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The role of tourism sector to regional economic in the disruptive era, case Special Region of Yogyakarta

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Abstract. Tourism sector contribution for regional development is getting more acknowledgement. As a sector, starting from commodity's development phase, marketing, up to the enjoyment of its product by customers, its dynamic potentially has immediate influence to the forward and backward sector in the region. Its role might seem to be stronger in the disruptive era in which economic structural change is quickly occurs. In Indonesia, there are not any statistical data specific for tourism as there is for agriculture, industry, and trade or even education. Therefore, it is not easy to define the value of tourism sector contribution to the economy in a whole. This research aims to identify the flow of input and output of tourism sector that describes the role of this sector in driving the development of regional economy. Path analysis is used to identify the contribution lane from tourism sector toward other sectors. Through path analysis its is shown that generally tourism in Yogyakarta has driven the company services as its backward linkage and information and communication as its forward linkage. The analysis verifies that information and communication whose the biggest effect on forward linkage of other sectors.

1. Introduction

Tourism has multiplier effects that can have a significant effect on the development of a region [1]. Indonesia is among 20 fastest growing travel destination according to UNWTO, Indonesia registered 14.04 million foreign tourist in 2017, 22% increase from 2016 [2]. The problem is the amount of tourism contribution in the development of a region but in various literature and research has never been placed as a specific sector. The many changes in the disruptive era can disrupt the economic sector but can be an opportunity for others. Generally, traditional business is disrupted by the ease of technology, while it actually can be benefits for the creative business. Tourism is a sector that relies on creativity, so it is possible to benefit from being able to adapt and take advantage of the situation.

This research aims to explain the role of tourism sector in regional economy in disruptive era. This research takes the case in the Special Region of Yogyakarta province which is one of the favorite tourist destinations in Indonesia

2. Method

The method taht used to measure the contribution of a sector in regional development is the input output analysis and path analysis, so it will be known how big is the role of tourism sector in regional development. The relation with this research is tourism contribution in regional development through economic aspect. The input output analysis is used to reveal the economic value of tourism sector to GDP so that it is recognized by the role of tourism sector in regional development. Path analysis is used to reveal the path of the tourism sector in influencing other sectors so that it can be seen the sectors that can be developed by the government to develop the regional economy. The data that used in this research is a data that taken from Input Output Table Special Region of Yogyakarta Province which contains singular commodity sectors.

2.1. Input Output Analysis

Input output analysis that used in this research is linkage analysis. Linkage analysis is used to see the relevance of certain sectors with other sectors that make up the economy of a region directly and indirectly both forward linkage and backward linkage [3].

The forward linkage analysis is used to measure the impact of a particular sector on other sectors that provide output for that sector per unit of total demand increase. The forward linkage analysis can be calculated by using the formula:

$$FLTL_i = \sum_{j=1}^n C_{ij}$$

Explanation:

$FLTL_i$ = Forward Linkage

C_{ij} = Matrix Inverse Leontief Element

While backward linkage can be calculated using the formula:

$$BLTL_i = \sum_{j=1}^n C_{ij}$$

Explanation:

$BLTL_i$ = Backward Linkage

C_{ij} = Matrix Inverse Leontief Element

2.2. Path Analysis

A more comprehensive analysis that used to measure the strength of relationships among variables is path analysis by using correlational quantitative data [4]. The path analysis model used in this research is multiple regression model that uses two or more exogenous variables or independent variables (X_1, X_2, \dots, X_n) and one endogenous or dependent variable (Y) [5].

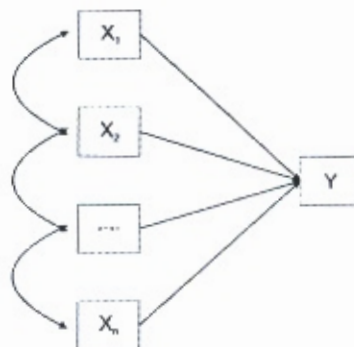


Figure 1. Multiple Regression Path Analysis Model

Multiple regression explains the dependent variable influenced by two or more independent variables, the function of multiple regression is as follows

$$Y = f(X_1, X_2, \dots, X_n)$$

Explanation:

Y = Dependent variable

X_1, X_2, \dots, X_n = Independent variables

3. Result

3.1. *Economic value of tourism sectors formers in Special Region of Yogyakarta province*

Tourism is not written specifically in the statistical data, then its formation is by using identification of the sectors. Identification is done by sector aggregation by using data from input output table. The result of sector aggregation shows that the economic value of tourism activities is formed by the transport sector, accommodation sector, information sector, corporate sector, education sector, and health sector. These sectors affect the region's economy through the contribution of each sector to shape the provincial income of the Special Region of Yogyakarta. Through input output analysis shows these sectors contribute through forward linkage and backward linkage. Each analysis has a distinct dominant sectoral outcome.

3.2. *Forward dan backward linkage*

Forward linkage generated from input output analysis shows the strongest tourism sector former is the information sector. Disruptive era makes the information sector a very important sector because rapid change can be faced with rapid information flows as well. While the backward linkage generated from the input output analysis shows the strongest tourism sector former is the health sector and social activities.

Table 1. Forward linkage provinsi Daerah Istimewa Yogyakarta.

No	Sektor	Forward Linkage	Backward Linkage
1	Agriculture, Forestry and Fisheries	1,60	1,14
2	Mining and excavation	1,09	1,38
3	Processing industry	1,81	1,49
4	Procurement of Electricity, Gas, Hot Water Vapor, and Cold Air	1,57	1,45
5	Water Supply, Waste Management, and Recycling	1,07	1,31
6	Construction	1,55	1,41
7	Large and Retail Trade	1,54	1,18
8	Transportation, Warehousing, Transport Supporting Services, Post and Courier	1,52	1,53
9	Provision of Accommodation and Provision of Food and Beverages	1,45	1,39
10	Information and Communication	1,68	1,32
11	Financial Services and Insurance	1,40	1,40
12	Real Estate	1,26	1,49
13	Company Services	1,18	1,43
14	Administration of Government, Defense, and Social Security	1,36	1,46
15	Educational Services	1,23	1,33
16	Health Services and Social Activities	1,11	1,65
17	Other Services	1,22	1,27

3.3. The path of the tourism-forming sector in influencing other sectors

Path analysis performed shows the results where the information sector has the strongest forward linkage between the other tourism sectors. Disruptive era makes the information sector a very important sector. Disruptive era that allows everything to change quickly makes the information sector become very important. The company services sector becomes the tourism sector with the strongest backward linkage. The company services sector becomes the main economic mainstay of the Special Region of Yogyakarta in the face of disruptive era by developing economies from small to large scale. Path diagram

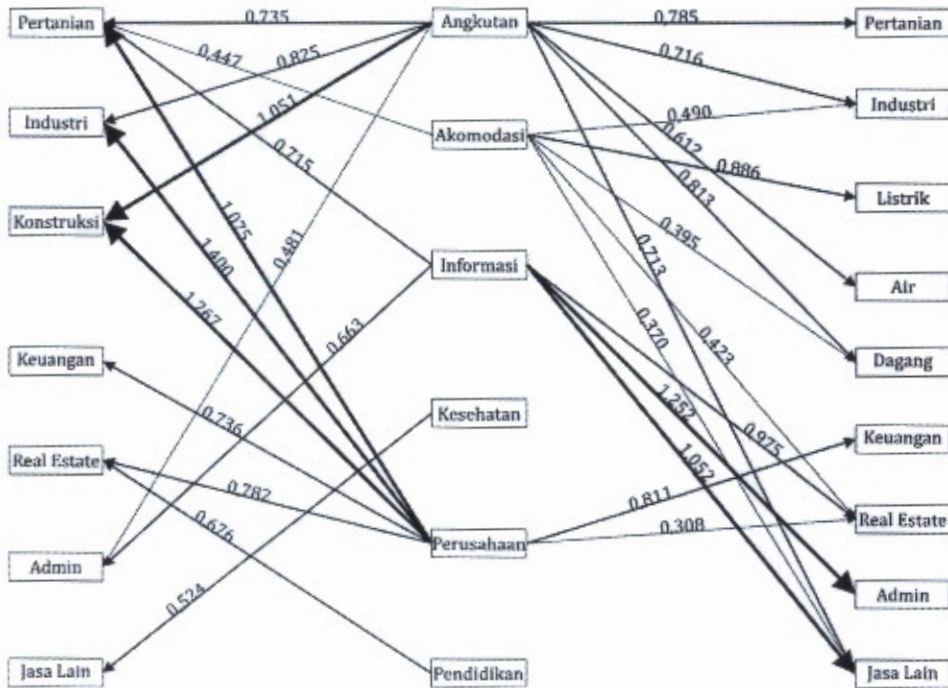


Figure 1. Path Diagram of Tourism Role in Special Region of Yogyakarta

From that diagram above, it can be focused on three most valuable path from forward and backward linkage. Three most valuable path from forward linkage is from information and communication sector and three most valuable path from backward linkage is from company services.

Table 3. Forward linkage from path analysis. Information is the main sector of tourism that can affect other sector through forward linkage.

Path	Value
Information → Administration	1,252
Information → Other Services	1,052
Information → Real Estate	0,975

Table 4. Backward linkage from path analysis. Company is the main sector of tourism that can affect other sector through backward linkage.

Path	Value
Company → Industry	1,400

Company → Construction	1,267
Company → Agriculture	1,075

4. Discussion

Input output analysis and path analysis has the same result in forward linkage. The results of both analyzes equally show that the information sector has the strongest value in contributing to the region's economy. Backward linkage has a different result. The input output analysis shows the health services and social activities sector as the strongest sector that plays a role in the regional economy, while the path analysis shows the company services sector as the strongest sector in the region's economy. Path analysis got interesting forward linkage dan backward linkage. Information becomes a major tourism sector in forward linkage. The highest forward linkage is the information sector affecting the administrative sector. The second highest forward linkage is the information sector affecting other services sectors. The third highest forward linkage is the information sector affecting the real estate sector. The company services became the main sector of tourism in backward linkage. The highest backward linkage is the company services sector affecting the industrial sector. The second highest backward linkage is the company services sector affecting the construction sector. The third highest backward linkage is the company services sector affecting the agricultural sector.

Commodity that sold by tourism sector is information such as advertisement, experince in tourist destination, attraction in tourist destination. This finding is interesting, government should develop information sector because Indonesia is still behind other country. The Travel & Tourism Competitiveness Report 2017 produced by the World Economic Forum [6] showed Indonesia ranked a relatively lowly 42nd out of 136 economies across the world. Malaysia ranked 26th and Thailand 34th. The report offers an in-depth analysis of a number of factors, including policies, enabling environments (factors such as safety and security, health and hygiene and ICT readiness), infrastructure and natural as well as cultural resources.

The strong role of information can be caused by technology that plays an important role in the creation of new economic sectors such as the creative economy. Currently the Industrial Revolution 4.0 is becoming a hot topic in the world economy. The Industrial Revolution 4.0 in the form of transformation of digital technology and artificial intelligence (e.g. supercomputers, smart robots, and the development of neurotechnology) threatens large incumbent corporations so that the size of a company cannot be a guarantee of survival. The only surviving company is capable of innovating. This is called disruptive innovation [7].

Disruptive era makes the information sector a very important sector because rapid change can be faced with rapid information flows as well. In this era the information sector becomes a quite influential sector. Digital transformation has reached the tourism industry in earnest and is gradually changing jobs and customer relations

5. Conclusion

Conclusion of this research is

- Information becomes the most influential sector of forward linkage in the tourism sector in the regional economy so that the development undertaken to strengthen the tourism sector is the company services sector. The role of the tourism sector in the regional economy through the corporate sector is able to develop other sectors such as industry, construction, and agriculture.

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