Empirical Review on Tourism Demand and COVID-19

Jong, Meng-Chang

Universiti Malaysia Sarawak

8 November 2020

Empirical Review on Tourism Demand and COVID-19

Jong, Meng-Chang

Faculty of Economics and Business, Universiti Malaysia Sarawak,
94300 Kota Samarahan, Sarawak, Malaysia

Introduction

Tourism is one of the most remarkable multi-faceted phenomena that contributes enormously to economic development for most countries around the globe. The steady growth of the world economy, rapid development in transportation systems, and visa facilitation have bolstered the industry by facilitating higher accessibility for tourists. However, tourism is a vulnerable and competitive industry that need to accommodate the rapid changes of tourist demand and economies as well as consider environment effects. Apart from these dynamic needs, an unexpected health crisis may also lead to devastating impacts on the tourism industry. Recalling the previous health crisis, the recovery period of tourism was considerably rapid and it efficiently bounced back to a normal track. Despite the resilience characteristics of tourism, it is important for researchers to constantly monitor this matter.

The recent pandemic caused by the novel coronavirus of 2019 (COVID-19) has brought severe disruptions to the global economy, and specifically caused a tremendous decline in the tourism industry. Tourism is one of the focal engines generating income for most developed and developing countries. It also plays a vital role as job creator and foreign exchange earner. It is one of the industries tremendously impacted by the outbreak, grounding airplanes and severely limiting the ability of people to travel abroad. Countries around the world may experience a surge in unemployment and a dramatic contraction in gross domestic product (GDP). Once the vaccines are available and movement restrictions are lifted, the tourism sector can be one of the key industries for economic recovery. More than ever, studies on tourism demand modelling and forecasting are crucial. A review of literature on tourism demand takes into account recent studies on the unprecedented COVID-19 pandemic.

Review of Literature

Since the late 1980s, numerous studies have been conducted on numerous countries to examine the determinants affecting tourism demand. Indeed, various literatures related tourism demand studies carried on numerous countries (see Martin & Witt, 1988; Chaiboonsri et al., 2010; Eryigit et al., 2010; Puah et al., 2014; Gouveia et al., 2017; Puah et al., 2019; Xu et al., 2020). The studies utilized a variety of tourism determinants and approaches in investigating the dynamic relationship between the variables and tourism demand.

In previous literature, tourism demand is commonly proxied by tourist arrivals (Song & Li, 2008; Song et al., 2012; Thien et al., 2015; Tanjung et al., 2017; Puah et al., 2018a; Jong et al., 2020), and followed by tourism receipts (Akal, 2004; Shahbaz et al., 2017; Song et al., 2020). Tourist arrivals is commonly employed to proxy tourism demand in previous literatures

because it regarded as the global tourism barometer and enable access to higher-frequency data; that is, tourist arrivals data are always up to date and published on a reasonably prompt schedule.

Meanwhile, tourism determinants consist of income level, tourism price, exchange rate, transportation cost, travel distance, word of mouth, language and other key factors. Chaiboonsri et al. (2010) conducted a study to identify the factors influencing major source markets such as Malaysia, Japan, Korea, Singapore, China and Taiwan on Thai tourism demand. The selected determinants are tourists' income, transportation cost and exchange rate. By employing panel analysis, they found that higher income levels and appreciation of exchange rate will stimulate the tourism demand in Thailand, whereases transportation cost leaves an adverse impact in the long run.

Puah et al. (2014) employed real income variable, tourism price, real travel cost and exchange rate in estimating the Singaporean demand for Malaysian tourism. They employed quarterly data spanning from 2000 to 2010 and analysed it using the error correction model. They discovered that both income and exchange rate positively affected tourism demand in Malaysia. However, travel cost and tourism price adversely influenced Singaporean demand for Malaysia tourism.

Similar research was conducted by Thien et al. (2015) to identify the determinants affecting Thai tourist demand on Malaysia. They also utilized real income level of Thai tourists, transportation cost and exchange rate. In line with the studies of Puah et al. (2014), tourism price negatively influenced tourism demand in Malaysia. However, Thien et al. (2015) found that higher incomes of tourists will discourage them from traveling to Malaysia, which contradicts other studies such as Puah et al. (2014), Tanjung et al. (2016), Jong et al. (2020). They stated that the possible reason is that high-income Thai tourists seek alternative tourism destinations rather than neighbouring countries.

Tinbergen (1962) designed a gravity model for the flows of tourists between two points. It was derived from Newton's gravity law to describe the trade pattern between the countries. It has been determined to fit well in tourism studies because the gravity model is specially designed considering the flows of goods and services between the countries as well as the geographical distance. The core gravity model consists of income level of origin countries, income level in destination country and geographical distance between the capitals of the countries.

The gravity model has been employed in studies of various subjects such as international trade, migration, and foreign direct investment. During the 1990s, McCallum (1995) employed the gravity model to investigate the trade flows between Canadian provinces and the United States and found a positive relationship between income levels of origin and destination countries and tourism demand. In contrast, the travel distance negatively impacted the tourism demand.

Jong et al. (2020) estimated the tourism demand in Sabah using the gravity model. They utilized yearly data covering 2010 to 2016 for ten major countries travel to Sabah. A panel analysis was employed to estimate the gravity model. They identified a consistent positive association of the income levels in origin and destination countries toward tourism demand, whereas travel distance adversely influenced tourism demand (see Morley et al., 2014; Priego et al. 2015; Kaplan & Aktas, 2016).

By employing Autoregressive Distributed Lag (ARDL) approach, Puah et al. (2018b) investigated the impact of tourism industry on the economy in Malaysia. They utilized the sample period of 1995 to 2016 to examine the tourism-led growth hypothesis. By employing tourism receipts and capital investment in Malaysian tourism, they found that both tourism receipts and capital investment have a significant positive impact on Malaysian tourism. Thus, they concluded that the tourism-led growth effect is valid for the tourism industry in Malaysia.

Yap et al. (2020) also utilized the ARDL technique to investigate the effect of macroeconomic variables on tourism events demand in Malaysia. The authors used the quarterly data during the sample period of 1991 through 2016 by employing macroeconomic variables such as tourism receipts, exchange rate, government expenditure and transportation cost. They found that government spending, tourism receipts and exchange rate can improve the demand for tourism events significantly. Meanwhile, the cost of transportation adversely influenced event demand. Thus, they suggested that the government and key industry players should create an integrated plan to promote tourism events and thus enhance tourism's contribution to the economy.

Regarding panel analysis, Jong et al. (2020) employed the static panel technique to discover the factors affecting tourism demand in Sabah. They employed the gravity model to model the tourism demand using yearly data spans from 2010 to 2015. The finding suggested that the fixed effect model is preferable to examine tourism demand. The results of the fixed effect model illustrated that income level is positively associated with tourism demand, while transportation cost and tourism price are negatively associated with tourism demand in Sabah.

Rossello-Nadal (2001) employed ARIMA to forecast the turning points of international tourist arrivals in Balearic Islands. Using monthly data from 1975 to 1999, they determined that the mean duration of the tourism cycle is four years. Soh et al. (2019a) constructed a tourism cycle indicator (TCI) for Maldives. By employing monthly data covering 2000 through 2017, they designed the TCI to signal the tourism attribute regarding international tourist arrivals. They utilized Bry-Boschan dating algorithm to detect the turning points. Their finding determined that TCI successfully detected ten economic events/crises 4.4 months early on average. Thus, they confirmed the ability of TCI to minimize the crisis burden for policymakers and industry players.

Claveria and Datzira (2010) forecasted the tourism demand in Catalonia using four approaches: autoregressive, ARIMA, self-exciting threshold autoregressions and Markov switching regime model. They applied the estimation to France, United Kingdom, Germany and Italy over half a decade using monthly data. They found that ARIMA and Markov switching outperformed other forecasting approaches.

Soh et al. (2019b) used the Markov switching technique to predict the tourism cycle in Fiji. The sample period was 2000 to 2017 using monthly observations. Their analysis successfully detected five major economic crises including the Dotcom bubble, global oil price hike and Subprime Mortgage crisis. Soh et al. (2019c) and Soh et al. (2020) conducted further research on Fiji and found that the constructed tourism cycle indicator possesses significant ability to forecast several crises accurately. Both studies showed that the constructed tourism cycle indicator signalled the economic crises an average of 2.8 months earlier than the actual events in Fiji.

Hao et al. (2020) developed a COVID-19 management framework to investigate the impact of the COVID-19 pandemic on the hotel industry in China. Their finding suggested that COVID-19 will significantly affect the hotel industry in different aspects such as design of products, investment preference, transformation of digital technology, and market reshuffle.

Shin and Kang (2020) also conducted a study to examine the impact of technological innovation on the intention of hotel booking. They focused on technology innovations for social distancing and cleanliness to reduce health risk perceived by customers with the aim to encourage booking intention. They found that respondents tend to use mobile or kiosk check-ins to reduce the interaction with the front desk.

Liew (2020) investigated the impact of COVID-19 on share price of tourism industry. The study utilized Booking.com, Expedia and Trip.com as the main sources. Liew (2020) employed share prices and numerous control variables to examine their performance before and during the pandemic. Results indicate that the tourism industry was in sharp decline due to COVID-19. The direct and indirect impacts of COVID-19 were also identified in the study.

Foo et al. (2020) reviewed the impact of COVID-19 on the tourism industry in Malaysia and found that various tourism activities were cancelled. In addition, the cancelation of a number of tour groups has led huge reduction of tourist arrivals in Malaysia. They also summarized the impact of the health crisis on tourism's key supporting industries, e.g., airlines and hotels. Due to the pandemic, the airline industry has cut salaries by 10% to 100%. Moreover, the government has implemented movement restrictions on people, further impacting the industry. In order to minimize the adverse impact of the pandemic, the Malaysian government has established several tourism stimulus packages to help the industry survive.

Wu et al. (2020) investigated the influence of COVID-19 on the hotel industry in Hong Kong. They utilized a Python-based web-crawling bot to gather information of hotel room rates. The empirical outcome suggested that 5-star hotels were the least affected by the pandemic, while 4- and 4.5-star hotels were most seriously affected. A Pearson's correlation analysis also identified an adverse relationship between the fluctuation of hotel room rates and COVID-19.

Sharma and Nicolau (2020) used a securities market-based technique to investigate the effect of the pandemic on airline, hotel, cruise and car rental industries and found that these four industries experienced a significant decline in valuation. The cruise industry was the hardest-hit. Thus, they suggested the government should prioritize financial assistance to this industry.

Polysoz et al. (2020) conducted a study to investigate the pandemic's effect on demand of Chinese tourists toward the US and Australia. They adopted Long Short-Term Memory (LSTM) to examine the dynamic relationship between the tourism demand and the health crisis and found a significant decline of Chinese tourists to the US and Australia. Based on LSTM, they suggested that the number of tourists could recover after six months for Australia, and 12 months for the US.

To summarize, the impact of COVID-19 needs to be taken into account in future tourism research. In addition, future studies are recommended to address the impact of COVID-19 pandemic on tourism industry in different countries using different estimation approaches to gather more comprehensive tourism information.

Reference

Akal, M. (2004). Forecasting Turkey's tourism revenues by ARMAX model. *Tourism Management*, *25*(5), 565-580.

Chaiboonsri, C., Sriboonjit, J., Sriwichailamphan, T., Chaitip, P. & Sriboonchitta, S. (2010). A panel cointegration analysis: An application to international tourism demand of Thailand. *Annals of the University of Petroşani, Economics*, *10*(3), 69-86.

Eryigit, M., Kotil, E. & Eryigit, R. (2010). Factors affecting international tourism flows to Turkey: A gravity model approach. *Tourism Economics*, *16*(3), 585-595.

Foo, L. P., Chin, M. Y., Tan, K. L., & Phuah, K. T. (2020). The impact of COVID-19 on tourism industry in Malaysia. *Current Issues in Tourism*.

Gouveia, S., Rebelo, J., Lina, L. G. & Guedes, A. (2017). International demand for the Douro (Portugal) river cruises: a gravity model approach. Tourism Economics 23(8): 1679-1686.

Hao, F., Xiao, Q., & Chon, K. (2020). COVID-19 and China's hotel industry: Impacts, a disaster management framework, and post-pandemic agenda. *International Journal of Hospitality Management*, *90*, 102636.

Jong, M. C., Puah, C. H., & Arip, M. A. (2020). Modelling tourism demand: An augmented gravity model. *Jurnal Ekonomi Malaysia*, *54*(2), 105-112.

Kaplan, F., & Aktas, A. R. (2016). The Turkey tourism demand: A gravity model. *The Empirical Economics Letters*, *15*(3), 265-272.

Liew, V. K. S. (2020). The effect of novel coronavirus pandemic on tourism share prices. *Journal of Tourism Futures*.

Martin, C. A. & Witt, S. F. (1988). Substitute prices in models of tourism demand. *Annals of Tourism Research*, *15*, 255-268.

McCallum, J. (1995). National borders matter: Canada-U.S. regional trade patterns. *The American Economic Review*, *85*(3), 615-623.

Morley, C., Rossello, J., & Maria, S. G. (2014). Gravity models for tourism demand: Theory and use. *Annals of Tourism Research*, *48*, 1-10.

Peng, B., Song, H., Crouch, G. I., & Witt, S. F. (2015). A meta-analysis of international tourism demand elasticities. *Journal of Travel Research*, *54*(5), 611-633.

Polyzos, S., Samitas, A., & Spyridou, A. E. (2020). Tourism demand and the COVID-19 pandemic: An LSTM approach. *Tourism Recreation Research*, 1-13.

Priego, F. J., Rossello, J., & Maria, S. G. (2015). The impact of climate change on domestic tourism: A gravity model for Spain. *Regional Environment Change*, *15*(2), 291-300.

Puah, C. H., Huan, S. H., & Thien, F. T. (2018a). Determinants of Chinese demand for tourism in Malaysia. *Business and Economic Horizons*, *14*(3), 501-512.

Puah, C. H., Jong, M. C., Ayob, N., & Ismail, S. (2018b). The impact of tourism on the local economy in Malaysia. *International Journal of Business and Management*, *13*(12), 151-157.

Puah, C. H., Thien, F. T., & Arip, M. A. (2014). Singaporean demand for tourism in Malaysia. *Economic Annals-XXI*, *11*, 32-36.

Puah, C. H., Thien, F. T., Arip, M. A., & Chin, M. Y. (2019). Modelling a tourism demand in Vietnam. *International Journal of Economics and Management, 13*(2), 319-329.

Rossello-Nadal, J. (2001). Forecasting turning points in international visitor arrivals in the Balearic Islands. *Tourism Economics*, *7*(4), 365-380.

Shahbaz, M., Kumar, R. R., Ivanov, S., & Loganathan, N. (2017). The nexus between tourism demand and output per capita with the relative importance of trade openness and financial development: A study of Malaysia. *Tourism Economics*, *23*(1), 168-186.

Sharma, A., & Nicolau, J. L. (2020). An open market valuation of the effects of COVID-19 on the travel and tourism industry. *Annals of Tourism Research*.

Shin., H., & Kang, J. (2020). Reducing perceived health risk to attract hotel customers in the COVID-19 pandemic era: Focused on technology innovation for social distancing and cleanliness. *International Journal of Hospitality Management*, *91*, 102664.

Soh, A. N., Puah, C. H., & Arip, M. A. (2019a). Construction of tourism cycle indicator: A signalling tool for tourism market dynamics. *Electronic Journal of Applied Statistical Analysis*, *12*(2), 477-490.

Soh, A. N., Puah, C. H., & Arip, M. A. (2019c). Forecasting tourism demand with composite indicator approach for Fiji. *Business and Economic Research*, *12*(2), 477-490.

Soh, A. N., Puah, C. H., & Arip, M. A. (2020). Tourism forecasting and tackling fluctuating patterns: A composite leading indicator approach. *Studies in Business and Economics*, *15*(2), 192-204.

Soh, A. N., Puah, C. H., Arip, M. A., & Kuek, T. H. (2019b). Oil price and Fijian tourism cycle: A Markov regime-switching model. *International Journal of Energy Economics and Policy*, *9*(6), 199-192.

Tanjung, A., Thien, F. T., Puah, C. H., Brahmana, R. K., & Sianturi, R. (2017). Macroeconomic determinants of Indonesian tourism demand in Malaysia. *Advanced Science Letter*, *23*(4), 3159-3162.

Thien, F. T., Puah, C. H., Hassan, M. K. H., & Arip, M. A. (2015). An ECM analysis of Thai tourism demand in Malaysia. *Mediterranean Journal of Social Sciences*, *6*(3), 162-168.

Wu, F., Zhang, Q., Law, R., & Zheng, T. (2020). Fluctuations in Hong Kong hotel industry room rates under the 2019 Novel Coronavirus (COVID-19) outbreak: Evidence from big data on OTA channels. *Sustainability*, *12*(18), 7709.

Xu, L., Wang, S., Li, J., Tang, L. & Shao, Y. (2020). Modelling international tourism flows to China: A panel data analysis with the gravity model. *Tourism Economics*, *25*(7), 1047-1069.

Yap, S. A. Y. I., Ayob, N., & Puah, C. H. (2020). Event tourism demand and selected macroeconomic variables: An econometrics view of the long-run and short-run relationships. *International Journal of Business and Society*, *21*(1), 183-196.