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Market Structure and Its Relationship to Tourism Revenue: Industrial Organization Perspectives from ASEAN Member Countries

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Abstract

This article examines the ASEAN tourism market structure and investigates the connection between industry structure and tourism revenue using the structure-conduct-performance paradigm. Using the 2012-2019 intranational panel dataset collected from 10 ASEAN member countries, the results reveal that the ASEAN tourism market structure is concentrated during the sample period but tends to be competitive in the future, with an average Herfindahl-Hirschman Index of 1,725.242. The empirical evidence from the panel regression analysis theoretically confirms the positive relationship between the market structure variable and tourism revenue. In particular, an increase in a market share ratio causes a rise in tourism revenue approximately 590.6 million USD. A policy recommendation for formulating tourism policies and strategies derived from this analysis is presented.

Introduction

Prior to the COVID-19 pandemic, Southeast Asia, home to the 10 ASEAN member countries-Brunei, Cambodia, Indonesia, Laos, Malaysia, Myanmar, Philippines, Singapore, Thailand, and Viet Nam-was one of the fastest growing travel areas and contributed more than 390 billion USD to the GDP in the region in 2019 through travel and tourism, collecting 34% of global travel and tourism GDP (World Travel & Tourism Council, 2020). The steady growth in the region has been increasing since 2010 due to visa facilitation, growth in low-cost carriers, tourism information flow from technological advancement, and tourism policy cooperation (UNWTO, 2014). Hence, ASEAN countries have made attempts to mutually formulate tourism policy and development plans to enhance tourism revenue in order to achieve competitiveness as a single tourism destination (ASEAN Secretariat, 2015).

Although ASEAN provides collaborative tourism regimes for member countries (Wong, Mistilis, & Dwyer, 2010; Wong, Mistilis, & Dwyer, 2011), similar tourist destinations and comparable tourism patterns, such as cultural heritage tourism; sun, sand, and beach attractions; gastronomy tourism; health and wellness tourism; and other common patterns allow for competition between member countries as those attractions are deemed substitutable tourism products (Liu, Li, & Parkpian, 2018). To attract tourists and increase tourism revenue, ASEAN member countries strive to implement their own tourism development strategies. For example, Viet Nam's prime

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minister recently approved the Viet Nam Tourism Development Strategy to 2030, while the Philippines have been following their National Tourism Development Plan (2016-2022) since 2015. Thailand also implemented the Second Thailand Tourism Development Plan (2017-2021), while Malaysia employed the Tourism Malaysia Integrated Promotion Plan (2018-2020). Similarly, the remaining ASEAN member countries, Brunei, Cambodia, Indonesia, Laos, Myanmar, and Singapore also activate their own tourism development master plans.

Despite an endeavor to achieve industry performance by formulating tourism development initiatives, several strategies mentioned in such plans lack academic support due to a paucity of knowledge about the structure–conduct–performance (SCP) paradigm and its use for engaging policy planning and strategic directions. It is remarkable that studies relating to tourism market structure have received little scholarly attention due to limitations on tourism market definitions and data accessibility (Candela & Figini, 2010; Davies, 1999; Ma, Weng, & Yu, 2015; Yang, 2014). Most works apply the concepts of market structure studies to other tourism-related businesses such as the hotel and resort industry (Davies, 1999; Davies & Downward, 1996; Göçen, Albeni, Yirik, Yildiz, & Akdere, 2016; Lin & Chen, 2014; Pan, 2005; Papatheodorou, 2004; Tung, Lin, & Wang, 2010), the restaurant businesses (Gao, Tang, Wang, & Yin, 2018; Toivanen & Waterson, 2005), and the tour operator and travel servicing sector (Aguiló, Alegre, & Sard, 2003; Alegre & Sard, 2017; Davies & Downward, 2007; Higgins, 1996; Papatheodorou, 2003; Sheldon, 1986; Snepenger & Snepenger, 1994; Tveteraas, Asche, & Lien, 2014).

To fill the void in the literature, this article expects to enrich the market structure studies in the tourism industry especially in Southeast Asia context. Given the significant growth of tourism flow in the region. Firstly, this article shed light on bridging an academic gap in the industrial organization literature by investigating the tourism market structure using the unique intranational dataset from ASEAN member countries. Secondly, it theoretically examines the relationship between market structure and tourism revenue among member countries. Lastly, empirical evidence deriving from the study provides policy implications on how to increase tourism revenue based on the relationships between structure, conduct, and performance.

1. Overview of the ASEAN Tourism Situation

While ASEAN takes about a 10% share of international tourist arrivals and international tourism receipts, it still cannot compete with the mainstream developed countries of Europe, which account for 48% of tourists and revenue, but the number of tourists are increasing steadily every year (Figure 1) (UNWTO, 2019; World Travel & Tourism Council, 2020). In Southeast

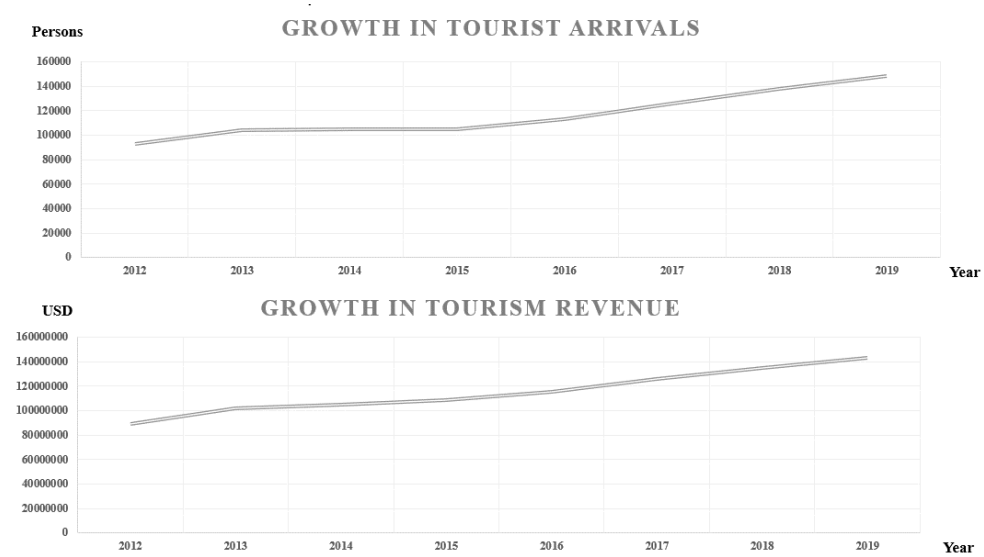


Figure 1 Growth in tourist arrivals and tourism revenue in ASEAN member countries, 2012–2019
Source: UNWTO (2019)

Asia, the number of tourists was increasing in most countries except for Malaysia and Myanmar, which had a bit of a decrease in 2015 and 2016 before recovering in 2019, while tourists in Viet Nam have been increasing dramatically since 2015. From 2007, Malaysia ranked number one in international tourist arrivals in the region until 2012. After that, Thailand outpaced it and reached number one from 2013 until the present.

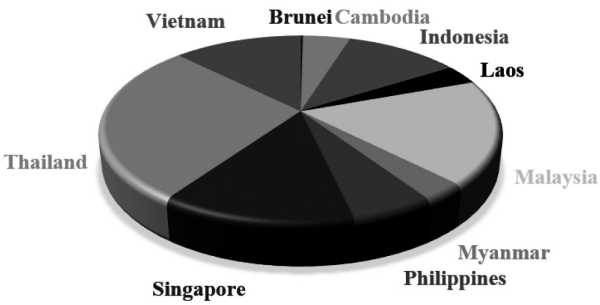


Figure 2 Market concentration (tourist arrivals) among ASEAN member countries during 2019
Source: UNWTO (2019)

Table 1 Information on international tourist arrivals and annual tourism revenue

ASEAN Member Country	Year											
	2014		2015		2016		2017		2018		2019	
	Tourist Arrivals[a]	Annual Revenue[b]	Tourist Arrivals[a]	Annual Revenue[b]	Tourist Arrivals[a]	Annual Revenue[b]	Tourist Arrivals[a]	Annual Revenue[b]	Tourist Arrivals[a]	Annual Revenue[b]	Tourist Arrivals[a]	Annual Revenue[b]
Brunei	201	79	218	140	219	144	259	177	278	190	333	217
Cambodia	4,503	2,953	4,775	3,130	5,012	3,208	5,602	3,636	6,201	4,352	6,610	4,773
Indonesia	9,435	10,261	9,963	10,761	11,072	11,206	12,948	13,139	13,396	14,110	16,106	16,912
Laos	3,164	642	3,543	581	3,315	712	3,257	761	3,770	734	4,791	935
Malaysia	27,437	22,595	25,721	17,584	26,757	18,075	25,948	18,323	25,832	19,143	26,100	20,804
Myanmar	3,081	1,613	4,681	2,101	2,907	2,197	3,443	1,969	3,551	1,652	4,364	2,483
Philippines	4,833	5,030	5,361	5,272	5,967	5,143	6,621	6,988	7,129	7,461	8,260	9,806
Singapore	11,864	19,134	12,052	16,563	12,914	18,945	13,909	19,738	14,673	20,528	19,113	20,052
Thailand	24,810	38,418	29,923	44,922	32,588	48,792	35,483	56,938	38,277	63,042	39,797	60,521
Viet Nam	7,960	7,410	7,944	7,350	10,013	8,250	12,922	8,890	15,498	10,080	18,008	11,830
ASEAN	**97,036**	**108,169**	**104,242**	**108,457**	**110,830**	**116,730**	**120,466**	**130,632**	**128,680**	**142,314**	**143,487**	**148,333**

Source: UNWTO (2019)
Note: a is in thousand tourist arrivals, and b is in billion USD annual tourism expenditure.

In recent years, the annual tourism revenue of Thailand has been far ahead of other countries in ASEAN. The data from UNWTO and ASEANstats in 2019 reported that Thailand, Malaysia, and Singapore are the top three ASEAN member countries open to international tourist arrivals. Tourism revenue for these countries was recorded as 60,521 USD billion, 20,804 USD billion, and 20,052 USD billion, respectively (Table 1 and Figure 2). China sent the most visitors to ASEAN countries from 2007 to 2016 due to ASEAN strategies and policies largely supporting the travel of Chinese people in the region. For example, the simplifications to the application procedure for e-visas and visas on arrival, the waiver of visa fees, and so on (ASEAN, 2012).

2. Theoretical framework on tourism market structure

The concept of an industrial organization (IO) and the interaction between market characteristics and performance must be used to frame such examinations of the relationship between market structure and tourism revenue as a measure of the performance of an industry. The development of the SCP paradigm (Figure 3) provides a systematic analysis of the relationship between market structure or the relative size of firms that comprise an industry, firm conduct or how a firm react to competitors, and market performance or the result deriving from conduct (Carlton & Perloff, 2015). Understanding the relationship between market structure and performance leads to effective economic policy formulation (Ellickson, 2015). As seen in Figure 3, knowledge bodies of market structure studies will assist policymakers with how to formulate tourism strategies in order to achieve greater industry performance. In particular, information on the market structure of the ASEAN tourism market allows tourism-related agencies to formulate appropriate tourism strategic plans in order to increase international tourist flows and tourism revenue in a country.

However, studies of tourism market structure are sparse, and this affects the amount of related literature in industrial organization (Ma, Weng, & Yu, 2015;

Provenzano, 2014). Therefore, to study the tourism market structure, it is required to clarify the definition of the market. As advised by Pindyck & Rubinfeld (2001); Gan & Frederick (2011), a market is the activity of exchanging goods and service between firms and consumers. To define and study a market, it is key to obtain specifications of the market extent, the geographic boundaries wherein competition occurs and, thus, sets the price for a given product or range of products. Consequently, market structure in this study considers the area of ASEAN member countries as an international tourism market.

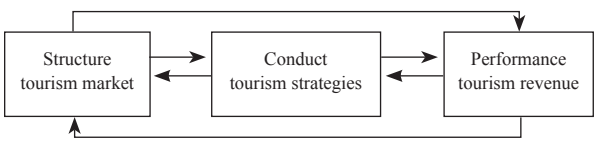


Figure 3 Relationship between market structure, conduct, and performance

To measure the market structure with consideration of industry concentration, there are several approaches that can be employed. One of the most common indexes according to Miller (1982); Maudos (1998); Pan (2005); Martin (2010); Matsumoto, Merlone, & Szidarovszky (2012); Liu, Li, & Parkpian (2018) is the Herfindahl-Hirschman Index (HHI). This index measures the concentration level in a given industry and is a well-known indicator of market competition (Brezina, Pekár, Čičková, & Reiff, 2016). A high HHI value, where the maximum value is 10,000, suggests high industry concentration or less market competition (Carlton & Perloff, 2015; Laksmana & Yang, 2015). To compute the HHI, the summation of the squared market shares calculated from the inbound tourists of all ASEAN member countries is presented as follows:

$$HHI_t = \sum_{i=1}^{n} s_{i,t}^2$$

where $s_{i,t}$ is the market shares of i^{th} ASEAN member countries calculated from international tourist arrivals in year *t*.

Therefore, this study adopts the HHI as a measure index of tourism market structure. Since the HHI computation for this intranational panel dataset is unavailable, the i-firm market share ratio (MKT), calculated as a percentage, is used as a market structure variable (Belleflamme & Peitz, 2015) to test the relationship among market structure and tourism revenue. This market structure variable can be computed as follows:

$$MKT_{i,t} = \propto_{i,t}$$

where $\propto_{i,t} = \dfrac{s_{i,t}}{Total\ s_{i,t}}$ is the i^{th} ASEAN member country's market share in year *t*.

If $MKT_{i,t}$ is close to 100, this suggests that the market is concentrated and tends to be less competitive. Conversely, if the percentage is close to 0, it reflects less concentration, and the market structure is likely to be competitive (Martin, 2010).

3. Factors affecting tourism revenue

Apart from market structure, there are other factors that have an impact on tourism revenue, such as macroeconomic factors (Jayaraman, Lin, Haron, & Ong, 2011). According to the literature review, price, income, and exchange rate are the determinant and dominant economic variables affecting tourism demand. A sample of studies that include price, such as Durbarry (2008), points out that price is very sensitive to tourism demand; in particular, it significantly has a negative relationship to tourism demand in the UK. Wang & Davidson (2010); Rodríguez, Sánchez, Félix, & Estrada (2018) conclude that price, specifically, is the important determinant of tourism expenditure. Other past works that yield the same results include Uysal & Crompton (1984), Choong-Ki, Var, & Blaine (1996), Turner & Witt (2001); Patsouratis, Frangouli, & Anastasopoulos (2005), Saayman & Saayman (2008); Garín-Muñoz (2009); Goh (2012); Surugiu, Leitão & Surugiu (2011).

Some works adopt an inflation rate as a proxy of price, such as in Jayaraman, Lin, Haron, & Ong, (2011). But income and GDP are other variables that have a strong impact on tourist arrivals. The studies that used an income variable include Choong-Ki, Var, & Blaine (1996); Uysal & Crompton (1984), Var, Mohammad & Icoz (1990), Payne & Mervar (2002), Saayman, & Saayman, (2008), Garín-Muñoz (2009), Akay, Cifter &Teke (2017); Rodríguez, Sánchez, Félix, & Estrada (2018); Turner & Witt (2001), Payne & Mervar (2002); Surugiu, Leitão, & Surugiu, (2011) reported that GDP had an impact on tourism demand. The exchange rate is another determinant having an impact on tourism demand (Akay, Cifter, & Teke, 2017; Choong-Ki, Var, & Blaine, 1996; Jayaraman, Lin, Haron, & Ong, 2011;

Patsouratis, Frangouli, & Anastasopoulos, 2005; Payne & Mervar, 2002; Thompson, & Thompson, 2010; Uysal & Crompton, 1984; Var, Mohammad, & Icoz, 1990). There are also non-economic factors that affect tourism revenue (Cho, 2010). Such variables include socio-demographics, environmental conditions, travel distance, and climate change.

Objective

This article aims at investigating the characteristics of the ASEAN tourism market structure and the relationship between the market structure and tourism revenue. The structure of this research paper is organised as follows. The next section provides a conceptual framework which written in the mathematical expression. The following section describes the research methodology, including data collection, data analysis, and source of secondary data used for specifying the econometric model. The next section shows the results and presents a discussion deriving from the empirical evidence. And the final section gives the suggestion and implication for tourism policy makers.

Conceptual framework

To specify the conceptual framework for illustrating the relationship between ASEAN market structure and tourism revenue, the mathematical expression is presented as follows:

$$REV_{i,t} = f(MKT_{i,t}, INR_{i,t})$$
$$(REV_{i,t}, MKT_{i,t}, INR_{i,t}); t = 1, \ldots, T$$

where $REV_{i,t}$ is the tourism revenue of i^{th} ASEAN member countries in year *t*. $MKT_{i,t}$ is the i-firm market share ratio of i^{th} ASEAN member countries in year *t,* while $INR_{i,t}$ is the annual inflation rate of *i* ASEAN member countries in year *t.*

Research methodology

1. Data and variables

In selecting a variable in a model, the crucial criterion is the completeness of the dataset. Referring to the availability of macroeconomic indicators from ASEANStats, this study employs the inflation rate as a proxy for a price level as advised by Wang and Davidson (2010) and Jayaraman et al. (2011). If the price of tourism product increases, tourists tend to buy fewer tourism products, and this affects the purchasing power of tourists and, thus, decreases tourism revenue.

To examine the ASEAN tourism market structure and test the relationship between the market structure and tourism revenue according to the SCP paradigm, tourism revenue (REV), the i-firm market share ratio (MKT), and the inflation rate (INR) were included in the model (Table 2). The intranational panel dataset was collected from the Basic Tourism Statistics database prepared by UNWTO and ASEANstats DataPortal, managed by ASEANstats. The data were collected during 2012–2019 since such a period provides the most comprehensive set of variables from the given database.

Table 2 Variables used in the econometric model

Variables	Definition	Unit	Source
REV	Tourism revenue	USD millions	UNWTO
MKT	Market shares	%	ASEANStats
INR	Inflation rate	%	ASEANStats

2. Econometric model

Regression analysis is used to perform a test involving a causal relationship (Hair, Black, Anderson, & Barbin, 2019). Several studies related to market structure consequently employed this method as an analytical tool, such as Davies & Downward (1996), Davies (1999), Papatheodorou (2004), Pan (2005), Tung, Lin, & Wang (2010); Göçen, Albeni, Yirik, Yildiz, & Akdere (2016); Gao, Tang, Wang, & Yin (2018). Given the appropriate approach to answer the research question, this article also used the panel regression method as a data analysis.

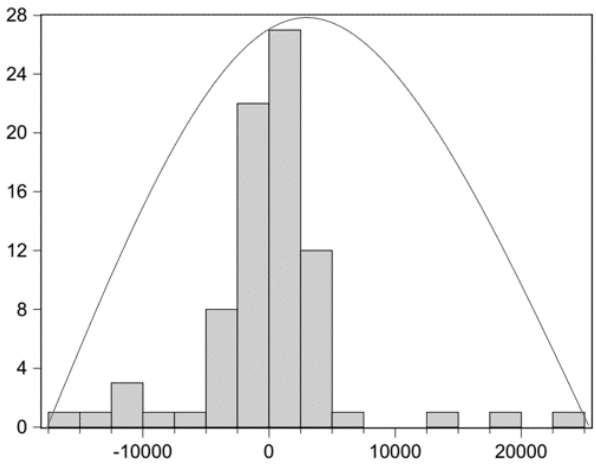
To specify the econometric model for estimating the relationship between ASEAN market structure and tourism revenue, the linear-relationship equation is presented as follows:

$$REV_{i,t} = \alpha_{i,t} + \beta_{i,t} \cdot MKT_{i,t} + \gamma_{i,t} \cdot INR_{i,t} + \varepsilon_{i,t}$$

where $REV_{i,t}$ is the tourism revenue of i^{th} ASEAN member countries in year *t*. $MKT_{i,t}$ is the i-firm market share ratio of i^{th} ASEAN member countries in year *t,* while $INR_{i,t}$ is the annual inflation rate of *i* ASEAN member countries in year *t.*

Before specifying the econometric model, data cleaning with the classical assumptions of the ordinary least square method was performed. The normal distribution of an error term —$\varepsilon_t \sim N(0,\sigma^2)$— was checked by the residual normality test (Figure 4). The study also tested the error term computed from the dataset, and it reported no heteroscedasticity or $Var(\varepsilon_t) = \sigma^2$. The multicollinearity problem was surveyed by the correlation matrix, and we found it absent or $Corr(x_i,x_j) \neq 1$ (Table

3). Since the panel data was employed in this study, the autoregressive problem was detected by the Durbin-Watson statistic (D.W. stat = 0.148) in the first stage analysis. To correct this problem and retain the efficiency of the estimator, the iterative Cochrane–Orcutt method command in EViews was used; hence, the estimator met the autocorrelation-free assumption, $Cov\ (\varepsilon_i,\varepsilon_j)= E\ (\varepsilon_i,\varepsilon_j) = 0; i \neq j$ (Figure 5).



Series: Standardized Residuals	
Sample 2012 2019	
Observations 80	
Mean	-1.25e-12
Median	116.4374
Maximum	23030.65
Minimum	-17488.30
Std. Dev.	5501.270
Skewness	0.626996
Kurtosis	8.783770
Jarque-Bera	116.7483
Probability	0.000000

Figure 4 Residual normality test

Table 3 Correlation matrix

Variable	REV	MKT	INR
REV	1.000	0.911	-0.288
MKT	0.911	1.000	-0.241
INR	-0.288	-0.241	1.000

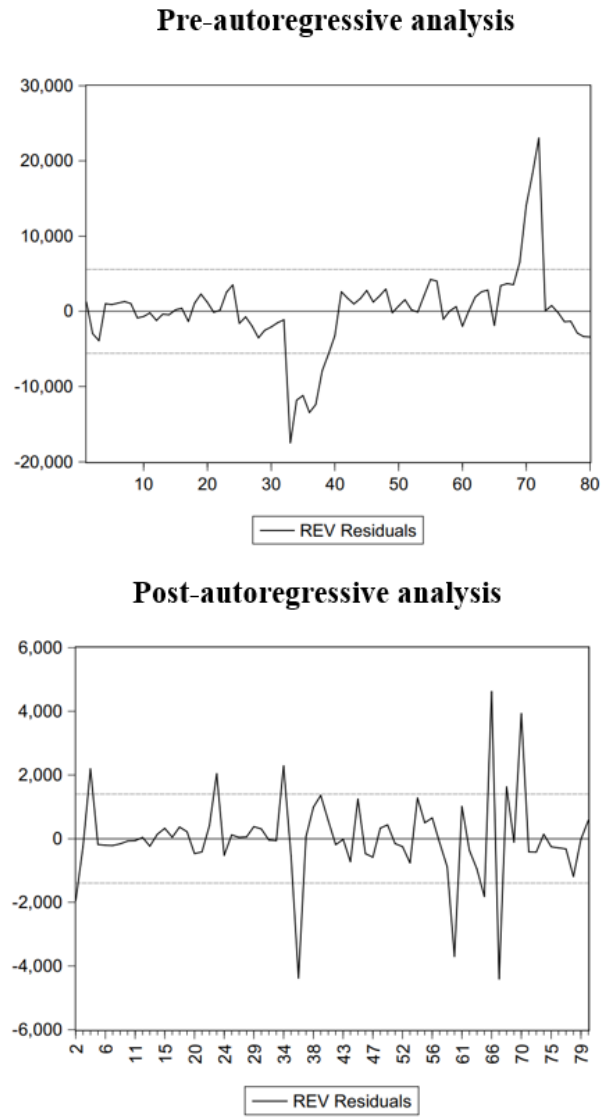


Figure 5 Autoregressive treatment using the iterative Cochrane–Orcutt method

Results

1. ASEAN tourism market structure

Table 3 presents the variables used in the model and descriptive statistics of the included variables. According to Wang & Davidson (2010), REV was an independent variable calculated from travel expenditures in ASEAN member countries, while MKT, as a measure of the market structure variable (Belleflamme & Peitz, 2015; Maudos, 1998; Miller, 1982; Steven, Dong, & Dresner, 2012), was computed in a percentage from tourists' arrivals in ASEAN member countries during the sample period. INR was obtained from year-on-year changes of the consumer price index.

During 2012-2019, ASEAN member countries gained 11,643 million USD in tourism revenue from international tourists. The best performer was Thailand where it gained approximately 60,521 million USD in 2019 while Brunei earned minimum tourism revenue around 79 million USD in 2014. For tourism market share

ratio comparing to ASEAN member countries, Thailand attracted most of international tourists in 2017 with maximum market share around 28.31% while Brunei drew international tourists about 0.19% in 2016. The average inflation rate in the region during the study period was 2.85%. Myanmar had the highest inflation rate in 2015 while the minimum rate belonged to Brunei in 2014 and 2017.

Table 4 Descriptive statistics of included variables

Variable	Descriptive statistics			
	Mean	Standard deviation	Max	Min
REV	11,643.03	13,515.63	60,521	79
MKT	10	8.569	28.31	0.189
INR	2.845	2.434	10.8	-0.2

The computation of the HHI during the 2012–2019 period is presented in Table 4. The mean of the HHI during the sample period is 1,725.242. This number reflects a concentrated tourism market in the views of Stigler & Sherwin (1985); Carlton & Perloff (2015). However, the maximum value of market concentration, 1,873.212, in 2012 and the minimum value in 2019, 1,635.959, indicates a negative trend in the concentration of the market structure among ASEAN member countries (Figure 6). Also, the trend of the HHI calculation during the sample period implies that tourism products and tourism patterns among ASEAN member countries are likely substitutable since the ASEAN tourism market structure tends to be competitive.

Table 5 Mean of Herfindahl–Hirschman Index calculated for 2012–2019 and descriptive analysis

Year	HHI
2012	1,873.212
2013	1,734.908
2014	1,658.362
2015	1,731.281
2016	1,769.559
2017	1,714.524
2018	1,684.13
2019	1,635.959
Mean	1,725.242
Standard deviation	73.909
Max	1,873.212
Min	1,635.959

an increase in a market share ratio causes a rise in tourism revenue approximately 590.6 million USD. In other words, ASEAN member countries that have high market shares, which causes high market concentration, have significantly stronger industry performance, reflecting in a growth in international tourists. While this study found that the inflation rate has statistically insignificant impacts on the tourism revenue of ASEAN member countries.

As presented in Table 5, the regression accounts for 99 percent of the variance in the dependent variable, and the estimated standard deviation of the error term is 1,399.844. The estimated regression coefficients are statistically significant at the 1 percent level. The F-statistic of the model is significant at the 1 percent level. It suggests a 99 percent confidence level

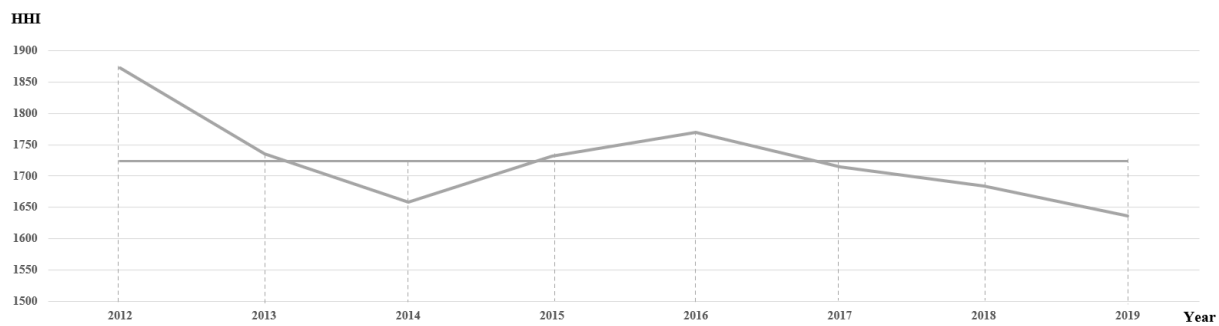


Figure 6 Means of Herfindahl–Hirschman Index calculated from tourists' arrivals in ASEAN member countries

2. ASEAN tourism market structure and relationship with revenue

The empirical evidence from the panel regression analysis reports a positive relationship between the i-firm market share ratio as a market structure variable and tourism revenue (Table 5). The positive MKT exhibits that the included variables are significant predictors in explaining the tourism revenue for ASEAN member countries.

Table 6 Relationship between market structure and tourism revenue

Variable	Coefficient	Standard error	t-statistic	P-value
Constant	-1676.962	1,921.549	-0.873	0.386
MKT	590.599	113.035	5.225	0.000
INR	51.605	93.169	0.554	0.582
R-squared	0.99		Durbin-Watson stat	2.445
Adjusted R-squared	0.989		F-statistic	2,253.762
Sum error of regression	1,399.844		Prob (F-statistic)	0.000

Discussion

This article examined the structure of the ASEAN tourism market and investigated the association between industry structure and tourism revenue based on the SCP paradigm. Using the intranational dataset during the 2012–2019 period collected from 10 ASEAN member countries, the results report that the ASEAN tourism market structure is concentrated but tends to be more competitive over time due to the comparable tourism patterns and destinations among ASEAN member countries. What we found in this study is similar to Liu, Li & Parkpian (2018) who revealed that there were strong tourism developments among some ASEAN member countries which have homogeneous tourism products.

The empirical evidence describes the positive relationship between market share ratio and tourism revenue based on the theory of industrial organization. Such effects impact how international tourists spend, according to Wang & Davidson (2010), and increase tourism revenue accordingly. The result theoretically confirms the relationship between the market structure and tourism revenue as a measure of the performance of ASEAN tourism industry within the framework of industrial organization.

For the inflation rate computed from consumer price index, the results show that this variable has statistically insignificant impacts on the tourism revenue of ASEAN member countries. This finding is the opposite of that in Dwyer, Forsyth & Rao (2002); Schiff & Becken (2011); Jayaraman, Lin, Haron, & Ong (2011); Chen, Lin & Chen (2015), Chao, Lu, Lai, Hu & Wang (2013); Tribe (2020), which found that the inflation rate is the main determinant of tourism demand. This result implies that international tourists visiting ASEAN member countries comprise a market segment that is not sensitive to changes in the price levels of tourism products. Referring to Martin (2010), it is possible that international tourists tend to face the challenge of comparing substitute tourism patterns and destinations among ASEAN member countries since similar attractions are sometimes difficult to assess due to a variety of tourism performance dimensions, such as the authenticity or uniqueness of destinations.

Suggestion

The policy recommendation for formulating tourism policy and strategies deriving from the analysis is as follows. Since the ASEAN tourism market structure is concentrated but still competitive and since international tourists visiting ASEAN member countries are not sensitive to price, policymakers and tourism entrepreneurs should formulate strategies to draw the attention of this market segment by implementing destination branding or attempting to differentiate attractions in the eyes of international tourists. When tourists see the differences between tourism destinations, it is possible to implement price strategies that increase tourism revenue, since price inelasticity of international tourists visiting ASEAN member countries suggests that an increase in the price of tourism products will not decrease the number of international tourists but increase tourism revenue instead. Moreover, in terms of the ASEAN community, the cooperation of tourism linkage strategies among ASEAN member countries will also allow member countries to mutually gain higher tourism revenues since these tourism products are substitutable.

This study had limitations regarding data accessibility and availability, which are the crucial limitations for international or regional market structure studies, especially as data from Brunei during the 2010–2011 period is missing. Thus, systematic dataset creation and coverage will be beneficial for future research in industrial organization. Moreover, since the concentrated tourism market may attimes not guarantee the exercise of market power among ASEAN member countries. This is because exercising market power depends on the market conditions. Therefore, future studies relevant to market power assessment will be useful for confirming the relationship between the elements of the SCP paradigm.

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References

Aguiló, E., Alegre, J., & Sard, M. (2003). Examining the market structure of the German and UK tour operating industries through an analysis of package holiday prices. *Tourism Economics, 9*(3), 255-278.

Akay, G. H., Cifter, A., & Teke, O. (2017). Turkish tourism, exchange rates and income. *Tourism Economics, 23*(1), 66-77.

Alegre, J., & Sard, M. (2017). Price strategies by German and British tour operators in Mallorca. *Journal of Hospitality and Tourism Management, 33*(2017), 93-102.

ASEAN. (2012). *The ASEAN-China Relationship.* Retrieved December, 12, 2021 from https://asean.org/?static_post=the-asean-china-relationship-by-s-pushpanathan-china-brief-magazine-7-may-2010-2

ASEAN Secretariat. (2015). *ASEAN tourism strategic plan 2016-2025*. Philippine: Philippine Department of Tourism.

Belleflamme, P., & Peitz, M. (2015). *Industrial organization: Markets and strategies.* UK: Cambridge University Press.

Brezina, I., Pekár, J., Čičková, Z., & Reiff, M. (2016). Herfindahl-Hirschman index level of concentration values modification and analysis of their change. *Central European Journal of Operations Research, 24*(1), 49-72.

Candela, G., & Figini, P. (2010). Destination unknown-Is there any economics beyond tourism areas?. *Review of Economic Analysis, 2*(2010), 256-271.

Carlton, D. W., & Perloff, J. M. (2015). *Modern industrial organization* (4 ed.). England: Pearson.

Chao, C. C., Lu, L. J., Lai, C. C., Hu, S. W., & Wang, V. (2013). Devaluation, pass-through and foreign reserves dynamics in a tourism economy. *Economic Modelling, 30,* 456-461.

Chen, M. H., Lin, C. P., & Chen, B. T. (2015). Drivers of Taiwan's tourism market cycle. *Journal of Travel & Tourism Marketing, 32*(3), 260-275.

Cho, V. (2010). A study of the non-economic determinants in tourism demand. *International Journal of Tourism Research, 12*(4), 307-320.

Choong-Ki, L., Var, T., & Blaine, T. W. (1996). Determinants of inbound tourist expenditures. *Annals of Tourism Research, 23*(3), 527-542.

Davies, B. (1999). Industrial organization the UK hotel sector. *Annals of Tourism Research, 26*(2), 294-311.

Davies, B., & Downward, P. (1996). The structure, conduct, performance paradigm as applied to the UK hotel industry. *Tourism Economics, 2*(2), 151-158.

Davies, B., & Downward, P. (2007). Exploring price and non-price decision making in the UK package tour industry: Insights from small-scale travel agents and tour operators. *Tourism Management, 28*(5), 1236-1261.

Durbarry, R. (2008). Tourism taxes: Implications for tourism demand in the UK. *Review of Development Economics, 12*(1), 21-36.

Dwyer, L., Forsyth, P., & Rao, P. (2002). Destination price competitiveness: Exchange rate changes versus domestic inflation. *Journal of Travel Research, 40*(3), 328-336.

Ellickson, P. B. (2015). Market Structure and Performance. In J. D. Wright (Ed.), *International Encyclopedia of the Social & Behavioral Sciences* (pp. 549-554). Oxford: Elsevier.

Gan, L. L., & Frederick, J. R. (2011). Medical tourism in Singapore: A structure-conduct-performance analysis. *Journal of Asia-Pacific Business, 12*(2), 141-170.

Gao, S., Tang, O., Wang, H., & Yin, P. (2018). Identifying competitors through comparative relation mining of online reviews in the restaurant industry. *International Journal of Hospitality Management, 71,* 19-32.

Garín-Muñoz, T. (2009). Tourism in Galicia: Domestic and foreign demand. *Tourism Economics, 15*(4), 753-769.

Göçen, S., Albeni, M., Yirik, Ş., Yildiz, H., & Akdere, M. (2016). Competition, market structure and market power within the hotel-supplier sector in Antalya, Turkey: The case for technology integration. *Tourism Economics, 23*(3), 647-668.

Goh, C. (2012). Exploring impact of climate on tourism demand. *Annals of Tourism Research, 39*(4), 1859-1883.

Hair, J., Black, W., Anderson, R. & Barbin, B. (2019). *Multivariate data anaylsis* (8th ed.). London: Cengage.

Higgins, B. R. (1996). The global structure of the nature tourism industry: Ecotourists, tour operators, and local businesses. *Journal of Travel Research, 35*(2), 11-18.

Jayaraman, K., Lin, S. K., Haron, H., & Ong, W. L. (2011). Macroeconomic factors influencing Malaysian tourism revenue, 2002–2008. *Tourism Economics, 17*(6), 1347-1363.

Laksmana, I., & Yang, Y. W. (2015). Product market competition and corporate investment decisions. *Review of Accounting and Finance, 14*(2), 128-148.

Lin, Y. C., & Chen, C. M. (2014). Research Note: Service quality and market structure in the international tourist hotel industry. *Tourism Economics, 20*(3), 647-654.

Liu, Y., Li, Y., & Parkpian, P. (2018). Inbound tourism in Thailand: Market form and scale differentiation in ASEAN source countries. *Tourism Management, 64,* 22-36,

Ma, M., Weng, J., & Yu, L. (2015). Market size, scale economies, and tourism market structure: A case of historic water town tourism in China. *Tourism Management, 49,* 119-137.

Martin, S. (2010). *Industrial organization in context.* USA: Oxford University Press.

Matsumoto, A., Merlone, U., & Szidarovszky, F. (2012). Some notes on applying the Herfindahl–Hirschman index. *Applied Economics Letters, 19*(2), 181-184.

Maudos, J. (1998). Market structure and performance in Spanish banking using a direct measure of efficiency. *Applied Financial Economics, 8*(2), 191-200.

Miller, R. A. (1982). The Herfindahl-Hirschman index as a market structure variable: An exposition for antitrust practitioners. *Antitrust Bull, 27,* 593.

Pan, C. M. (2005). Market structure and profitability in the international tourist hotel industry. *Tourism Management, 26*(6), 845-850.

Papatheodorou, A. (2003). Corporate strategies of British tour operators in the Mediterranean region: An economic geography approach. *Tourism Geographies, 5*(3), 280-304.

Papatheodorou, A. (2004). Exploring the evolution of tourism resorts. *Annals of Tourism Research, 31*(1), 219-237.

Patsouratis, V., Frangouli, Z., & Anastasopoulos, G. (2005). Competition in tourism among the Mediterranean countries. *Applied Economics, 37*(16), 1865-1870.

Payne, J. E., & Mervar, A. (2002). A note on modelling tourism revenues in Croatia. *Tourism Economics, 8*(1), 103-109.

Pindyck, R. S., & Rubinfeld, D. L. (2001). *Microeconomics* (5 ed.). USA: Prentice Hall.

Provenzano, D. (2014). Power laws and the market structure of tourism industry. *Empirical Economics, 47,* 1055-1066.

Rodríguez, M. O. L., Sánchez, C. A. F., Félix, J. Q., & Estrada, I. C. (2018). Factors that affect the demand of tourism in Mexico: Competitive analysis. *Journal of Tourism Analysis: Revista de Análisis Turístico, 25*(2), 154-166.

Saayman, A., & Saayman, M. (2008). Determinants of inbound tourism to South Africa. *Tourism Economics, 14*(1), 81-96.

Schiff, A., & Becken, S. (2011). Demand elasticity estimates for New Zealand tourism. *Tourism Management, 32*(3), 564-575.

Sheldon, P. J. (1986). The tour operator industry: An analysis. *Annals of Tourism Research, 13*(3), 349-365.

Snepenger, D., & Snepenger, M. (1994). Market structure analysis of media selection practices by travel services. *Journal of Travel & Tourism Marketing, 2*(2-3), 21-36.

Steven, A. B., Dong, Y., & Dresner, M. (2012). Linkages between customer service, customer satisfaction and performance in the airline industry: Investigation of non-linearities and moderating effects. *Transportation Research Part E: Logistics and Transportation Review, 48*(4), 743-754.

Stigler, G. J., & Sherwin, R. A. (1985). The extent of the market. *The Journal of Law and Economics, 28*(3), 555-585.

Surugiu, C., Leitão, N. C., & Surugiu, M. R. (2011). A panel data modelling of international tourism demand: Evidences for Romania. *Economic research-Ekonomska istraživanja, 24*(1), 134-145.

Thompson, A., & Thompson, H. (2010). Research note: The exchange rate, euro switch and tourism revenue in Greece. *Tourism Economics, 16*(3), 773-780.

Toivanen, O., & Waterson, M. (2005). Market structure and entry: Where's the beef? *The RAND Journal of Economics, 36*(3), 680-699.

Tribe, J. (2020). *The economics of recreation, leisure and tourism.* NY: Routledge.

Tung, G. S., Lin, C. Y., & Wang, C. Y. (2010). The market structure, conduct and performance paradigm re-applied to the international tourist hotel industry. *African Journal of Business Management, 4*(6), 1116-1125.

Turner, L. W., & Witt, S. F. (2001). Factors influencing demand for international tourism: Tourism demand analysis using structural equation modelling, revisited. *Tourism Economics, 7*(1), 21-38.

Tveteraas, S., Asche, F., & Lien, K. (2014). European tour operators' market power when renting hotel rooms in northern Norway. *Tourism Economics, 20*(3), 579-594.

UNWTO. (2014). *The Impact of Visa Facilitation in ASEAN Member States.* Spain: World Tourism Organization.

UNWTO. (2019). *International Tourism Highlights, 2019 Edition.* Madrid: World Tourism Organization.

Uysal, M., & Crompton, J. L. (1984). Determinants of demand for international tourist flows to Turkey. *Tourism Management, 5*(4), 288-297.

Var, T., Mohammad, G., & Icoz, O. (1990). Factors affecting international tourism demand for Turkey. *Annals of Tourism Research, 17*(4), 606-610.

Wang, Y., & Davidson, M. C. (2010). A review of micro-analyses of tourist expenditure. *Current Issues in Tourism, 13*(6), 507-524.

Wong, E. P. Y., Mistilis, N., & Dwyer, L. (2010). Understanding ASEAN tourism collaboration-the preconditions and policy framework formulation. *International Journal of Tourism Research, 12*(3), 291-302.

Wong, E. P., Mistilis, N., & Dwyer, L. (2011). A framework for analyzing intergovernmental collaboration-The case of ASEAN tourism. *Tourism Management, 32*(2), 367-376.

World Travel & Tourism Council. (2020). *Travel & tourism-Global Economic impact & trends 2020.* United Kingdom: World Travel & Tourism Council.

Yang, Y. (2014). Market Potential, industrial density and revenue of tourism firms in China. *Tourism Economics, 20*(6), 1253-1275.