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Research paper



Tourism Sector in the Short-Run and Economic Growth in North Sumatra, Indonesia

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Abstract

In many developing countries, tourism is used as a main strategy to achieve greater economic performance. Increased income, both directly and as a result of the multiplier effects of tourism revenues, earnings of foreign exchange, new employment opportunities, access to foreign direct investment and economic diversification are the potential economic benefits of tourism. Statistics on international tourist arrivals in Indonesia showed an upward trend over the past few years and reached the highest number in 2014, recording almost 9.44 million arrivals. The province of North Sumatra is well known as a tourist destination, as well as an economic hub and commercial centre. Indeed, the province was able to attract almost 28% (237,830) of tourist arrivals in 2014, an increase of 4.12 % from 2013. With such a tourist arrivals trend, the tourism sectors has significantly contributed to the economic development of North Sumatera. This paper examined the role of tourism receipts in the short-run economic growth in North Sumatra through error correction method (ECM) from 1986-2014. Econometrics method were used, such as Augmented Dickey-Fuller (ADF) for unit root test, error correction method (ECM) for short run dynamics, and Granger causality test for causal relationships. The standard Granger causality test reveals that there is a unidirectional short-run Granger causality from tourism receipts to economic growth. This study provides evidence to support a tourism-led growth hypothesis in North Sumatra.

Keywords: *Tourism, tourism receipts, economic growth, Short-run, co-integration, Granger causality, North Sumatera*

1. Introduction

Tourism is considered as an economic growth factor and a multiplier benefit for many countries. The benefit of tourism is include sustainability of economic development, correlation among tourist expenses is revealed in the long period and unidirectional causation from tourism earnings help the sustainability of economic growth (Mustafa & Santhirasegaram, 2014). Other benefit is creating the knowledge transfer, increased income from foreign exchange and overall endorsed economic growth (Ahmad Jafari, et al., 2013). In ASEAN countries, Tourism is becoming one of the drivers the community's economy. The development of tourism will encourage production, increase income and be able to absorb labor, poverty reduction and narrowing the gap in economic development that occurs between countries (Djanika, 2014). This is related to acceptance derived by the public from tourist spending. In addition, the presence of the tourism sector as one of the solid sector work is also expected to create employment in the region. However, the magnitude of the potential of tourism has been unable to sustain the economy as optimal. This study attempts to fill the gap from previous research. Some previous empirical results focused on the long term causality (Tonci,2014; Mustafa,2014; Stefanie,2011; lee,2008). The variables used are also different. Some study is used Tourism arrivals and Tourism receipts as the main source of tourism indicator (Mustafa,2014; Hooi,2014; Andreas,2013; Norsiah,2012; Stefanie,2011; lee,2008) while others applied travel arrival and tourism receipt combined with life expectancy, human capital, FDI, labor force, international trade and technology (Ummuhan,2006; Bichaka,2007; Tiago,2008; Isabel 2009; Jose,2010; Pin Ng &Ding Du,2011).

2. Literature Review.

2.1 Research Relevance

Tourism is accelerating the potential of fast industry and source of economic output in the world, bring biggest growth over recent decades (UNWTO, 2012). The effect of tourism on economy can be justified in many terms, such as output, employment, value added, income, taxes, etc. (Jie Zhang et al, 2007). Through this economic impacts can open up opportunities the workers seek jobs and income. Also exploried by other empirical studies mention that there is positive contribution for tourism towards economic goals. The tourism sector initiates work opportunities and brings millions dollar of investment to the economy of India (Vinnie Jauhari,2009). Vinnie Jauhari (2009) argued that revenue from tourism significantly effects to development of economy and revealed a strong co-integration among tourism receipt and economic growth (Arslanturk and et.al., (2011). In long run correlation, there is a significant intercourse between tourism and economic growth (Lee & Chang,2008). Their findings were based on panel co-integration technique. This view is also supported by Fayissa et.al, (2007) and Zortuk (2009) through their empirical study on how tourism also significantly contributies towards economic prosperity both in short period or long term by Grager Causality Test based on VECM. Empirical result in Fiji revealed how tourism is playing a significance role in contributing to the national income, creating jobs, increasing entrepreneurial activities and becoming a stimulus to other economic variables (Nair, 1996). These findings have been reinforced through further empirical research in China. Lim & Pan (2005) found that increased foreign investment led to a growth in the tourism economy. Nevertheless, in terms of investment in the tourism sector, coastal areas have a better potential than in rural area (Chen,2010). The explanation of

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the relevance study as mentioned above is assumed that how strong is the correlation among tourism and economic growth.

2.2 Economic Growth.

The link between tourism and economic growth was investigated back in 1933 by Ogilvie. The evaluation of tourism from an economic perspective is observed through spending by tourists and from the model of Keynesian point of view this cost spending will be part of aggregate demand component or GDP (Mosese, 2008). The tourism industry can benefit the economy because it is able to generate sufficient revenues and multiplier effect compared to other sectors. Sustainability of tourism activities in an area is heavily influenced by the survival of the economy, hence the need for insight into resource management which generates direct economic benefits for the local community (Mulyaningrum, 2005).The most widely known approach was advocated by Solow (1956), where he attempts to explain how an economy will grow, given its technology and the market behavior of its consumers (Sequeira, 2005). Based on the Solow Model, the following econometric figure is used to explain indicators of the long run implication to economic growth:

$$Y_{it} = \beta_0 + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + \beta_4 X_{4it} + \beta_5 X_{5it} + \gamma_t + \delta_i + \varepsilon_{it}$$

The country growth is representing Y as GDP, capital (X1), total population (X2), budget for research and development (X_3), fundamental achievement (X_4), International trade X5), γ_t and δ_i are denote for time and country fixed effects and ε_{it} is random error, (Hong Zuang & Robert, 2010). The Neoclassical growth theory stresses capital, population level and technical flow. The definition of capital is assets which can be seen from tools and equipment, facilities and the role of human capital (Grossman & Helpman,1994). Solow's growth model is a contributing model in the formation of a neoclassical growth theory, which is also a basis thinking in the formation of trade liberalization between countries. The advancement of technical knowledge, skill contributed relevant effect to achieve economic circulation and can endorse the revenue from export activities (Krueger,1980) Laura Alfaro (2003) revealed that growth is determined such as revenue, human capital, local financial performance, quality and innovation of investment resources .

2.3 Variables

According to various researchers there are numerous variables to measure tourism and economic growth such as (Gokovali & Ozan Bahar,2006; Tiago Neves,2008; Jose l de la Cruz,2010; Tonci,2014; Mustafa,2014; Ping Ng & Ding Du,2011; Stefanie.2011; Bichaka Fayissa & Christian Nsiah,2007; Bouzahzah and Younesse El Menyari,2013; Norsiah Kadir, Mohd. Zaini abd. Karim,2012; LEE, Chew Ging,2008) to explain the correlation between tourism and economic growth is reflected as Y = GDP represent dependent variables, and the independent Variables, are:

X1: Income
X2: Tourism Receipts
X3: Labor Force
X4: Tourism Arrivals
X5: Human Capital
X6: Foreign Direct Investment
X7: Technology
X8: House Hold Consumption
X9: Gross Fixed Capital
X10: Life Expectancy
X11: Economic Freedom Index

This study uses GDP as representing economic growth and tourism arrival, tourism receipt, FDI, labor force, human capital and life expectancy representing of tourism and answering the question of how the tourism contribute towards economic progress in the short causality especially for a developing country such as Indonesia.

3. Methodology

In order to analyze the determination of the tourism sector, based on variables observation in literature review, the proposed model of tourism demand in this research is:

$$LGDP = \beta_0 + \beta_1 LTR + \beta_2 LTA + \beta_3 LFDI + \beta_4 LLF + \beta_5 LHC + \beta_6 LLE + \varepsilon$$

TR = Tourism Receipts (TR)
TA = Tourism Arrivals (TA)
FDI = Foreign Direct Investment
LF = Labor Force
HC = Human Capital, and
LE = Life Expectancy
GDP = Economic Growth

β_0 = intercept

β_i = the coefficients of independent variables.

ε = a sequence of uncorrelated error term

The semiannually time series data from 1986 up to 2014 used for this research work. These data collection will analyze quantitatively. Investigating of data implicates each series of property stationary, using Unit Root Test with Augmented Dickey-Fuller (ADF), PP and KPSS test than vector error correction model (VECM) and Granger causality test are using to examine the short-term and causality correlation between tourism and growth of economy. E-views software was used for the data analysis.

4. Result

4.1 Unit Root Test (ADF and PP Unit Test)

The null hypothesis is that there is unit root in the series or in other words, it is non-stationary, and H1 hypothesis is there is stationary. From Table 1 and Table 2, as below it is shown that for all variables, the null hypothesis is accepted, as the t-statistics p-values (in bracket) are greater than 0.05. The null hypothesis is not rejected at 5% confidence interval and the null hypothesis is rejected when t-statistics p-values are less than 0.05. As a result, these series are non-stationary in their levels or it can be assumed that these series contained unit root.

Table 1: Results of ADF unit root test based on level of data

Variables	ADF Unit Roor Test		
	Constant	Constant and trend	Without constant and trend
lnta	-2.156145 (0.2257)	-1.400639 (0.8376)	1.137996 (0.9297)
lntp	-2.263062 (0.1900)	-2.783583 (0.2140)	-0.63532 (0.4333)
lngdp_my	-0.163350 (0.9327)	-2.144537 (0.5009)	2.799309 (0.9980)
lngdp_sg	-1.689980 (0.4256)	-2.733659 (0.2317)	4.261882 (1.0000)
lngdp_nl	-1.488334 (0.5252)	-2.370094 (0.2815)	2.891437 (0.9984)
lner_my	-1.290751 (0.6201)	-2.185383 (0.4795)	1.983002 (0.9865)
lner_sg	-1.462826 (0.5378)	-2.033182 (0.5595)	2.275979 (0.9930)
lner_nl	-2.070590 (0.2572)	-2.768085 (0.2193)	1.943695 (0.9853)
lnto_my	-2.515372 (0.1223)	-1.770239 (0.2193)	0.546633 (0. 8283)
lnto_sg	-0.417881 (0.8933)	-2.498364 (0.3263)	1.614850 (0. 9710)
lnto_nl	0.224093 (0.9695)	-2.291104 (0.4252)	1.192885 (0.9363)

Table 2: Results of PP unit root test based on level of data

Variables	PP Unit Roor Test		
	Constant	Constant and trend	Without constant and trend
lnta	-1.406224 (0.5654)	-1.70137 (0.7247)	1.279187 (0.9453)
lntp	-2.130895 (0.2347)	-2.79326 (0.2107)	-1.36998 (0.1547)
lngdp_my	-0.171760 (0.9316)	-2.26740 (0.4373)	2.963463 (0.9987)
lngdp_sg	-1.549844 (0.4947)	-1.82064 (0.6685)	3.218250 (0.9993)
lngdp_nl	-1.486778 (0.5260)	-2.02732 (0.5626)	2.918352 (0.9985)
lner_my	-1.293704 (0.6187)	-2.23542 (0.4536)	2.442730 (0.9953)
lner_sg	-1.462826 (0.5378)	-1.95421 (0.6008)	2.488193 (0.9957)
lner_nl	-2.135332 (0.2331)	-2.79976 (0.2085)	1.943695 (0.9853)
lnto_my	-2.501234 (0.1255)	-1.74560 (0.7045)	1.467216 (0.8095)
lnto_sg	-0.417881 (0.8933)	-2.09655 (0.5261)	1.614850 (0.9710)
lnto_nl	0.224093 (0.9695)	-2.29900 (0.4213)	1.192885 (0.9363)

4.2 Short-Run Analysis

The short run investigation can be answered using causality tests between variables studied and the analysis of short-term dynamics of the vector error correction model (VECM). For the short run equation, Prob. value (F statistic) should be less than 0.05 and then the value of speed of adjustment (coefficient of RES (-1) should be negative and significant (F statistic) less than 0.05).

Estimation Equation:
D(LNGDP) = C(1) + C(2)*D(LNTR) + C(3)*D(LNTA) + C(4)*D(LNFDI) + C(5)*D(LNLF) + C(6)*D(LNHC) + C(7)*D(LNLE) + C(8)*RES(-1)

The results of the short-run multiple regression computation reveal a multiple regression model with six independent variables. Referring to Table 3, the formulation equation for the regression model is:

DLNGDP = 0.001245 + 0.141852*DLNTR + 0.719491*DLNTA + 0.015640*DLNFDI + 0.354639*DLNLF + 3.718183*DLNHC + 3.235856*DLNLE – 0.288253*RES(-1)
Add to this, the short-term equation significant effect on economic growth (GDP) of North Sumatra as follow:

DLNGDP=0.141852*DLNTR+0.719491*DLNTA + 0.015640*DLNFDI + 0.354639*DLNLF + 3.718183*DLNHC + 3.235856*DLNLE

Table 3. Cointegration Regression Results Variable Coefficient

Dependent Variable: DLNGDP				
Method: Least Squares				
Date: 09/12/16 Time: 11:31				
Sample (adjusted): 1986 2014				
Included observations: 29 after adjustments				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.001245	0.019996	0.062285	0.9509
DLNTR	0.141852	0.064540	2.197887	0.0393
DLNTA	0.719491	0.130956	5.494149	0.0000
DLNFDI	0.015640	0.008789	2.279523	0.0296
DLNLF	0.354639	0.149253	2.376095	0.0271
DLNHC	3.718183	1.049864	3.541584	0.0019
DLNLE	3.235856	1.406852	2.300068	0.0318
RES(-1)	-0.288253	0.126635	-2.276244	0.0334
R-squared	0.902203	Mean dependent var		0.080841
Adjusted R-squared	0.869604	S.D. dependent var		0.210835
S.E. of regression	0.076133	Akaike info criterion		-2.083713
Sum squared resid	0.121722	Schwarz criterion		-1.706528
Log likelihood	38.21383	Hannan-Quinn criter.		-1.965583
F-statistic	27.67576	Durbin-Watson stat		2.182775
Prob(F-statistic)	0.000000			

Out of the six independent variables Human Capital (HC) has the most powerful influences on economic growth in North Sumatera in the short-run because it has the highest regression coefficient as β=3.718183, followed by life expectancy (LE) variable with the coefficient value of β=3.235856, Travel Arrivals (TA) (β=0.719491), Labor Force (LF) (β=0.354639), and Tourism Receipts (TR) (β=0.141851512093). However, the least regression coefficient is Foreign Direct Investment (FDI) with the coefficient value of β=0.141852.

4.3 Granger Causality Test

The relationship between tourism and economic growth has been revealed as refer to co-integration test result and examined that there is a short term and stable equilibrium. However, does tourism development result in economic growth or vice versa? The F-Test result shows the independent variables simultaneously or jointly on the dependent variable. F-statistic (1.20004) is less than F-table (F [2, 28] =3.3404), and the significant value (ρ) of 0.2834 which is higher than (ρ) critical value of 0.05. This means that the overall Granger Causality Test is not significant which led to the acceptation of the null hypothesis, as shown in Figure 4.5. The F-statistic (4.27491) is more than F-table (F [2, 28] =3.3404), and the significant value (ρ) of 0.0488 which is lower than (ρ) critical value of 0.05. It means that the overall Granger Causality Test is significant which led to the rejection of the null hypothesis.
Based on these findings measure that there is a uni-directional Granger causality between the development of tourism and economic growth of North Sumatera's tourism is the Granger cause of economic growth of North Sumatera. Meanwhile, North Sumatera's economic growth is not the Granger cause of the development of North Sumatera's tourism.

5. Conclusion

The development of North Sumatera's tourism can pull North Sumatera's economic growth and North Sumatera's economic growth cannot promote the development of North Sumatera's tourism. The Government has to stimulate in reducing country trade openness, to have more tourism arrivals and attracts investment come to North Sumatera Indonesia.

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