

Seminar Component

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Title of Paper

Review on Tourism Direct Gross Domestic Product (TDGDP) Light – An Indicator for Measuring the Sustainability of Tourism

Abstract

The World Tourism Organization (UNWTO) has launched the initiative towards a Statistical Framework for Measuring the Sustainability of Tourism (SF-MST) with the aim to develop an international statistical approach to measure tourism's role in sustainable development, including economic, environmental and social dimensions as well as to support the UN Sustainable Development Goals (SDGs) related to the sustainability of tourism. The SF-MST will link the Tourism Satellite Account (TSA) with System of Environmental Economic Accounting (SEEA) and other social economic indicators. In terms of TSA, Tourism Direct Gross Domestic Product (TDGDP) has been identified as one of the main indicators to gauge the economic dimension of SF-MST. Thus, UNWTO proposed TDGDP Light in order to fulfill the data gap to the countries which do not compile TSA and especially TDGDP in a conventional method. The objective of this article is to study the comparison in terms of value differences between TDGDP compiled by Department of Statistics, Malaysia (DOSM) with a new method of compiling TDGDP Light proposed by UNWTO consultant. The paired t-test has been used in this study to analyse the mean difference of two data series (TDGVA Published against TDGDP Light) for the period of 2010 to 2017. The finding of this

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study revealed that there are significant differences between TDGVA Published and TDGDP Light for tourism industries. Thus, it is recommended to improvise the derivation due to the huge data gap among TDGDP Light and TDGVA Published.

Keywords: Tourism, Tourism Satellite Account, Tourism Direct Gross Domestic Product, Tourism Direct Gross Value Added, Tourism Direct Gross Domestic Product Light, Statistical Framework for Measuring the Sustainability of Tourism, Sustainable Development Goals, Gross Domestic Product

I. Contents

I. Contents	4
II. Introduction	5
III. Methodology	6
A. The Compilation of Tourism Direct Gross Value Added (TDGVA) and Tourism Direct Gross Domestic Product (TDGDP) in TSA Malaysia	6
B. The Calculation of TDGDP Light.....	7
C. Hypotheses	7
IV. Limitation of the Study.....	8
V. Findings	8
A. TDGVA Published and TDGDP Light by Tourism Industries	8
B. T-Test Analysis	10
VI. Discussion	12
VII. Conclusion	12
VIII. Acknowledgement.....	13
IX. References	13

II. Introduction

Tourism is a leading industry in the services sector at the global level. This sector has been known as one of the main players in international commerce as well as one of the major income sources for numerous developing countries (UNWTO, 2010). The tourism industry is an emerging industry in Malaysia and contributed 14.9 per cent to Gross Domestic Product (GDP) in 2017. Since 1990s, a sustainable tourism has been a warm topic of discussion among tourism circles. The Statistical Framework for Measuring the Sustainability of Tourism (SF-MST) is a critical next step in supporting universal, cross-sectorial, sustainable tourism policies and practices that work from an integrated, coherent and robust information base. With the support of the United Nations Statistics Division (UNSD), UNWTO has launched the SF-MST. The aim is to develop an international statistical framework for measuring tourism's role in sustainable development, including economic, environmental and social dimensions. The SF-MST will link the UN standards of the TSA with the System of Environmental Economic Accounting (SEEA). The goal of SF-MST is to support the UN Sustainable Development Goals (SDGs) and particularly those SDGs related to the sustainability of tourism.

The SDGs are central to the United Nations 2030 Agenda for Sustainable Development. The SDGs consist of 17 global goals and 169 associated targets. Tourism has the potential to contribute directly to the three SDGs, which are Decent Work and Economic Growth (SDG 8), Responsible Consumption and Production (SDG 12) and Life Below Water (SDG 14). Each goal has its own target where by Target 8.9 to devise and implement policies to promote the sustainability of tourism that create jobs and promote local culture and products by 2030. Secondly, Target 12.b is to develop and implement tools to monitor sustainable development impacts for sustainable that create jobs and promote local culture and products. Thirdly, Target 14.7 is to increase the economic benefits to Small Island Developing States (SIDS) and Least Developed Countries (LDCs) from the sustainable use of marine resources, including through sustainable management of fisheries, aquaculture and tourism by 2030.

Since there are currently no measurement framework that allows the derivation of a single indicator to measure the progress across these three dimensions and hence progress towards the sustainability of tourism must be measured using a combination of indicators. As part of the process of developing indicators for monitoring progress towards the tourism related SDGs, one of the key indicators that have been established for the

sustainability of tourism is the Tourism Direct Gross Domestic Product (TDGDP) which used to measure the progress on the economic dimension. Thus, during The Eighteenth Meeting of the Committee on Statistics and the Tourism Satellite Account held on February 2018 in Spain, UNWTO Consultant has proposed TDGDP Light in order to measure the sustainability of tourism as a tool to fulfill data gap to the countries which do not compile TSA and especially TDGDP in a conventional method. Therefore, this article is to analyse the comparison in terms of value differences between TDGDP compiled by Department of Statistics Malaysia (DOSM) using Supply and Use Table (SUT) structure based on conventional method with TDGDP Light proposed by UNWTO.

III. Methodology

A. The Compilation of Tourism Direct Gross Value Added (TDGVA) and Tourism Direct Gross Domestic Product (TDGDP) in TSA Malaysia

This paragraph will describe the conventional method used by Malaysia in compilation of TSA to derive TDGVA and TDGDP. TDGVA is the part of gross value added generated by tourism industry and other industries of the economy that directly serve visitors in response to internal tourism consumption. To calculate TDGVA we need to identify output of tourism and other industry that precisely produce tourism products only. Tourism demand which is the combination of international demand and domestic demand used as a proxy of the tourism output for the particular industry in order to derive TDGVA.

TDGDP is the sum of the parts of gross value added (at basic prices) generated by all industries in response to internal consumption. The amount of net taxes on products and imports are included within the value of this expenditure at purchaser's prices. Import duties are derived based on structure of tourism product in SUT and calculated by proportioning tourism products to total products and incorporate with the import duty of GDP.

B. The Calculation of TDGDP Light

This method was proposed by UNWTO Consultant on calculating TDGDP Light as a key indicator of tourism for sustainable development. According to UNWTO, the main components in deriving TDGDP Light are as follows; estimating the total value of internal tourism consumption expenditure; determining which industries are the producers of different goods and services consumed and attributing value added ratio for those industries. In addition, he proposed four steps that used towards derivation of TDGDP Light.

First step comprises the estimation of total internal tourism consumption. This method should be focused on measuring the total consumption rather than information on a product by product basis. In the second step, the total internal tourism consumption is allocated to different tourism industries that are considered the primary source of production. There are two main sources of information to support this allocation, the product composition of internal tourism consumption (obtained from step 1) and the structure of the demand and supply of products. Thirdly, the value added ratios are estimated at the same level of industry detail as used for the allocation of internal tourism consumption.

The simplified formula to obtain value added ratios and TDGDP Light as follows:

$$\text{Value Added Ratio} = \frac{\text{Gross Value Added (GVA)}}{\text{Total Output (Industry)}} \quad (1)$$

$$\text{TDGDP Light} = \text{Value Added Ratio} \times \text{Total Output (Tourism)} \quad (2)$$

Where, the equation (2) is attained by multiply Value Added Ratios with the Total Output of Tourism.

The last step is the value added ratios are applied to the allocations to industry from the total tourism internal consumption and then summed across all industries to provide an estimate of TDGDP Light.

C. Hypotheses

The purpose of this article is to study the value difference between TDGVA Published and TDGDP Light for the seven tourism industries. This study adopts time series data for the period of 2010 to 2017.

Paired t-test was used to test the significant difference between TDGVA published and TDGDP Light. The paired t-test was conducted to test the hypothesis for all industrial sectors in tourism. The alternative hypotheses for the study are as follows;

H_0 = There is no significant difference between TDGVA Published and TDGDP Light mean scores by tourism industries

H_1 = There is significant difference between TDGVA Published and TDGDP Light mean scores by tourism industries

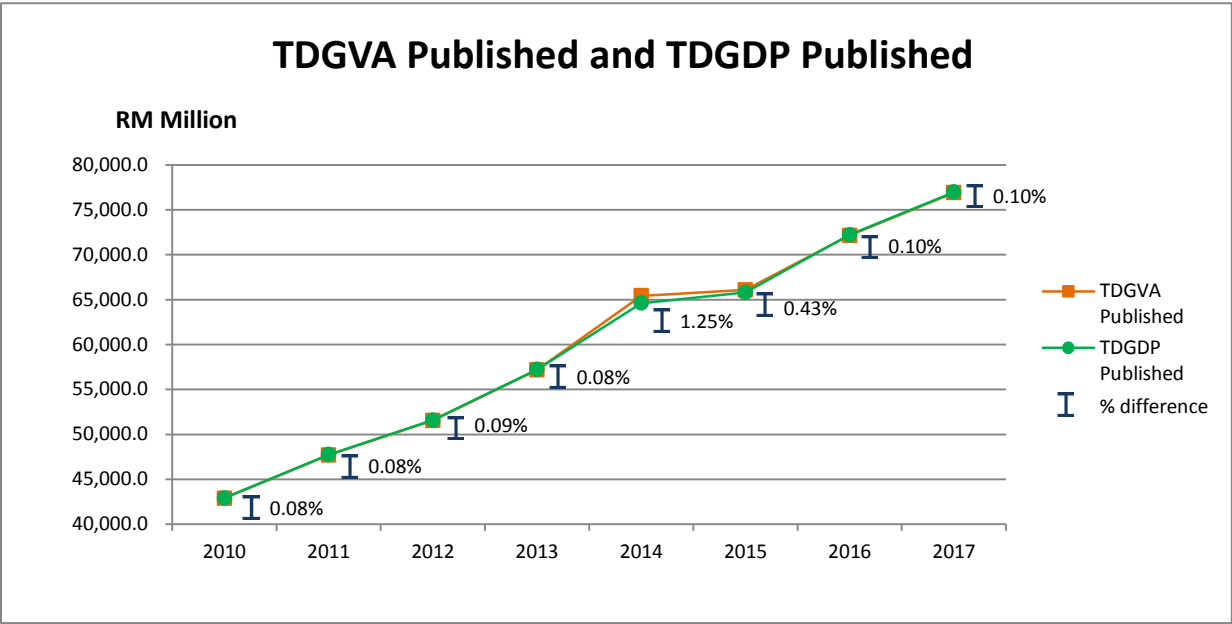
IV. Limitation of the Study

There were few limitations that have been encountered while preparing this article. In this study, TDGDP Light was compared as against TDGVA which was published in TSA Malaysia. TDGDP was incorporated with the value of import duty which compiled at the aggregated level and unable to segregate by tourism industries. Further to this, TDGVA was the alternate and closest indicator to TDGDP, as a proxy to compare with TDGDP Light. TDGDP differ from TDGVA with a minimum value within the range less than 2.0 per cent for the past eight years. Besides, the documentation on the compilation of TDGDP Light proposed is insufficient on the calculation for non-tourism industries that produce tourism products. Hence, this study only focuses on tourism industries that produce tourism products.

V. Findings

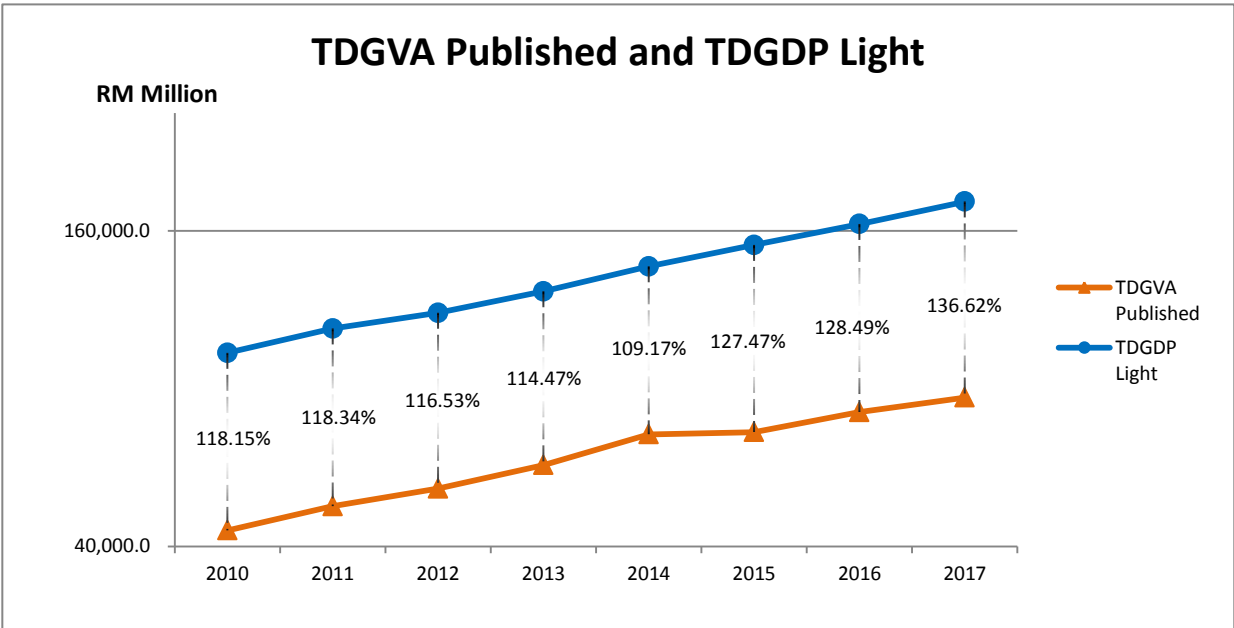
A. TDGVA Published and TDGDP Light by Tourism Industries

Graph 1 shows the percentage different between TDGVA Published and TDGDP Published. The maximum value is registered in 2014 with a percentage of 1.25% and the lowest percentage, 0.08% is recorded in 2010, 2011 and 2013 respectively. Hence, it proved that TDGVA Published is suitable to use as a proxy to TDGDP as per discussed in this article.



Graph 1: TDGVA Published and TDGDP Published, 2010 – 2017

Graph 2 shows the percentage different between TDGVA Published and TDGDP Light. It can be observed that, for the past of eight years, the gap of the percentage different is ranged between 110% - 140% and the highest was verified in 2017 (136.62%) while in 2014 (109.17%) is the lowest.



Graph 2: TDGVA Published and TDGDP Light, 2010 – 2017

B. T-Test Analysis

The paired t-test is utilised to analyse the mean difference of the two data series, TDGVA Published and TDGDP Light. Table 1 depicts the paired samples statistics for seven tourism industries of TDGVA Published and TDGDP Light. For the TDGVA Published, the lowest mean value 793,100.30 is found in travel agencies and other reservation services. On the other hand, retail trade (shopping) indicated the highest mean value of 25,190,861.54. Whereas for TDGDP Light, the travel agencies and other reservation services still recorded the lowest mean value of 1,592,870.47. The highest mean value is found in retail trade (shopping) with a mean value of 62,159,186.18.

Table 1: The Paired Samples Statistics of Tourism Sectors

Variables	TDGVA Published		TDGDP Light	
	Mean	Standard Deviation	Mean	Standard Deviation
Accommodation services	14,650,966.43	2,193,990.51	16,321,273.50	2,941,336.04
Food and beverage serving services	7,462,490.33	1,187,355.53	21,335,749.06	5,333,976.97
Passenger transport services	3,341,734.99	719,922.90	6,458,323.62	896,666.74
Travel agencies and other reservation services	793,100.29	237,794.82	1,592,870.47	332,324.55
Cultural, sports and recreational services	1,085,736.36	329,235.84	7,320,365.66	1,058,520.69
Retail trade (shopping)	25,190,861.54	6,626,953.86	62,159,186.18	17,115,573.06
Country-specific tourism characteristic services	3,608,042.56	754,574.26	18,053,810.62	3,311,268.83

Table 2 shows the results of paired samples t-test for tourism industries. At 5% significance level, all null hypotheses are rejected which can be summarised that there are statistically significant difference between mean values of TDGVA Published and TDGDP Light. The mean difference value for accommodation services, food and beverage serving services, passenger transport services, travel agencies and other reservation services, cultural, sports and recreational services, retail trade (shopping) and country-specific tourism characteristic services are

-1,670,307.07, -13,873,258.7, -3,116,588.64, -799,770.1766, -6,234,629.30, -36,968,324.6 and -14,445,768.1 respectively. Overall, it can be concluded that the mean values between TDGVA Published and TDGDP Light have significant difference for all seven tourism industries.

Table 2: Results of Paired Samples T-Test

Paired sample (Published-Light)	Paired Differences (%)		t	Sig. (2-tailed)
	Mean	Standard Deviation		
Accommodation services	-1,670,307.07	1,401,667.71	-3.37	.012
Food and beverage serving services	-13,873,258.73	4,176,774.62	-9.39	.000
Passenger transport services	-3,116,588.64	464,855.26	-18.96	.000
Travel agencies and other reservation services industry	-799,770.18	137,128.13	-16.49	.000
Cultural, sports and recreational services	-6,234,629.30	795,328.02	-22.17	.000
Retail trade (shopping)	-36,968,324.64	10,549,448.09	-9.91	.000
Country-specific tourism characteristic services	-14,445,768.06	2,582,949.20	-15.82	.000

Table 3 presents paired samples correlations between TDGVA Published and TDGDP Light. The value of significant obtained is less than 0.05. It proved that the correlations for all tourism industries are valid. The values of TDGVA Published and TDGDP Light for tourism industries are significantly correlated. This means that if the TDGVA Published increase, the TDGDP Light also will increase. Overall, it can be concluded that the TDGVA Published and TDGDP Light is significantly correlated with each other.

Table 3: Paired Samples Correlations between TDGVA Published and TDGDP Light

Paired sample (Published-Light)	Correlation	Sig.
Accommodation services	.891	.003
Food and beverage serving services	.980	.000
Passenger transport services	.857	.007
Travel agencies and other reservation services industry	.938	.001
Cultural, sports and recreational services	.856	.007
Retail trade (shopping)	.994	.000
Country-specific tourism characteristic services	.973	.000

VI. Discussion

In this section we will discuss on the causes of the differences in the results, as a guide to further development of the methodology for TDGDP Light or other alternatives which might achieve the same aims.

The main cause for the huge difference of the result is the usage of internal tourism consumption to derive TDGVA in the conventional method versus total output of tourism to calculate TDGDP Light.

In the compilation of TDGDP Light, it was recommended that output of tourism used as a proxy for internal tourism consumption. We suggest that certain ratio is need to be applied to the output of tourism prior to calculate the TDGDP Light to avoid huge data dispute between the conventional and Light methods.

VII. Conclusion

Based on the results of the hypotheses, it can be proved that there are significant differences between TDGVA Published and TDGDP Light for tourism industries. With regard to the results, there are number of advantages and disadvantages of implementation of the TDGDP Light as a proxy indicator for TDGDP derived as recommended by TSA: RMF 2008. The advantages are enabling all countries to generate TDGDP in order to support sustainable development agenda. The disadvantage is the implementation of TDGDP Light will cause huge gap as compared to the value of TDGVA

compiled through conventional method. Consequently, it will lead to data comparison issues among countries due to the different approach in generating TDGDP. Hence, TDGDP Light is seen as less suitable to be applied in the compilation of TSA unless any improvisation is made in the calculation method.

VIII. Acknowledgement

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