Tourism Analytics: Analysing Visitor Arrival Data for Tourism Industry in Sarawak

Miko Chang May Lee[1*], and Clifford Kueh Wei Chyi[2]

[1] Faculty of Engineering, Computing and Science, Swinburne University of Technology Sarawak Campus, Kuching, Malaysia
[2] Deputy Managing Director, KLB Garden, Tebedu, Malaysia

[1]mchang@swinburne.edu.my; [2]klbgarden@gmail.com

*Corresponding Author

ABSTRACT

Tourism is identified as one of the six key economic sectors in the Sarawak post-COVID-19 development strategy with an expected higher GDP contribution of 11% by 2030. Visitor arrival datasets have been commonly used to measure the performance of the tourism industry but their significance to the Sarawak tourism industry has not been clarified. This paper aims to fill in the research gap by examining the recent 20-year visitor arrival data in Sarawak and its relationship with the local tourism industry. Leveraging various data sources and advanced visualisation techniques, four research questions related to the market outlook, seasonality and plausibility of the visitor arrival statistics have been formulated and addressed. The research findings have concluded that despite existing challenges in the local tourism industry, there has been a positive market trend since 2001. The top and emerging markets for the Sarawak tourism industry are also identified including Brunei, Indonesia, Philippines, Singapore, China, United Kingdom, Thailand, India and the two domestic

markets (Sabah and Peninsular Malaysia). Finally, the study has confirmed that the Sarawak visitor arrival data are a reliable indicator and can be used to provide a high-level data-driven overview of the market outlook. Possible future research directions have been proposed including systematic data collection, data integration and travel tracking to achieve sustainable growth via tourism analytics.

Keywords: *Tourism analytics; Data Science; Data Visualisation; Sarawak Tourism; Visitor Data*

INTRODUCTION

Sarawak, also known as the "Land of the Hornbill", is the largest state in Malaysia located on the island of Borneo together with Sabah, Brunei and Kalimantan (MTACYS, 2017). As illustrated in Figure 1, Borneo is a popular destination for natural attractions and it is also the largest island in the world politically administered by three countries. Consequently, the Sarawak tourism industry is recognised as one of the important economic sectors by the Sarawak Economic Action Council (SEAC). It plays an essential role in creating business opportunities and developing the rural regions across Sarawak by leveraging the natural attractions, heritage, diverse culture and festivals (Borneo Post Online, 2020). Despite the sudden drop in tourism-related activities due to the pandemic in 2019 and 2020, the tourism industry is still expected to recover and grow sustainability worldwide due to the re-opening of borders (Richter, 2022).

Nonetheless, the tourism industry is undeniably susceptible to a range of external shocks including political turmoil, natural disasters, disease outbreaks etc. Hence, researchers have been investigating the impacts of COVID-19 on travel patterns and empirical results show that tourists' destination preferences have changed significantly after the pandemic. Based on a case study in China, Li et al found that travel destinations with high confirmed cases of COVID-19 relative to the tourists' places of origin are unfavourable due to increased infection risk and safety concerns. Moreover, tourists prefer closer travel destinations to their homes especially the local attractions after experiencing the pandemic. In short, the travel pattern has changed as tourists prefer local short-distance trips over long-distance trips (Li et al., 2021). By understanding such changes,

policymakers and the associated stakeholders in the tourism industry can then devise effective business and marketing strategies by promoting local attractions to the neighbouring regions while prioritising a safe travel experience.

Figure 1
Sarawak Map
Retrieved at *https://www.mapsofworld.com/malaysia/states/sarawak-map.html*

In line with the post-COVID-19 Development Strategy 2030 by the Sarawak State Government, it is envisioned that "By 2030, Sarawak will be a thriving society driven by data and innovation where everyone enjoys economic prosperity, social inclusivity and sustainable environment". The two keywords in this vision are "data" and "innovation". As expected, tourism is also identified as one of the six key economic sectors in the plan and it is envisioned that the tourism sector will have a higher GDP contribution of 11% by 2030 with increased visitor arrivals of 7.5% annual growth rate and employment generation of 25% in the tourism and hospitality sector (EPU, 2021).

To achieve these holistic goals, both public and private players in the industry must first understand the current market outlook based on data and facts before working strategically and collectively in promoting Sarawak tourism. This research aims to address the knowledge gaps by examining the 20 years of visitor arrival data for the tourism industry in Sarawak from 2001-2020.

LITERATURE REVIEW

The visitor arrival data have been commonly used to measure the performance of the tourism industry. One most recent similar study was reported some time ago in 2008 using data from 1972 until 2004. The empirical results revealed that there is a long-run causality between tourist arrival and tourism-led economic growth in Sarawak (Lau et al., 2008). However, the study was conducted more than a decade ago, hence, this paper aims to re-visit the topic by including recent data via systematic visualisation and analytics. Before finalising the research questions, the authors have conducted a literature review on tourism analytics and the Sarawak tourism industry to better understand the state-of-the-art data-driven tourism research.

Tourism Analytics

The most prominent use cases in tourism analytics research are related to tourist demand and arrivals forecasting across different timescales including yearly, monthly and daily forecasts. There are three types of forecasting approaches including noncausal time series models, causal econometric models and artificial intelligence-based models. According to Li et al. (2020), the daily forecasts are harder to obtain as compared to yearly and monthly due to data availability and reliability. In addition, data quality should be improved via denoising to improve forecast accuracy which is a promising future research direction (Li et al., 2020).

Motivated by advanced information and computing technology such as sensors-embedded personal devices and big data, there are new opportunities in integrating mobility research with tourism analytics for visitors' tracking research via passive mobile data (PMD) or event data that are recorded by the network operators or mobile applications. Hence, using

a case study in Germany, researchers have investigated the advantages and challenges of using PMD in tourism research and found out that while PMD can measure the mobility of people, it is unable to accurately differentiate tourists from non-tourists in the aggregated data. In addition, there are existing ethical issues in tracking tourists' tempo-spatial behaviour which have to be resolved in future research (Reif & Schmücker, 2020).

Another research direction in tourism analytics is to explore diverse sources of data including news data. Park et al have found that the inclusion of news sources in the predictive models improves the accuracy of tourism demand forecasting. Hence, apart from the usual objective and quantifiable variables such as population employment and income, more subjective variables and novel sources of volume data such as online news and political events should be considered as they serve as useful indicators of significant social changes that will affect tourism (Park et al., 2021).

Lastly, a comprehensive review of big data research related to tourism and hospitality has concluded that while data have broadened the scope of tourism research, there is a need for a sound theoretical and philosophical foundation to generate significant knowledge and insights (Lyu et al., 2022).

Tourism Industry in Sarawak

After understanding the opportunities and challenges in tourism analytics, it is critical to analyse the current industry outlook in Sarawak and the possibilities of achieving the 2030 vision via data and innovation. According to online reports and news, Sarawak is on track to hit the target of 1.2 million visitor arrivals in 2022 (Star, 2022). This estimate was announced officially based on records and assumptions that more visitors will arrive in the second half of the year, especially during the year-end holiday. In addition, numerous tourism events have been launched and planned to revive the industry including the Rainforest World Music Festival, Borneo Music Festival, and Sia Sitok Campaigns (Chiam, 2022) as well as strategic initiatives organised by the Sarawak Trade and Tourism Office based in Singapore (STATOS) (Ling, 2022).

Despite the active effort in such tourism-related initiatives, several fundamental challenges have to be addressed and tackled to spur the tourism

industry in Sarawak. First of all, transportation and mobility remain the biggest challenges as there are limited international flights and modes of travel to and within Sarawak. As of Aug 2022, international visitors excluding Brunei and Kalimantan will have to travel by flight to enter Sarawak via Kuching International Airport which currently offers only a handful of direct international flight connections with Singapore, Brunei, and Pontianak. Within Sarawak, many rural areas still suffer from transport poverty and the villagers have to rely on informal transport systems which are not as effective in terms of affordability, safety and accessibility for travellers (Horn et al., 2021).

In a study related to tourism competitiveness (TC) and the performance of the tourism industry, researchers have also found that the development of transport infrastructure and technology is a major driver of tourism flows and tourism economic contribution across the world. Particularly, such an infrastructure component has a greater impact on Asia as compared to Europe where the infrastructure is relatively mature. Hence, the development of critical infrastructure such as airports, ports, roads and travel service facilities has to be prioritized to improve the performance of the tourism industry (Zadeh Bazargani & Kiliç, 2021).

The second challenge faced by the Sarawak tourism industry is the scattered efforts across agencies and players due to the vast land and limited connectivity. For example, many small players at the grassroots level might not receive substantial exposure and equal opportunities due to the digital divide and lack of contact. In a case study of the homestay programme in Sarawak, Sita and Nor investigated the local perceptions of tourism impacts, and discovered that there are varying negative and positive perceptions of the local people towards the tourism industry depending on the degree of contact. Fortunately, most respondents were optimistic and expected to welcome more tourists as they agreed that these tourism activities are important drivers in creating prosperity and job opportunities (Sita & Nor, 2015). Hence, sustainable growth in the tourism industry is critical to continuously improve the livelihood of the people and rural area development across Sarawak despite existing challenges. One possible research direction is to devise a participatory policy model that involves all stakeholders including policymakers, tour operators, and public and private industry players that aims to funnel the economic returns from tourism

activities directly into the local communities and achieve shared prosperity and 2030 vision through collective efforts (Haigh, 2020).

Lastly, the third challenge is the lack of data-driven decision-making practices in the industry to optimise business and marketing strategies due to low awareness and expertise in data analytics. As mentioned earlier, the most recent research work on the visitor arrival data in Sarawak was reported more than a decade ago in 2008. Therefore, this research aims to fill in the gap via a detailed examination of the last 20 years of visitors' statistics to provide a timely overview of the industry outlook followed by strategic recommendations based on data.

Research Questions

To address the research gaps identified in the previous section, four research questions (RQ) summarised in Table 1 are proposed to investigate the overall market trend and the industry outlook from the visitor statistics. These RQs are to uncover any hidden insights or interesting patterns that are potentially useful during the decision-making process:

Table 1 Research Questions

RQ	Details
RQ1	What is the overall market trend for the Sarawak tourism industry based on visitors' statistics over the last two decades?
RQ2	What are the top markets or countries by visitors and the associated market share for the Sarawak tourism industry for strategic marketing?
RQ3	Is there any monthly seasonality in the visitor arrivals to identify peak or off-peak season for the Sarawak tourism industry?
RQ4	Are the Sarawak visitor arrival data a good indicator of the tourism industry albeit they are being used widely in tourism research and reports?

To address the above research questions, extensive data collection and preparation from various sources are conducted followed by detailed analyses of the results and discussions. Finally, the paper concludes with future recommendations.

METHODOLOGY

The research questions are answered via a three-pronged approach: (1) data collection, fusion and transformation; (2) data visualisation and analyses; (3) results interpretation via an interactive dashboard.

Stage 1: Data Collection, Fusion and Transformation

Data preparation is an essential step in all data science projects to avoid the "garbage in, garbage out" problem in modelling and analyses (Provost & Fawcett, 2013). To address RQ1, RQ2 and RQ3, the authors have downloaded all the visitor arrival datasets from The Official Portal of Sarawak Data for the year 2001 until 2020 which were made available to the public as part of the Open Government Data initiative (Ubaldi, 2013). To address RQ4 and RQ5, additional datasets are sourced including the population data from The World Bank Data and Sarawak gross domestic product (GDP) data from the DOSM to enrich the datasets in examining the relationship between visitor arrival and the tourism sector in terms of the GDP for services sector as well as understanding potential biases in the data, if any. In short, there are three sources of data being used in this study including (1) visitor arrival data, (2) services and tourism GDP data and (3) population data.

During data preparation, it was found that there was a format change in the visitor arrival data in 2007. The first 6 years (2001 to 2006) of data included 17 foreign citizenships and 2 domestic categories whereas the remaining years (2007 to 2020) included 28 foreign citizenships and 2 domestic categories as summarized in Table 2. The data from these 20 files were combined and transformed to form one master dataset which includes the year, month, citizenship and number of visitors, resulting in a single file with 8641 rows and 4 columns.

Table 2
Data Fields in Sarawak Visitor Arrival Dataset

Period	International	Domestic
2006 – 2007	Singapore; Australia & New Zealand; Canada; Hong Kong; India; United Kingdom & Ireland; Brunei; USA; China; Western Europe; Eastern Europe; Philippines; Indonesia; Japan; Taiwan; Thailand; Others	Peninsular Malaysia; Sabah
2007 - 2020	Singapore; Australia; New Zealand; Canada; United Kingdom; Hong Kong; Sri Lanka; Bangladesh; India; Brunei; USA; China; Russia; Latin America; Arabs; Germany; France; Nor/Swe/Den/Fin; Belg/Lux/Net; Europe; Philippines; Thailand; Taiwan; Indonesia; Pakistan; Japan; South Korea; Others	Peninsular Malaysia; Sabah
Total	Total	Total

Note. The format change will result in missing data for the affected fields

The services and tourism GDP data in Sarawak from 2010 to 2020 and from 2010 to 2017 were retrieved from research journals and reports to examine the relationship between visitor arrival data and the tourism industry during results validation and interpretation for RQ4 (Lee & Voon, 2022). In addition, the population data by country were also retrieved from the World Bank data to complement the analyses by cross-checking the annual number of visitors from a specific country with the population of the country as a proxy of the frequency of visits by country.

Stage 2: Data Visualisation and Analyses

After data preparation, appropriate visuals based on the types of data and research questions are chosen and implemented using an open-source business intelligence tool known as Google Data Studio (Google, 2016). In particular, RQ1 is addressed using a time series chart to visualise the trend of visitors' statistics by country over time whereas RQ2 is answered using a pie chart that aims to understand the composition of the visitors' statistics by citizenship and identify the important markets by share. RQ3 aims to investigate the monthly seasonality in the visitor arrivals as accurate identification of the peak and off-peak seasons serves as useful guidance in steering tourism-related activities.

Last but not least, RQ4 will validate the common assumption in using visitor arrival data as the key performance indicator for the tourism industry as it is commonly assumed that the higher the number of visitors arriving, the more prosperous the tourism industry. Combining the findings from all four RQs, recommendations will be discussed and concluded to suggest possible improvements in improving the Sarawak tourism industry in a data-driven manner.

Stage 3: Results Interpretation

All the visualisations and datasets are made available via the open-source Google Data Studio Dashboard and Github repository. The results and findings are also discussed and validated from the perspectives of a local tourism industry player before the finalisation and summarisation in the next section.

RESULTS AND DISCUSSIONS

The four research questions are answered and potential issues found are discussed in this section based on the interactive dashboard and regression analyses.

RQ1. Market Trend

Overall, there is an increasing trend in terms of the number of visitors who arrived in Sarawak from 2001 to 2019 excluding the data for 2020 as an outlier due to the pandemic shock.

As shown in Figure 2, the number of visitors grew steadily from 2001 until 2010 with the highest increase from 2010 to 2014 followed by a stagnation period with approximately 5 million visitors from 2015 to 2019. These findings are further validated by running regression analyses on the time series as summarized in Figure 3.

Figure 2
Time Series Chart of Visitor Arrival by Citizenship

Top: Total number of visitors by year; Bottom: Number of visitors by citizenship
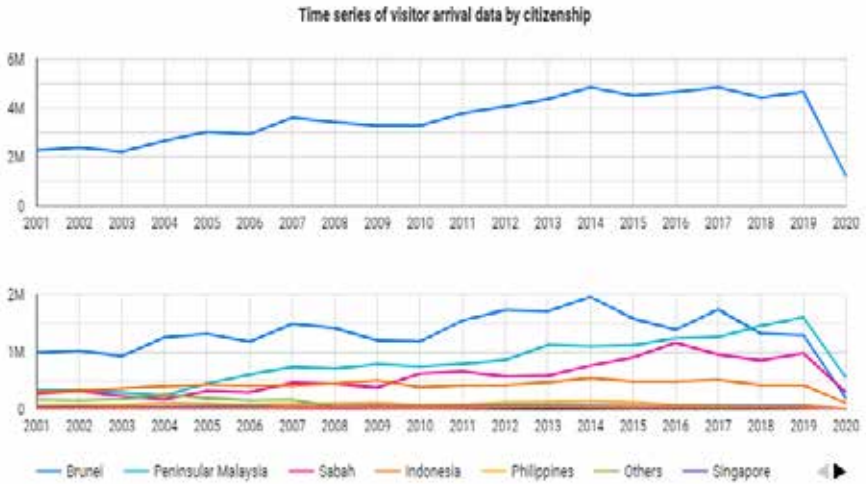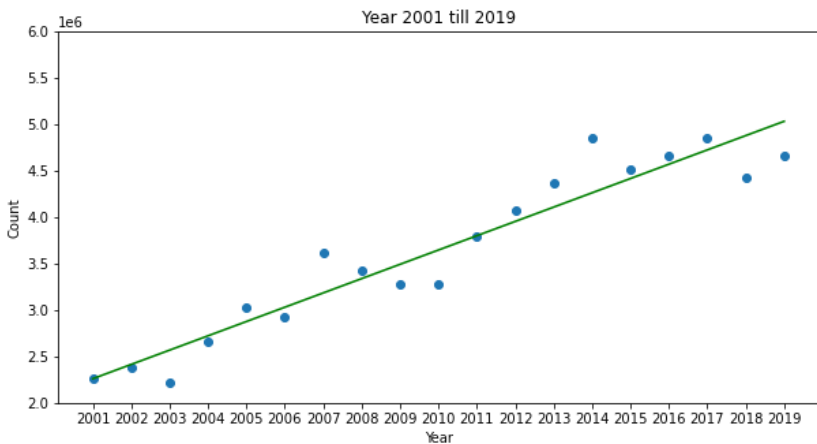

Figure 3
Regression Analysis of Visitor Arrival Versus the Year

Last 19 years, the coefficient of determination: 0.91

Based on both Figures 2 and 3, it is concluded that there is an overall increasing trend in terms of the visitor arrival data. However, focusing on

recent years, the number of visitors has reached a saturation point of around 5 million since 2015. Thus, positive interventions such as tourism-related incentives or campaigns etc. are necessary to maintain an upward trend via a detailed examination of each market including identification of the top and emerging markets for strategic marketing initiatives.

RQ2. Top Market

The top markets are defined by the highest number of visitor arrivals. Based on the Pareto chart in Figure 4, it is observed that from 2001 to 2020, the top market distributions were dominated by four neighbouring regions including Brunei, Peninsular Malaysia, Sabah and Indonesia. This may suggest underlying problems in using visitor arrival data as a universal performance indicator for all countries as the top markets seem to be most affected by other factors such as geographical proximity or purposes of travel related to employment instead of tourism.

For example, the total population of Brunei in 2019 was 433,296 but the number of visitors who arrived from Brunei in Sarawak in the same year was 1,296,017. This means that on average, each Bruneian travelled to Sarawak around 3 times in 2019. While this may be possible since Brunei is located next to Miri city and has been the main market for Miri tourism including day trips, we could not rule out other possibilities including business travelling etc. as the purposes of travel were not elaborated in the data (Borneo Post Online, 2022).

To address any potential bias, the authors decided to exclude these four neighbouring regions from the pie chart analyses to examine if there are any emerging international markets. As summarised in Figure 5, it is observed that the top markets by visitor arrival after excluding geographical effects are the Philippines, Singapore, China, United Kingdom, Thailand and India. Notably, Thailand appeared as one of the emerging markets only during the period 2006 to 2010 whereas the number of visitors from India increased rapidly from 2010 to 2012.

Figure 4
Pareto Chart of the Top 10 Markets 2001 till 2020

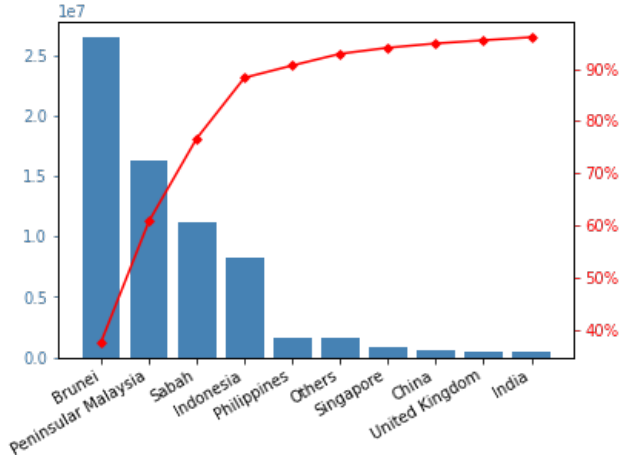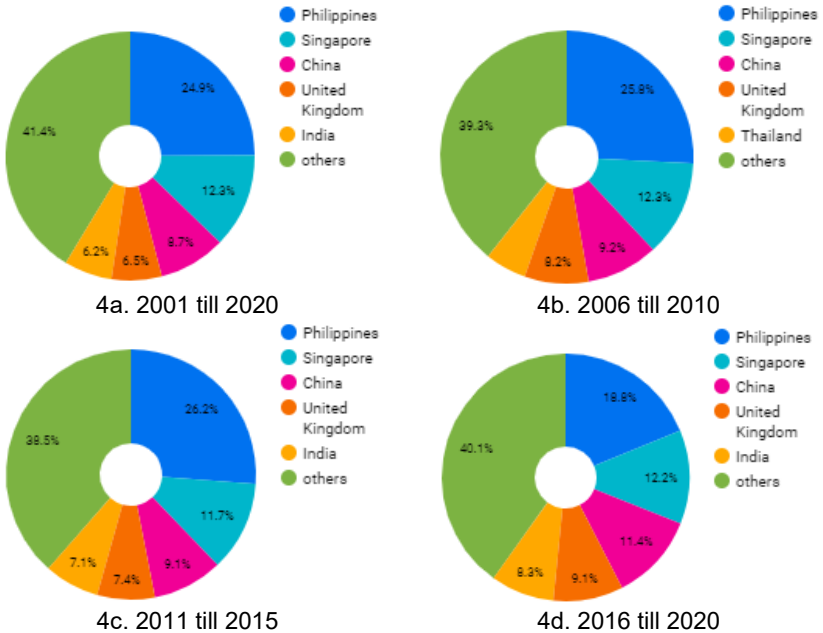*Red line: cumulative percentage; Blue bar: Total number of visitors*

Figure 5
Pie Chart Analyses for Top and Emerging Markets Over Time

4a. 2001 till 2020

4b. 2006 till 2010

4c. 2011 till 2015

4d. 2016 till 2020

RQ3. Monthly Seasonality

After understanding the overall market trend and top markets, accurate identification of the monthly seasonality in terms of visitors' arrival will ensure adequate preparation during the peak season as well as the strategic organisation of tourism-related activities in maximising impact. Across the full dataset, there is a consistent finding that December always has the highest number of visitors every year, followed by March and June as illustrated in Figure 6.

Figure 6
Monthly Seasonality for 2010 till 2019
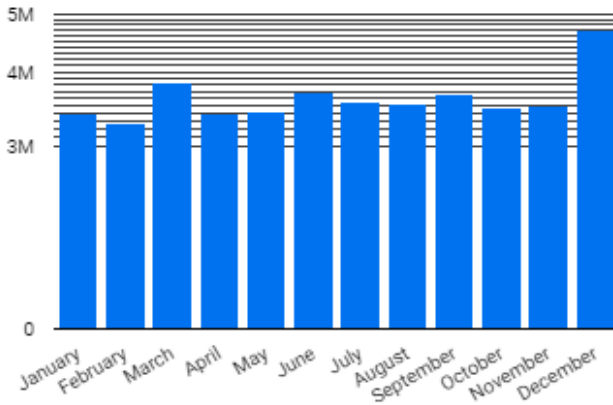
## RQ4. Visitor Arrival Data as Indicator

Notably, all the analyses, thus far were based on a common assumption that the visitor arrival data are a key performance indicator for the tourism industry. The fourth RQ aims to test this assumption by investigating the relationship between visitor arrival data and the services GDP for Sarawak using only ten years of data from 2010 to 2019 due to limited data availability as well as after excluding outlier data in 2020.

The regression line in Figure 7 has a coefficient of determination (R^2) of 0.5, this implies that the visitor arrival data can be used to partially predict the value of 'other service' GDP which includes the contribution from the tourism industry.

As an improvement, the linear regression model was re-run using GDP contributed by tourism-related activities only based on the data manually retrieved from the 2017 Sarawak Tourism Report (MTACYS, 2017) and the coefficient of determination has improved to 0.64 which demonstrates the plausibility of using visitor arrival data as a key performance indicator for the tourism industry.
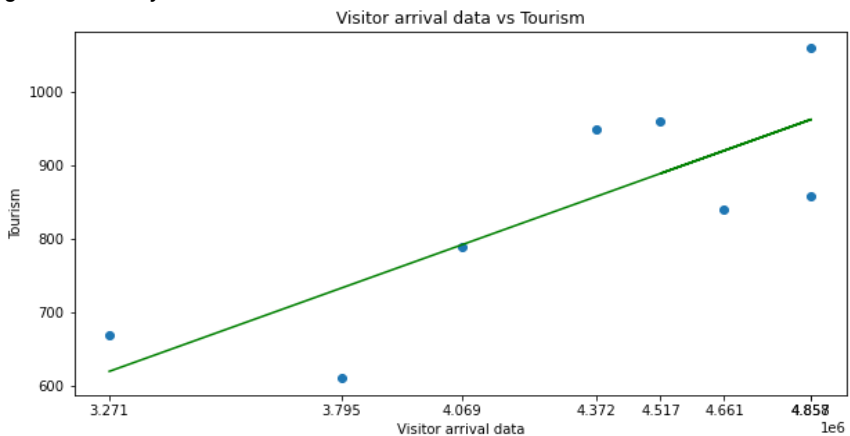
Figure 7

Regression Analysis on Visitor Arrival Data versus Tourism Industry Approximated using 'Other Service' GDP
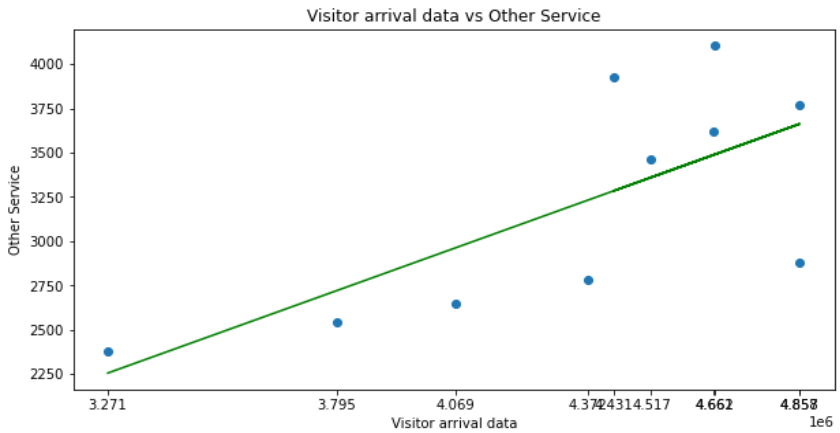
2010 till 2019, coefficient of determination: 0.5

Figure 8

Regression Analysis of Visitor Arrival Data versus Tourism GDP

2010 till 2017, coefficient of determination: 0.64

Overall, there is also a positive relationship confirming our assumption that as the number of visitors increases, we could expect increased economic prospects in the Sarawak tourism industry, which is consistent with the findings from prior studies (Lau et al., 2008).

CONCLUSIONS AND RECOMMENDATIONS

Combining the findings from all four RQs, it is concluded that there is an upward trend for the Sarawak tourism industry based on visitors' statistics over the last two decades and the top markets are dominated by neighbouring regions including Brunei, Indonesia, the Philippines and domestic travellers from Sabah and Peninsular Malaysia. As local and shorter trips are preferable after the pandemic, strategic marketing and promotional efforts could be targeted at these regions. Apart from these top markets, decision-makers could also focus on emerging markets including Singapore, China, the United Kingdom, Thailand and India for business diversification and expansion purposes.

In addition, it is proven via data that there is a consistent monthly seasonality in the visitor arrivals with the highest number of visitors during the year-end holiday period in December, followed by March and the mid-year break in June. However, future studies are required to re-examine the post-pandemic trend and monthly seasonality in the next few years as the school holiday periods have shifted due to the pandemic.

The study has also confirmed the hypothesis that Sarawak visitor arrival data are a reliable indicator of the tourism industry given its positive and fair correlation with the tourism GDP. However, there are several shortcomings in this study including the limited granularity of the data, the exclusion of local Sarawakian travellers in the dataset as well as the lack of a long-term data strategy for the tourism industry in Sarawak.

For instance, the visitor arrival datasets made available to the public only contain the monthly statistics and this could be improved by including the weekly or daily data. Additional data field such as the purpose of travelling should also be added. Lastly, the update frequency should be improved to enable accurate forecasting and nowcasting of the visitors' arrival for short-term planning.

Following the 2030 vision, a holistic data strategy including systematic data collection via a dedicated mobile or web application for travellers in Sarawak, integration with various data sources including online and offline as well as real-time analytics to enhance tourists' experiences is necessary to continuously monitor the performance of the Sarawak tourism industry for sustainable growth and development.

In summary, there are plenty of opportunities and potentials in tourism analytics and this paper provides a high-level data-driven overview of the market outlook for future research in tourist forecasting and tracking.

CONTRIBUTIONS OF AUTHORS

The authors confirmed the equal contribution in each part of this work. All authors reviewed and approved the final version of this work. All data and analyses are made available at the following links to encourage open and reproducible research:

- Code and dataset: https://github.com/mmlchang/TourismAnalytics
- Data dashboard: https://bit.ly/3zO0tw9

FUNDING

CONFLICT OF INTERESTS

All authors have declared that they have no conflicts of interest.

ACKNOWLEDGEMENT

REFERENCES

Chiam, A. (2022, August 15). Next 'Sia Sitok' campaign starting Sept, says tourism board chairman. *Borneo Post Online.* https://www.theborneopost.com/2022/08/15/next-sia-sitok-campaign-starting-sept-says-tourism-board-chairman/

EPU. (2021). Post COVID-19 Development Strategy 2030. Sarawak State Government.

Google. (2016). Google Data Studio. Retrieved 20-07-2022 from https://datastudio.google.com/u/0/

Horn, C., Gifford, S. M., & Ting, C. Y. P. (2021). Informal, essential and embedded: Transport strategies in remote Sarawak. *Journal of Transport Geography, 96*, 103181.

Lau, E., Oh, S.-L., & Hu, S.-S. (2008). Tourist arrivals and economic growth in Sarawak. MPRA Paper No. 9888.

Lee, W. C., & Voon, B. H. (2022). Services sector in Sarawak: Challenges and way forward. *International Journal of Industrial Management, 13*(1), 451-457.

Li, C., Ge, P., Liu, Z., & Zheng, W. (2020). Forecasting tourist arrivals using denoising and potential factors. *Annals of Tourism Research, 83,* 102943.

Li, X., Gong, J., Gao, B., & Yuan, P. (2021). Impacts of COVID-19 on tourists' destination preferences: Evidence from China. *Annals of Tourism Research, 90*, 103258.

Ling, S. (2022, August 12). Sarawak to woo tourists from Singapore. *The Star.* https://www.thestar.com.my/news/nation/2022/08/12/sarawak-to-woo-tourists-from-singapore

Lyu, J., Khan, A., Bibi, S., Chan, J. H., & Qi, X. (2022). Big data in action: An overview of big data studies in tourism and hospitality literature. *Journal of Hospitality and Tourism Management, 51*, 346-360.

Ministry to position Sarawak as top tourist destination through master plan. (2020, September 11). *Borneo Post Online.* https://www.theborneopost.com/2020/09/11/ministry-to-position Sarawak-as-top-tourist-destination-through-master-plan/

Miri ready to welcome influx of visitors from Brunei. (2022, August 6). *Borneo Post Online.* https://www.theborneopost.com/2022/08/06/miri-ready-to-welcome-influx-of-visitors-from-brunei/

MTACYS. (2017). Sarawak Tourism Quick Facts 2017. A. Ministry of Tourism, Culture, Youth and Sports Sarawak. https://data.sarawak.gov.my/home/data/dataset/800c4d22-1a13-4acb-98e2-40c297ebe124

Park, E., Park, J., & Hu, M. (2021). Tourism demand forecasting with online news data mining. *Annals of Tourism Research, 90,* 103273.

Provost, F., & Fawcett, T. (2013). Data Science for Business: What you need to know about data mining and data-analytic thinking. O'Reilly Media, Inc.

Reif, J., & Schmücker, D. (2020). Exploring new ways of visitor tracking using big data sources: Opportunities and limits of passive mobile data for tourism. *Journal of Destination Marketing & Management, 18,* 100481.

Richter, F. (2022). International travel levels tipped to soar again in 2022. World Economic Forum. Retrieved 2022-08-14 from https://www.weforum.org/agenda/2022/06/international-travel-2022-covid19-tourism/

Sarawak set to meet tourism target. (2022, August 11). *The Star.* https://www.thestar.com.my/news/nation/2022/08/11/sarawak-set-to-meet-tourism-target

Ubaldi, B. (2013). Open government data: Towards empirical analysis of open government data initiatives. OECD Working Papers on Public Governance.

Zadeh Bazargani, R. H., & Kiliç, H. (2021). Tourism competitiveness and tourism sector performance: Empirical insights from new data. *Journal of Hospitality and Tourism Management, 46*, 73-82.