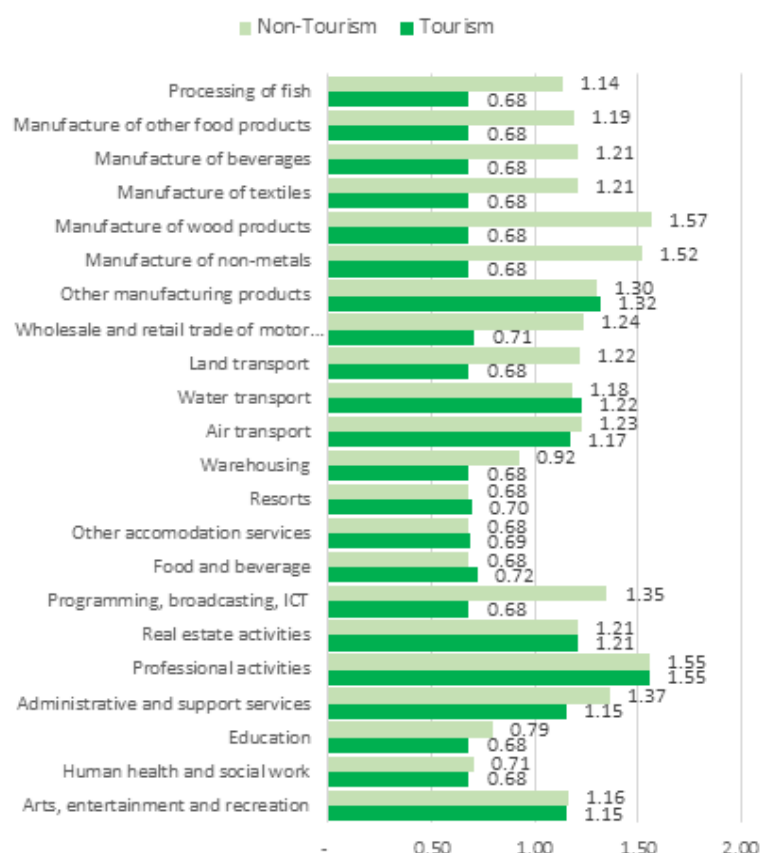
Figure 17:
Total and normalized total linkages of the tourism sector, 2017



With a linkage of 1.50, the tourism industry is one of the leading sectors in total backward linkage. Normalizing to the economy average, the normalized total backward linkage of tourism is 1.20, suggesting that a unit increase in final demand for the tourism sector generates more inputs from upstream sectors than a unit increase in final demand for other sectors (Figure 17).

We can take the total and normalized linkage of each tourism sub-sector as well. Twenty-two (22) identified tourism industries were decomposed into two parts – i.e., a tourism component and a non-tourism component (Table 1). 100% of the output of three (3) sectors, namely **Resorts, Other accommodation services, and Food and beverage**, were assigned to their tourism components. We can calculate separately normalized linkages between each component and the rest of the sectors in the economy.

Figure 18:
Normalized total forward linkages of tourism and non-tourism components, 2017



The forward linkage is higher for non-tourism components in most industries. This is reasonable since tourism sectors provide sales to tourists, who are final consumers, and generate no or little downstream sales. Outputs sold to the non-tourism components may generate more sales as they may be used as inputs for further production.

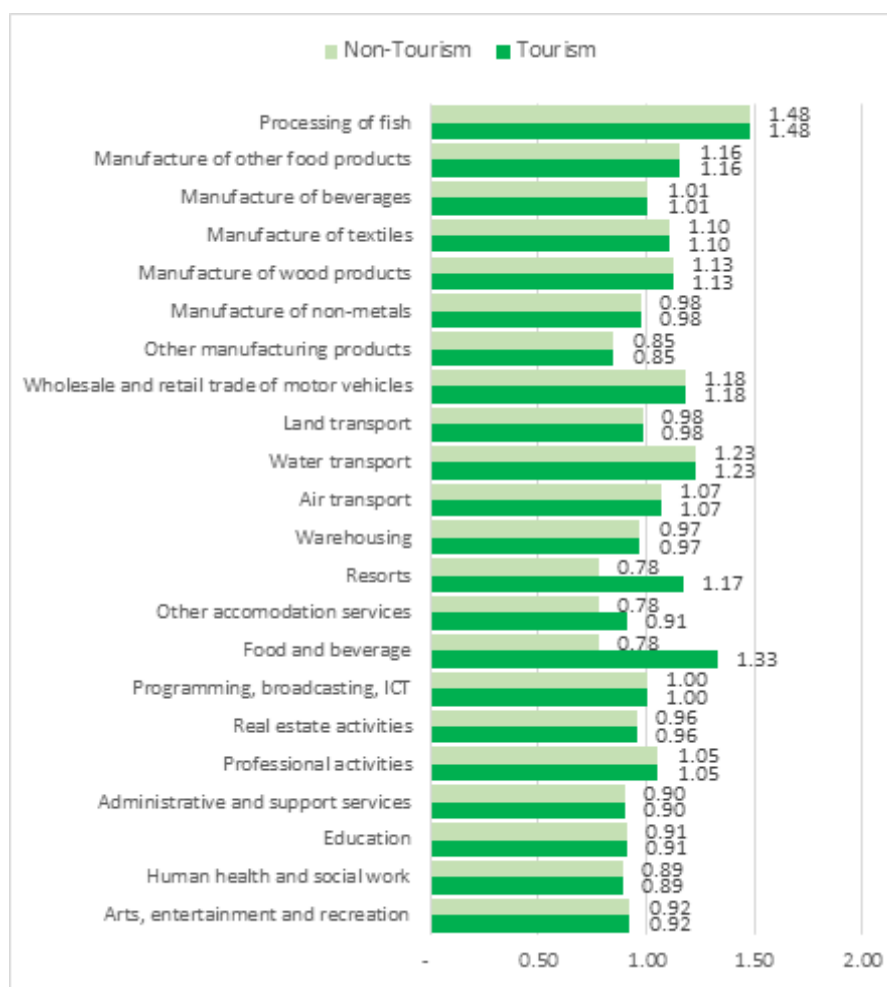
The average forward linkage multiplier in tourism components is only 0.87, which is substantially lower than its non-tourism counterparts, 1.14 (Figure 18). This means that a unit of output sold for tourism use generates less downstream sales, while the same amount sold for non-tourism use generates additional 0.14 units.

Five (5) tourism sub-sectors have higher forward linkages in their tourism components: **Other manufacturing products, Water transport, Resorts, Other accommodation services, and Food and beverage**. A unit of output sold by these tourism sub-sectors for tourism use will generate more downstream sales, albeit marginally.

Net backward linkage of the tourism sector

The backward linkage of tourism and non-tourism components should be close, if not the same, because, by construction, both production functions are assumed to be similar. It is assumed that the inputs used by a restaurant serving a visitor (or any tourism industry for that matter) will be no different from the inputs used to serve a non-visitor.

Figure 19:
Normalized total forward linkages of tourism and non-tourism components, 2017



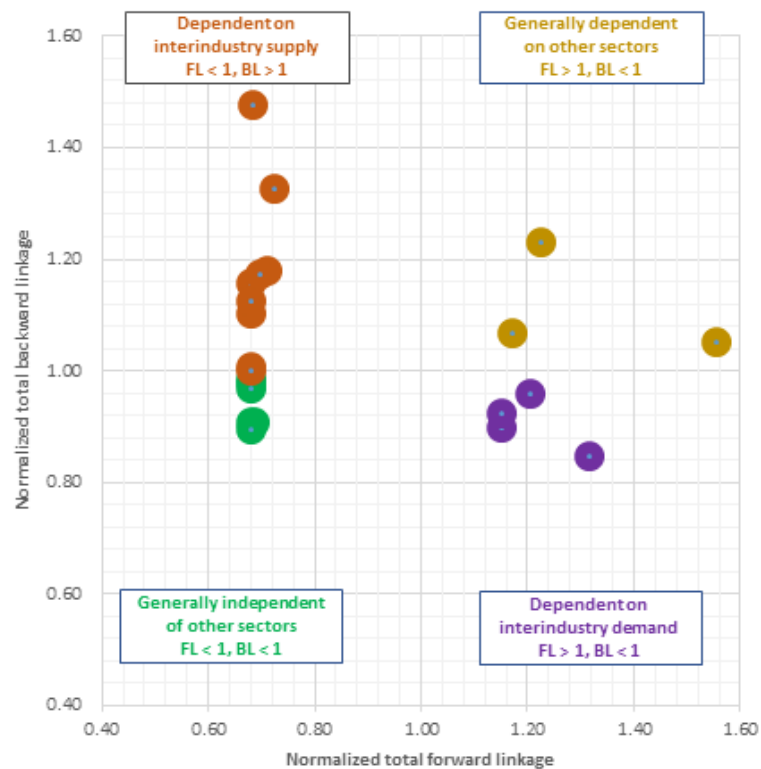
To illustrate, the average backward linkage multiplier of tourism components is 1.05, while that of the non-tourism components is 1.00. This means that an additional output in tourism components will induce supplying industries to generate more output than an additional output in non-tourism components. Note that both components' linkages are above one.

Resorts, Other accommodation services, and Food and beverage service activities have higher backward linkages in their tourism components. A unit of output sold by these tourism sub-sectors for tourism use will stimulate more upstream production compared to their non-tourism counterparts (Figure 19).

Interindustry linkages of the tourism industries using normalized total linkages

We can classify and plot Maldives’ tourism sub-sectors according to the strength of their linkages (Figure 14). Sectors with strong backward and forward sectors are key sectors, “leading sectors” or “**generally dependent**” sectors. They are strongly connected to other sectors both along their input demand and output supply chain. Of the identified tourism industries, **Water transport, Air transport, and Professional activities** have higher importance as both demanders of inputs and suppliers of outputs (Table 4).

Figure 20:
Tourism sub-sectors according to normalized linkages, 2017



Sectors with strong backward but weak forward linkage are called backward-oriented sectors or sectors “**dependent on interindustry supply.**” They have larger dependence on all industries as demanders of inputs than as suppliers of outputs, relative to other sectors. To produce a unit of output, the industry uses more inputs from other industries than it sells to other industries. Nine (9) tourism sub-sectors, including **Processing of fish, Food and beverage, and Resorts**, belong to this classification (Table 4).

Sectors with strong forward linkage but weak backward linkage are called forward-oriented sectors or sectors “**dependent on inter-industry demand.**” They have a larger contribution to all industries as suppliers of outputs than as demanders of inputs, relative to other sectors. These sectors produce more intermediate inputs for downstream industries. Of the tourism industries, four (4) sub-sectors, including **Real estate activities and Administrative and support services**, belong to this category (Table 4).

Finally, six (6) of the tourism sub-sectors have weak backward and weak forward linkages. These sectors are “**generally independent**” sectors; they are not strongly connected to other industries, both along their input demand and output supply chains. This means that these industries use relatively less output produced directly and indirectly by other industries and sell little to other industries as intermediate inputs. Sub-sectors include **Land transport, Other Accommodation services and Warehousing**. The sector considered most independent is **Human health and social work** (Table 4).

Table 4:
Sectors according to normalized linkages, 2017

	Weak Normalized Total Forward Linkage (nTFL < 1)			Strong Normalized Total Forward Linkage (nTFL > 1)		
	Generally dependent on interindustry supply	nTFL	nTBL	Generally dependent	nTFL	nTBL
Strong Normalized Total Backward Linkage (nTBL > 1)	Processing of fish	0.68	1.48	Water transport	1.22	1.23
	Manufacture of other food products	0.68	1.16			
	Manufacture of beverages	0.68	1.01			
	Manufacture of textiles	0.68	1.10			
	Manufacture of wood products	0.68	1.13	Air transport	1.17	1.07
	Wholesale and retail trade of motor vehicles	0.71	1.18			
	Resorts	0.70	1.17			
	Food and beverage	0.72	1.33	Professional activities	1.55	1.05
	Programming, broadcasting, ICT	0.68	1.00			
Weak Normalized Total Backward Linkage (nTBL < 1)	Generally independent	nTFL	nTBL	Generally dependent on interindustry demand	nTFL	nTBL
	Manufacture of non-metals	0.68	0.98	Other manufacturing products	1.32	0.85
	Land transport	0.68	0.98			
	Warehousing	0.68	0.97	Real estate activities	1.21	0.96
	Other accommodation services	0.69	0.91			
	Education	0.68	0.91	Administrative and support service	1.15	0.90
	Human health and social work	0.68	0.89			
				Arts, entertainment and recreation	1.15	0.92

Net forward and backward linkages

The net linkage measure was proposed to avoid overestimating impact when the standard input-output models are incorrectly multiplied with impact variables (e.g., total sectoral output, value-added, or employment) (Dietzenbacher, 2005). The net forward and backward linkages convert the standard linkage to be used in conjunction with total outputs. Additionally, these consider the two-sided relationship between sector i and the rest of the economy. In contrast, the previous linkage measures only look at the dependency of sector i on the rest of the economy.

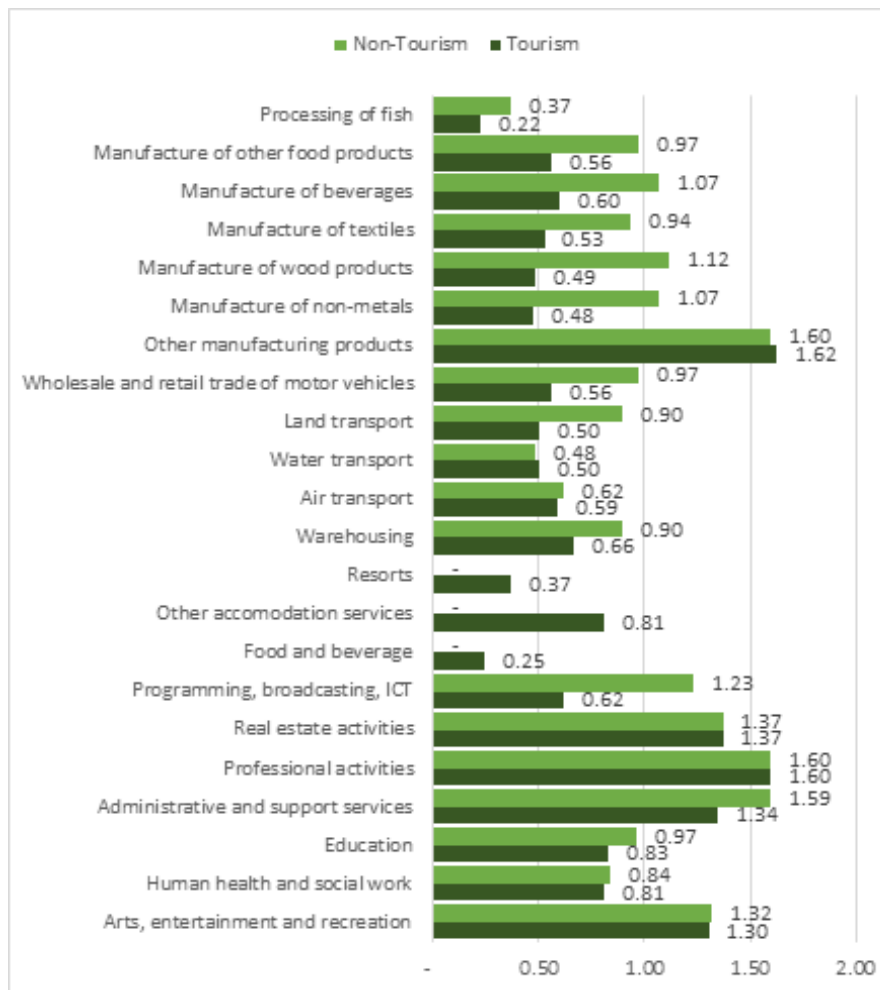
Net forward linkage of the tourism sector

The net forward linkages are the row sums of the product of the Ghosh inverse pre-multiplied by the diagonalized matrix of value-added coefficients. The forward dependence of sector i on all industries is divided by the forward dependence of all industries on sector i . An index of more than one (1) implies that the forward impact of sector i to the whole economy is larger than the forward impact of the whole economy on sector i .

The net forward linkages of the tourism components are lower in all tourism industries except five (5), with the three (3) including the industries assigned 100% of their output to their tourism components, and the two (2) being Other manufacturing products and Water transport.

Other manufacturing products, Real estate activities, Professional activities, Administrative and support services, and Arts, entertainment, and recreation are the only industries where the net forward linkage of the tourism component is more than 1. Thus, these industries have higher importance as a supplier of outputs to the rest of the economy than the economy is to these industries (Figure 21).

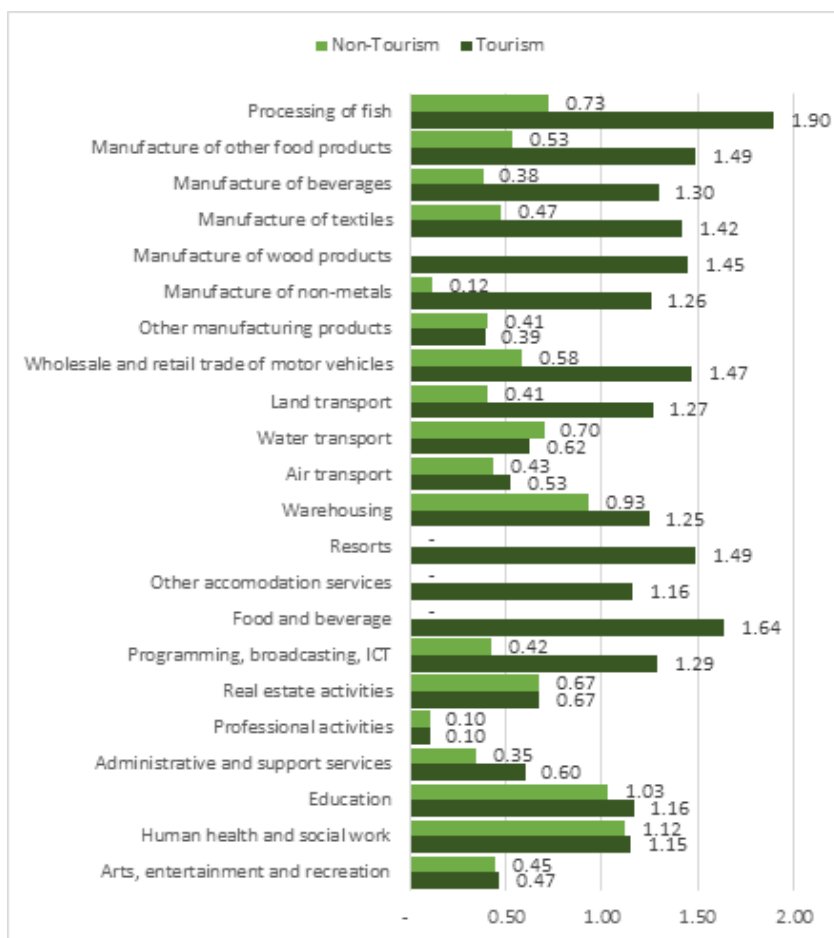
Figure 21:
Net forward linkages of tourism and non-tourism components, 2017



Net backward linkage of the tourism sector

The net backward linkages are the column sums of the product of the Leontief inverse post-multiplied by the diagonalized matrix of final demand to gross output shares. In other words, it is the output generated in all industries by the final demand in sector i divided by the output generated in sector i by all final demands. A net backward linkage of more than one (1) implies that the economy-wide output generated by the final demand in sector i is larger than the amount of sector i's output generated by the final demand of all other industries. This implies that sector i is more dependent on other industries than the other industries are on sector i.

Figure 22:
Net backward linkages of tourism and non-tourism components, 2017

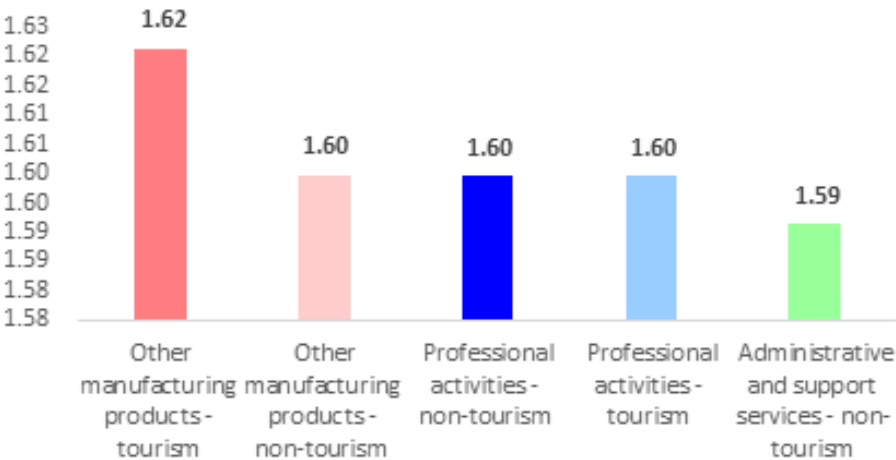


The net backward linkages of the tourism components are higher than non-tourism components in all industries except in **Other manufacturing products and Water transport**. Moreover, the net backward linkages are more than one (1) in most tourism components, suggesting that these industries are more important to the economy as a demander of inputs than the other industries are for the identified tourism sub-sectors (Figure 22).

Net forward and backward linkages of all industries in the Maldives

Ranking all sixty-two (62) sectors, including the decomposed sectors, we obtain the top five (5) industries in terms of net linkages.

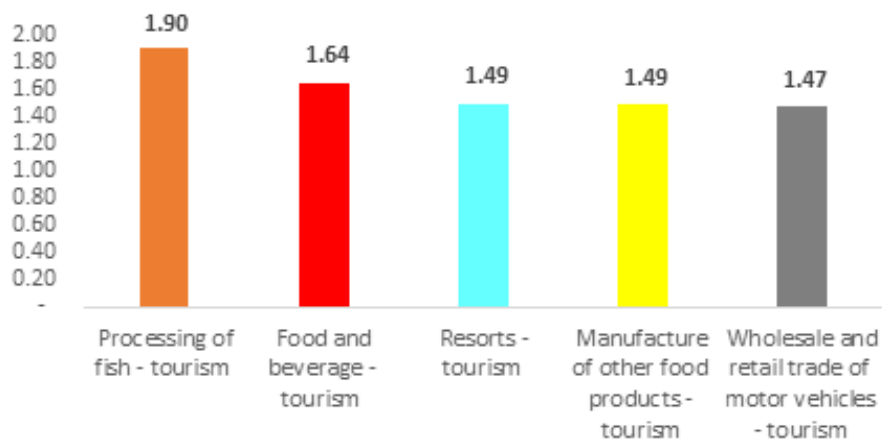
Figure 23:
Net forward linkages of the top 5 industries of Maldives, 2017



The tourism component of **Other manufacturing products** leads with a net forward linkage of 1.62; it shows an index above 1 (Figure 23). This finding suggests that this component’s forward impact on the whole economy is the largest among all sectors, and is larger than the forward impact of the economy to this sector. Its non-tourism component and both components of **Professional activities** follow closely.

The absence of sectors with high direct and total forward linkages observed in Figures 7 and 8 (Manufacture of wood, Printing, Manufacture of other non-metals, and Fishing) indicates that the economy’s forward impact to those sectors may be substantial. **Professional activities** are the only sector with high direct, total, and net forward linkage.

Figure 24:
Net backward linkages of the top 5 industries of Maldives, 2017



Tourism sectors occupy the five (5) sectors with the highest net backward linkage. The tourism component of **the Processing of fish** has the greatest linkage, which means that it has the largest backward dependence among all sectors. Additionally, the economy-wide output generated by final demand for this sector is almost twice as large as the output is generated due to final demand in all other sectors. **Food and beverage** come in second, with the other three (3) sectors have very close linkage values.

Processing of fish, Manufacturing of other food products, and Wholesale and retail trade of motor vehicles remain sectors with high direct, total, and net backward linkage.

The summary of all sixty-two sectors’ linkages can be found in the worksheet guide.

12

Value-Added Contribution of Tourism

The VBY Matrix

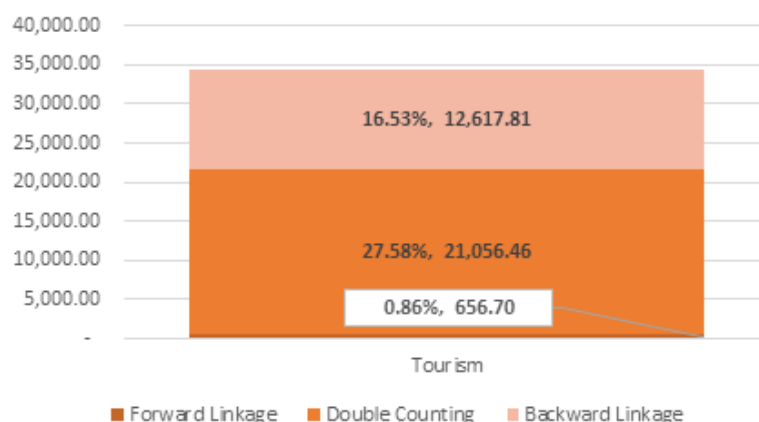
The **VBY matrix** is computed by pre-multiplying the diagonalized matrix of **value-added coefficient (V matrix)** to the **Leontief inverse (B inverse; different from the B matrix introduced earlier)** and post-multiplying the diagonalized matrix of **final demand (Y matrix)**. The sum of the entire VBY matrix yields the total value-added in the economy.

Row-wise, the VBY matrix shows the value-added contribution of industries linked to tourism to the economy. It traces the forward linkages across downstream industries from the tourism sector's perspective. Including value-added supplied by tourism to downstream industries and taking all tourism sub-sectors as one sector ("tourism industry"), the total forward contribution of the tourism industry to GDP is 28.44% (Figure 25).

Column-wise, the VBY matrix provides the upstream sectors' value-added contributions to the final goods produced by tourism. It traces the backward linkages across upstream industries from the tourism sector's perspective. This amount is also equal to the value of tourism demand in the economy. Backward linkage, in this case, including value-added supplied by upstream tourism sectors to the identified tourism sectors, is 44.11% of GDP (Figure 25).

Tourism GDP refers to the sum of forward linkage and backward linkage of the identified tourism sectors, less the double-counted term. The value-added attributed to and generated by tourism itself is the double-counted term, 27.58%. The computed Tourism GDP for the Maldives is MVR 34.33 billion or 44.97% of total GDP (Figure 25).

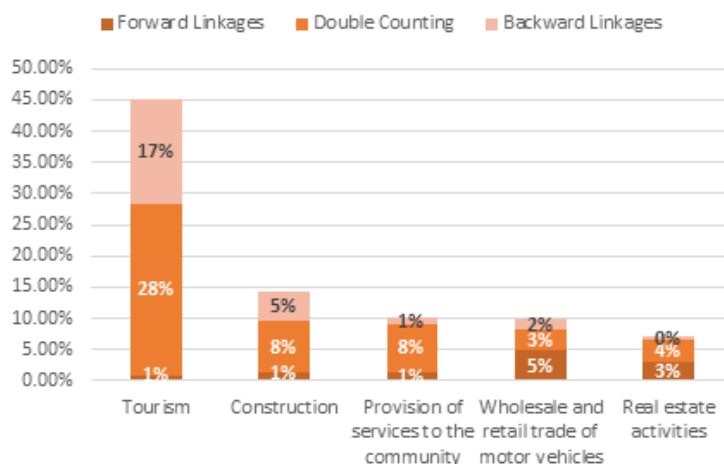
Figure 25:
Tourism GDP produced by forward and backward linkages, 2017



Forward and backward value-added contributions to the economy

We obtained the five (5) sectors with the highest forward and backward contributions to the economy. Interestingly, the same sectors appear and rank in the top 5. **Tourism** leads substantially and is followed by **Construction** and **Provision of services to the community** as a whole (Figure 26).

Figure 26:
Top 5 industries with the highest upstream and downstream value-added contribution, 2017

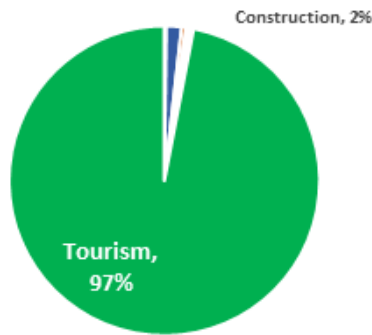


Noticeably, these sectors, except for Wholesale and retail trade of motor vehicles, lead with considerable high double counting, or value-added attributed to and generated by these sectors. **Tourism** and **Construction** exhibit substantial backward dependence and low forward contribution. This is expected, especially for tourism, as its value-added sales will flow either to final consumption or to other tourism sub-sectors.

Share of tourism value-added in other sectors

Further, we can dissect the value-added contribution of tourism to its downstream sectors by taking the share of each sector’s value-added in tourism’s forward linkage.

Figure 27:
Share of tourism value-added in other sectors, 2017

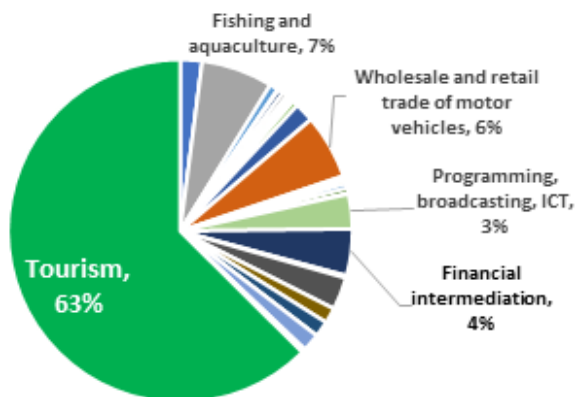


Almost all value-added generated by tourism is also sold to its subsectors. Very little goes to the other sectors, with **Construction** getting the highest share at 2% (Figure 27).

Share of value-added in tourism

Finally, we can obtain the share of each sector's value-added in tourism by taking each sector's value-added in tourism's backward linkage.

Figure 28:
Share of value-added in tourism, 2017



More than half of the value-added flowing into tourism comes from upstream tourism subsectors. The remaining 47% are spread out among the other sectors, with Fishing and aquaculture leading at 7% and Wholesale and retail trade of motor vehicles following at 6%.

Figures 27 and 28 further reveal that Maldives' tourism sector is more dependent on inputs from its upstream suppliers and contributes very little in stimulating downstream sectors.

13

Conclusion

In sum, the Input-Output framework provides a preview of the tourism sector's importance in the economy in terms of its interindustry linkages and contribution. Most tourism sub-sectors in the Maldives show higher dependence on interindustry supply as compared to interindustry demand. Looking at the two-sided dependence of sectors through net linkages, we observed that stimulating demand for tourism sectors may generate larger economy-wide output relative to other non-tourism sectors. Finally, we saw that the tourism sector's contribution to Maldives' GDP is significant, at 44.97%, including direct and indirect effects to all sectors. Of this percentage, the interdependencies within tourism sectors, as reflected by double counting, takes the majority. This clarifies tourism's importance as a demander of inputs from tourism- and non-tourism-related industries, over as a supplier of value-added to its buyers.

Annex: Core Tourism Satellite Account (TSA) Tables

TSA Table 1. Inbound tourism expenditure by product and categories of visitors in Maldives, 2017, MVR million

Table 1. Inbound tourism expenditure consumption, by product and categories of visitors in Maldives, 2017 (in million MVR)			
	Products	Tourists (overnight visitors)	Excursionists (same-day visitors)
A	Products	55,375	-
A.1.	Tourism characteristic products, Total	51,527	-
A.1.01.	Accommodation services	41,920	-
A.1.02.	Food & beverage serving services	2,596	-
A.1.03 -A.1.06	Passenger transport services	4,540	-
A.1.07.	Transport equipment rental	-	-
A.1.08.	Travel agencies	774	-
A.1.09.	Cultural services	-	-
A.1.10.	Sport and recreational services	1,697	-
A.2.	Other consumption products, Total	3,848	-
A.2.1	Tourism connected products	3,626	-
A.2.1.1	Goods	2,549	-
A.2.1.2	Services	1,077	-
A.2.2	Non-tourism related consumption products	222	-
A.2.2.1	Goods	-	-
A.2.2.2	Services	222	-
B.1.	Valuables	73	-
	Total	55,448	-
			55,448

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TSA Table 2. Domestic tourism expenditure by product and categories of visitors in Maldives, 2017, MVR million

TABLE 2. Domestic tourism expenditure consumption, by product and categories of visitors in Maldives, 2017 (in million MVR)		Domestic trips		
		Tourists	Excursionists (Same day visitors)	Visitors, total
A	Products	149	-	149
A.1.	Tourism characteristic products, Total	103	-	103
A.1.01.	Accommodation services	15.1	-	15
A.1.02.	Food & beverage serving services	19	-	19
	Passenger transport services	64	-	64
A.1.03.	Road passenger transportation	5	-	5
A.1.04.	Water passenger transportation	23	-	23
A.1.05.	Air passenger transportation	36	-	36
A.1.07.	Transport equipment rental	-	-	-
A.1.08.	Travel agencies	-	-	-
A.1.09.	Cultural services	-	-	-
A.1.10.	Sport and recreational services	5	-	5
A.2.	Other consumption products, Total	46	-	46
A.2.1	Tourism connected products	46	-	46
A.2.1.1	Goods	37	-	37
A.2.1.2	Services	8	-	8
A.2.2	Non tourism related consumption products	-	-	-
A.2.2.1	Goods	-	-	-
A.2.2.2	Services	-	-	-
B.1.	Valuables	-	-	-

NOTE: There are no same day visitors (excursionists) in the observations

Non-residents (represented by max number of years of residence < 1) are not included in the computation.

TSA Table 3. Outbound tourism expenditure by product and categories of visitors in Maldives, 2017, MVR million

TABLE 3.Outbound tourism expenditure consumption, by product and categories of visitors in Maldives, 2017 (in million MVR)		Tourists	Pilgrim tourists	Excursionists (same-day visitors)	Visitors, total
A	Products	1,050	202	-	1,252
A.1.	Tourism characteristic products, Total	773	202	-	975
A.1.01.	Accommodation services	135	96	-	231
A.1.02.	Food & beverage serving services	125	5	-	130
A.1.03.	Passenger transport services	457	75	-	532
A.1.04.	Road passenger transportation	59	26	-	85
A.1.05.	Water passenger transportation	34	-	-	34
A.1.07.	Air passenger transportation	364	49	-	413
A.1.08.	Transport equipment rental	-	-	-	-
A.1.09.	Travel agencies	-	24	-	24
A.1.10.	Cultural services	-	1	-	1
A.2.	Sport and recreational services	56	-	-	56
A.2.1	Other consumption products, Total	277	-	-	277
A.2.1.1	Tourism connected products	277	-	-	277
A.2.1.2	Goods	219	-	-	219
A.2.2	Services	58	3	-	62
A.2.2.1	Non tourism related consumption products	-	-	-	-
A.2.2.2	Goods	-	6	-	6
B.1.	Services	-	1	-	1
	Valuables	-	4	-	4
	Total	1,050	206	-	1,256

TSA Table 4. Internal tourism expenditure consumption, by product in Maldives 2017, MVR million

TABLE 4. Internal tourism expenditure consumption, by products in Maldives, 2017 (in million MVR)		Inbound tourism expenditure	Domestic tourism expenditure	Services associated with vacation accommodation on own account	Tourism social transfers (non-market) in kind	Other imputed consumption	Other components of tourism consumption	Internal tourism expenditure
A	Products	55,375	149	-	-	-	-	55,524
A.1.	Tourism characteristic products, Total	51,527	103	-	-	-	-	51,630
A.1.01.	Accommodation services	41,920	15	-	-	-	-	41,935
A.1.02.	Food & beverage serving services	2,596	19	-	-	-	-	2,615
	Passenger transport services	4,540	64	-	-	-	-	4,605
A.1.03.	Road passenger transportation	28	5	-	-	-	-	33
A.1.04.	Water passenger transportation	1,120	23	-	-	-	-	1,142
A.1.05.	Air passenger transportation	3,393	36	-	-	-	-	3,429
A.1.07.	Transport equipment rental	-	-	-	-	-	-	-
A.1.08.	Travel agencies	774	-	-	-	-	-	774
A.1.09.	Cultural services	-	-	-	-	-	-	-
A.1.10.	Sport and recreational services	1,697	5	-	-	-	-	1,702
A.2.	Other consumption products, Total	3,848	46	-	-	-	-	3,893
A.2.1	Tourism connected products	3,626	46	-	-	-	-	3,672
A.2.1.1	Goods	2,549	37	-	-	-	-	2,586
A.2.1.2	Services	1,077	8	-	-	-	-	1,085
A.2.2	Non tourism related consumption products	222	-	-	-	-	-	222
A.2.2.1	Goods	-	-	-	-	-	-	-
A.2.2.2	Services	222	-	-	-	-	-	222
B.1.	Valuables	73	-	-	-	-	-	73
	Total	55,448	149	-	-	-	-	55,597

TSA Table 5. Production accounts of tourism industries and other industries in Maldives, 2017, MVR million

TABLE 5. Production accounts of tourism industries and other industries in Maldives, 2017 (at basic prices) current prices , Maldives, 2017												
	Tourism industries											Total Domestic Output
	Resorts	Other accommodation service	Food and beverage service activities	Land transport	Water transport	Air transport	Warehousing and support activities for transportation	Administrative and support service activities	Arts, entertainment and recreation & Other service activities	Total tourism industries	Other industries	
A. Tourism characteristic products	38,990	2,189	2,451	559	756	4,353	1,457	1,938	1,697	54,391	5,172	59,563
Accommodation, food and beverage services	38,990	2,189	2,401	-	71	-	-	-	-	43,650	-	43,650
Passenger transport services	-	-	-	559	344	4,306	-	-	-	5,209	304	5,513
Supporting transport services	-	-	44	-	-	48	1,448	3	-	1,543	202	1,745
Travel agency, tour operator, reservation service and related activities	-	-	-	-	341	-	9	-	0	350	10	360
Recreation services	-	-	6	-	-	-	0	1,936	1,697	3,639	4,657	8,296
Other consumption and non-consumption products	744	-	164	-	2,043	9	143	309	0	3,413	78,097	81,510
I. Total Output (at basic prices)	39,734	2,189	2,615	559	2,799	4,362	1,601	2,247	1,697	57,804	83,270	141,073
II. Total Intermediate consumption	26,980	443	2,108	288	1,876	2,556	566	462	257	35,537	42,898	78,436
(I-II) Total Gross Value Added (at basic prices)	12,754	1,746	507	271	923	1,806	1,035	1,785	1,440	22,266	40,371	62,638

TSA Table 6. Inbound tourism expenditure by visitors in Maldives, 2017, MVR million

TABLE 6. Domestic supply and internal tourism consumption, by products in Maldives, 2017 (in million MVR)	Tourism Industries								Output of domestic producers (at BP)	Imports	Taxes less subsidies on products	Domestic supply (at PP)	Internal tourism consumption	Tourism ratios (%)
	Resorts	Other accommodation services	Food and beverage service activities	Land transport and transport via pipelines	Water transport	Air transport	Warehousing and support activities	Administrative and support service activities	Arts, entertainment and recreation Other service activities	Other industries				
Tourism characteristic products	38,990	2,189	2,451	559	756	4,353	1,457	1,938	1,697	5,172	59,563	3,984	5,264	71
Accommodation, food and beverage services	38,990	2,189	2,401	-	71	-	-	-	-	-	43,650	2,184	4,413	83
Passenger transport services	-	-	-	559	344	4,306	-	-	-	304	5,513	948	450	67
Supporting transport services	-	-	44	-	-	48	1,448	3	-	202	1,745	66	51	-
Travel agency, tour operator, reservation service and related activities	-	-	-	-	341	-	9	-	0	10	360	708	209	61
Recreation services	-	-	6	-	-	-	0	1,936	1,697	4,657	8,296	79	142	20
Other consumption	744	-	164	-	2,043	9	143	309	0	78,097	81,510	48,062	5,245	3
and non-consumption products	39,734	2,189	2,615	559	2,799	4,362	1,601	2,247	1,697	83,270	141,073	52,046	10,510	26
I. Total Output														
II. Total Intermediate consumption	26,803	448	2,066	288	2,098	2,984	566	474	409	39,105	75,242			
(I-II) Total Gross Value Added	12,754	1,741	549	271	402	1,378	1,035	1,773	1,288	44,165	65,355			

TSA Table 7: Employment in Tourism Industries, using 2014 Census data

ISIC	Sector	Employees			Employers			Independent/family/group worker			Total Female	Total Male	Grand Total
		Female	Male	Total	Female	Male	Total	Female	Male	Total			
55	Accommodation	3,058	29,090	32,148	19	596	615	224	1,705	1,929	3,301	31,391	34,692
551	Short term accommodation activities	3,051	29,061	32,112	18	596	614	220	1,699	1,919	3,289	31,356	34,645
552	Camping grounds, recreational vehicle parks and trailer parks	6	21	27	-	-	-	-	4	4	6	25	31
559	Other accommodation	1	8	9	1	-	1	4	2	6	6	10	16
56	Food and beverage service activities	482	5,143	5,625	33	266	299	371	341	712	886	5,750	6,636
561	Restaurants and mobile food service	442	4,735	5,177	26	255	281	266	313	579	734	5,303	6,037
562	Event catering and other food service	40	406	446	7	11	18	102	27	129	149	444	593
563	Beverage serving activities	-	2	2	-	-	-	3	1	4	3	3	6
501	Sea and coastal water transport *	93	3,341	3,434	1	206	207	25	627	652	119	4,174	4,293
511	Passenger air transport	507	1,769	2,276	2	10	12	11	33	44	520	1,812	2,332
522	Support activities for transportation	622	3,248	3,870	3	47	50	19	173	192	644	3,468	4,112
791	Travel agency and tour operator activities	284	479	763	11	92	103	13	75	88	308	646	954
799	Other reservation service and related activities	25	23	48	1	-	1	2	3	5	28	26	54
900	Creative, arts and entertainment activities	22	49	71	3	18	21	42	184	226	67	251	318
910	Libraries, archives, museums and other cultural activities	24	12	36	-	-	-	-	-	-	24	12	36
931	Sports activities	81	277	358	7	22	29	15	87	102	103	386	489
932	Other amusement and recreation activities	12	83	95	-	10	10	2	33	35	14	126	140
Tourism industries Total		5,210	43,514	48,724	103	1,267	1,370	724	3,261	3,985	6,037	48,042	54,079
Other industries		31,189	70,342	101,531	648	3,645	4,293	21,637	24,030	45,667	53,474	98,017	151,491
Grand Total		36,399	113,856	150,255	751	4,912	5,663	22,361	27,291	49,652	59,511	146,059	205,570
Tourism share		14%	38%	32%	14%	26%	24%	3%	12%	8%	10%	33%	26%

* will include non-tourism related work, eg. general freight services

Annex: Tourism IO Indicators

Top 5 Industries with the highest forward linkage	Direct Forward Linkages
Manufacture of wood products - non-tourism	1.01
Printing	0.97
Professional activities - non-tourism	0.93
Professional activities - tourism	0.93
Manufacture of non-metals - non-tourism	0.90
Top 5 Industries with the highest forward linkage	Total Forward Linkages
Manufacture of wood products - non-tourism	2.30
Professional activities - non-tourism	2.28
Professional activities - tourism	2.28
Printing	2.25
Manufacture of non-metals - non-tourism	2.23
Top 5 Industries with the highest forward linkage	Complete Forward Linkages
Professional activities - tourism	2.28
Professional activities - non-tourism	2.27
Manufacture of wood products - non-tourism	2.20
Printing	2.15
Manufacture of non-metals - non-tourism	2.07
Top 5 Industries with the highest forward linkage	Partial Forward Linkages
Professional activities - tourism	1.28
Professional activities - non-tourism	1.27
Manufacture of wood products - non-tourism	1.24
Printing	1.19
Manufacture of non-metals - non-tourism	1.14
Top 5 Industries with the highest forward linkage	Net Forward Linkages
Other manufacturing products - tourism	1.62
Other manufacturing products - non-tourism	1.60
Professional activities - non-tourism	1.60
Professional activities - tourism	1.60
Administrative and support services - non-tourism	1.59

VBV Matrix

Tourism Linkages	Tourism Value-Added	Tourism VA % of GDP	Tourism Value-Added less Double Counting	Tourism VA (less DC) % of GDP
Forward Linkage	21,713.15	28.44%	656.70	0.86%
Backward Linkage	33,674.26	44.11%	12,617.81	16.53%
Double Counting	21,056.46	27.58%	21,056.46	27.58%
Tourism GVA	34,330.96	44.97% 	34,330.96	44.97%
Total GDP	76,340.76			

Top 5 Industries with the highest downstream and upstream VA contribution	Forward Linkage	% of GDP	Backward Linkage	% of GDP	Double Counting	% of GDP
1 Tourism	656.70	0.86%	12,617.81	16.53%	21,056.46	27.58%
2 Construction	991.76	1.30%	3,636.66	4.76%	6,320.27	8.28%
3 Provision of services to the community	1,130.74	1.48%	762.91	1.00%	5,809.82	7.61%
4 Wholesale and retail trade of motor vehicles	3,780.18	4.95%	1,348.57	1.77%	2,506.23	3.28%
5 Real estate activities	2,296.59	3.01%	338.43	0.44%	2,793.57	3.66%

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