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RESEARCH PAPER

The Impact of Geopolitical Risk, World Economic Policy Uncertainty on Tourism Demand: Evidence from Malaysia

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Abstract
The tourism industry is a significant factor in developing countries economies. Developed and developing economies have witnessed growth in the tourism industry in the last two decades. The tourism industry has many advantages for a country, including increased employment opportunities, tax revenues, income earnings, and foreign exchange reserves; thus, it has become an important sector for economic development worldwide. The present paper aims to apply the Wavelet coherence (WC) method to study the effects of world economic policy uncertainties (WEPU) and geopolitical risks (GPR) on the tourist arrivals in Malaysia from 2000M1 to 2019M7. The obtained results show the stronger coherency of GPR compared to that of EPU and also indicate that GPR has long-run implications. In contrast, EPU has short-run influences on tourist arrivals. Therefore, the government must take necessary actions and measures to ensure international harmony, national security, and public protection against such unpleasant events.
Keywords: Tourism, Geopolitical Risk, World Economic Policy Uncertainty, Wavelet Coherence, Malaysia.
JEL Classification: C59, C87, Z3, Z38.

Introduction

In the two recent decades, one of the major drivers of economic development was the tourism industry creating employment opportunities, especially for the developing countries. Due to the great contribution of this industry and the increased dependency of many economies on tourism revenues, there is a need for a detailed analysis of the factors and trends underlying this industry (Ghalia et al., 2019). It is obvious that the tourism earnings of every nation are influenced by some factors such as terrorism and political unrest since tourists naturally visit secure and safe locations (Akadiri et al., 2020). The tourism industry is considered as one of the significant drivers of economic development and growth, earning US$8.8 trillion in income in the international tourist receipts generated by 1.5 billion arrivals in 2019. It is the highest amount of money ever recorded for this industry. In 2019, this industry accounted for 4.4% of global investments, 10.4% of global GDP, and 6.5% of the global exports and created 319 million jobs (1 in 10 jobs all over the world). In the next 10 years, the tourism industry will increase the global GDP to 11.53% and it is anticipated that it will create 421 million jobs (World Travel & Tourism Council, 2019). Tourism has many advantages, including the simulation of prosperity and growth in business activities, foreign exchange earnings, employment, income and government revenue. Considering the significance of the tourism industry to the economy, the basic infrastructure was created by the government to be used by

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hotels and other tourist facilities, and the required support was provided for the development of more tourist centers, incentives of investment and loan guarantees in order to help private investors (Habibi, 2017).

In the meantime, geopolitical risk is one of the most significant factors of consumption and investment decisions that have long been recognized by policymakers, experts, corporate managers, and the media. In a study conducted by Caldara and Iacoviello (2018), the geopolitical risk was defined as "the risk associated with terrorist acts, wars, and tensions between countries impacting the ordinary and peaceful course of international relations". Thus, when the geopolitical uncertainty increases, there may be a delay in consumption and firms tend to postpone investments because of the precautionary savings incentive (Demiralay & Kilincarslan, 2019). The highly susceptible nature of the tourism industry is obvious and has been a major driver for the decision-making processes and approaches of main stakeholders. Therefore, geopolitical events make the tourism industry react and adapt to a wider political environment. Basically, the economy, tourism and other market agents are significantly influenced by the dynamic determinants of the domestic and foreign political environment (Akadiri et al., 2020). There are some geopolitical conflicts within and between states disturbing the economic and social environments. In today's world, the information on domestic or regional conflicts is rapidly spread across countries and affects the decision-making process of people. While more research background shows that uncertainties such as political instability, terrorism, and conflicts influence tourism, not many studies have been conducted on the influence of geopolitical risk on tourism development (Saha et al., 2017). The tourism demand is reduced in a specific region with the increase of GPR in that location. Actually, people may look for alternative destinations.

The recent progress of the tourism industry in Malaysia shows that it is a very important economic sector. At the beginning of the 1990s, the tourism industry accounted for about 3.8% of GDP, and this number increased to 10.4% in 2018. Tourism is also one of the main sources of job creation in Malaysia. According to the information obtained in 2019, tourism accounted for 11.9% of the total employment rate or created 1,766,700 jobs (WTTC, 2019). Over the period of 10 years, the tourist project of Malaysia has significantly progressed. This project includes the ascending growth in the number of hotels (989 hotels in 1990 increased to 4750 hotels in 2018), lodges, guest houses, tour operators, restaurants, and even the number of airlines. In terms of demand, Malaysia witnessed more than 140% increase in tourist arrivals over the same period. Since 2000, the tourist position in this country has improved from the17th most visited destination in the world to the 15th rank in 2018 and also obtained the 6th rank in terms of the number of overnight visitors (WTO, 2018). In 2018, Malaysia experienced more than 26 million international tourist arrivals and 20 billion US$ tourism receipts (Ministry of Tourism Malaysia, 2019). Malaysia has been introduced as one of the best tourism destinations in Asia. Based on the statistics of the World Travel & Tourism Council (WTTC), in 2019, tourism accounted for 10.4% of Malaysia's total GDP. The global economy grew by 3.2%, whereas travel and tourism developed significantly more than 3.9%. Over the last five years, 1 in 5 new jobs was created by the travel and tourism sector all around the world (WTTC, 2019).

The relationship between tourism demand and political risk has been mainly investigated by previous studies from a long-term perspective. Undoubtedly, for politically unstable countries like Afghanistan, Iraq, Syria and Pakistan, it is really anticipated that the political risk has a long-term effect on the tourism demand. However, the GPR of other emerging countries (e.g. Malaysia) may not last. For instance, the military intervention in Thailand in 2014 and the recent coup attempt in Turkey in 2016 led to an increase in the domestic political risk in the short-term; thus, the own and spillover effects of the events could only last for 1–3 months (Balli et al., 2019). It is anticipated that after the short-term fluctuations in the

political risk, the international tourism demand returns to its normal trend. International tourists always check the political risk and may cancel their travel to those riskier regions; however, with changes in situations, they may travel to those regions. It is argued that due to the low amount of data available (annual data), short-term fluctuations of the political risks and their influences on the international tourism demand are not completely determined, as is the case in most of the previous empirical research. To understand this gap, the relationship between GPR, WEPU and tourism demand was studied using monthly frequency data in Malaysia from 2000 to 2019. In particular, a monthly GPR and WEPU index for Malaysia developed by Caldara and Iacoviello (2018) was used in this study, assisting us to measure the short-term effect of GPR on tourism demand. The dynamic relation between GPR, WEPU and tourism demand was empirically examined using three methods: Continuous wavelet transform (CWT), Cross wavelet transform (CWT) and Wavelet coherence (WC).

The rest of this paper is organized as follows: Section 2 provides the literature review. Section 3 presents the methodology and the related data. Section 4 shows the obtained results, while conclusions are provided in Section 5.

Literature Review

Theoretically, the increase in uncertainty will lower the economic activity, whereas a decrease in uncertainty will increase this activity. However, the magnitude of this effect is not necessarily anticipated by the theory alone. By the way, some asymmetric influences can be attributed to uncertainty, for example, a decrease in uncertainty may not offset an increase, but an increase in uncertainty could lead to a decrease in economic activities (Foerster, 2014). Great economic scholars believe that the geopolitical risk runs the market portfolio leading to some shocks resulting from the sudden and large increases in risk (Apergis and Apergis, 2016; Apergis et al., 2018; Caldara a Iacoviello, 2016; 2018). It is believed that geopolitical risk is the major factor in investment decisions because it has the capacity to change financial markets, business cycles, and economic directions (Balcilar et al., 2018). There are some uncertainties in the tourism industry that must be evaluated in various forms. While the impacts of economic uncertainty on the tourism are analyzed by some researchers in the form of economic crises (Papatheodorou et al., 2010; Song et al., 2011; Balli et al., 2018; Tiwari et al., 2019), some other researchers examined the impacts of terrorism (Drakos and Kutan, 2003; Krakover, 2005; Pizam and Fleischer, 2002; Liu and Pratt, 2017; Lanouar and Goaied, 2019), and natural disasters (Faulkner, 2001; Kuo et al., 2008; Okuyama, 2018; Rossello et al., 2020). Literature on the relationship between political risk and tourism demand (see, for example, Akadiri et al., 2020; Balli et al.,2019; Ghalia et al., 2019) shows that the political risk highly influences the international tourism demand of emerging economies. There are some uncertainties or fluctuations in the political scenes created by geopolitical frictions, tensions, or even events such as elections that can impose significant impacts on the tourist arrivals, the number of overnight stays, tourist imports, and other indices of tourism development (Lanouar and Goaied, 2019). These events also significantly influence the economic performance (Drakos and Kallandranis, 2015; Enamul Hoque and Shah Zaidi, 2020), international flow of capital, or even labor (Balli et al., 2019), equity market, portfolio allocation and so on (Balcilar et al., 2018). Risk perception is considered as a confounding factor leading the travelers to make some changes in their travel programs (Kozak, 2007), and they tend to pay extra money for more safety and security (Sharma, 2008). The political risk of a destination country must be considered in the tourism industry. Therefore, poor quality of governance along with the higher political risk could prevent tourism growth (Galia et al., 2019). The tourism sector is very susceptible to uncertainty due to safety, security and stability issues. It is argued in the previous literature that political risk and poor governance

have an adverse effect on the supply dimension of the tourism industry (Hyndman, 2015; Saha and Yap, 2014). It was mentioned by Khalid et al. (2019) that the growth of the tourism industry is prevented by the participation of the military in politics due to the absence of security and peace. The direction of causality among the geopolitical risk index, tourism and economic growth in Turkey was investigated by Akadiri et al., (2020) from 1985Q1 to 2017Q4 using the modified version of the Granger causality approach advanced by Toda and Yamamoto (1995). The obtained empirical results indicate a unidirectional causality running from geopolitical risk index to economic growth and from geopolitical risk index to tourism. Moreover, results show that one standard deviation shock to geopolitical risk could negatively influence tourism and economic growth both in the short and long term. According to Lanouar and Goaied (2019), it is believed that scholars have established those shocks, and volatility has both transient and permanent effects on tourism demands. It was revealed by Liu and Pratt (2017) that terrorism has an important influence on tourism in the short term. Also, it was found by Agiomirgianakis et al. (2017) that terrorist upheavals and political instability lead to fluctuations in tourism demands in the short term rather than the long term. On the other hand, shocks resulting from government policies, terrorism, tensions and other indices of geopolitical risk permanently impact tourism. The effect of geopolitical risk (GPR) on the international tourism demand in 7 emerging economies was investigated by Balli et al. (2019) using the wavelet squared coherence approach. The results indicate that the effect of GPR is not homogeneous for every country; for example, some countries (Indonesia, Thailand, Philippines and also to some extent in Turkey) are heavily influenced by GPR and others (Malaysia, Mexico, South Africa and South Korea) are generally immune to GPR shocks. In addition, the impact of the GPR shocks is observed within the first 2 to 3 months, while for other countries, the impact is felt over longer periods. The impacts of institutional quality along with political risks, distance, and socio-economic factors on the tourist flow from 131 tourist origin countries and the top 34 destination countries over the period 2005–2014 were investigated by Ghalia et al. (2019) using the gravity model. The obtained results reflect that institutional quality and absence of conflict are influential factors in increasing tourism flows for both origin and destination countries. Moreover, lower levels of political risk observed in the destination countries lead to an increase in tourism flows. The influence of economic policy uncertainties and geopolitical risks on the tourist arrivals in India with GPR and EPU was examined by Tiwaria et al. (2019) using the wavelet coherence technique. It is observed from the results that the coherency of GPR is stronger than that of EPU and the GPR has long-term effects, while the EPU has short-term effects on tourist arrivals. The government must take necessary remedial measures to ensure international harmony, national security and public protection against unpleasant events. In a study conducted by Wu and Wu (2018), the relationship between European economic policy uncertainty (EPU) and tourism activities in European countries was examined using wavelet transform context structures. The results show that European EPU has a unidirectional causal influence on international tourism receipts (ITR) in the short term and European EPU has a bidirectional causal effect on ITR in European countries in the long term. The influence of uncertainty on the tourism spending by USA domestic tourists over the period of 1998Q1–2015Q4 was examined by Gozgor and Ongan (2017). The EPU index was considered as an independent variable in tourism demand analysis models. It is observed in the empirical results that an increase in EPU leads to a significant decrease in tourism spending in the long term. The influence of business cycles and economic crises on Spain's tourism competitiveness was examined by PerlesRibes et al. (2016) in the period of 1958-2010, and the permanent effects of economic crises on competitiveness were evaluated. The results indicate that the impacts of the economic shocks are not neutral on competitiveness, and negative effects are more persistent in intense crises. Due to these crises, there is a reinforced normal downward trend of the Spanish world tourism

market share resulting from the natural emergence of new competing destinations and from the maturity of Spain's main tourism product. Jiang et al, (2020) in their study investigate how geopolitical risk (GPR) and economic policy uncertainty (EPU) impact the Chinese tourism stock, the empirical results indicate GPR exerts a lasting negative effect on tourism stock return and that the negative effect of GPR at low quantile is more significant than that at high quantile. Wu and Wu (2021) examine the relationship between global economic policy uncertainty (GEPU) and tourism activities in the Fragile Five countries: Brazil, India, Indonesia, South Africa, and Turkey by using the wavelet transform context structures and from 1997 to 2016. The finding shows that the relationship is generally positive but changes over time, displaying low- to high-frequency cycles. Payne et al. (2021) Investigate the effect of Economic Policy Uncertainty Shocks On U.S. overseas Travel during the period of 2001 M1 to 2019 M10 by using the Granger–causality and generalized impulse response functions. Their results show that unexpected shocks to the U.S. and global economic policy uncertainty indices reduce overseas travel with a greater magnitude and longer duration for the case of a positive shock to global economic policy uncertainty.

Methodology and Data

In this section, the adopted methodology and data are discussed. As discussed earlier, the present study investigates the relationship between the geopolitical risk (GPR) and tourism demand in Malaysia using three methods: Continuous wavelet transform (CWT), Cross wavelet transform (CWT) and Wavelet coherence (WC). This time- and frequency-based approach recognizes and shows (in a graphical manner) the directionality and dependence structure for various frequencies (presenting from short- to long-term dynamics) across the sample period (Tiwari et al., 2019).

Suppose that the two-time series a(t) and u(t) and their corresponding wavelet power spectrum are $W\varepsilon\tau(a)$ and $W\varepsilon\tau(u)$, respectively. The cross-wavelet power spectrum between the two-time series is defined as $W\varepsilon\tau\ (a,\ u) = W\varepsilon\tau(a)W\varepsilon\tau * (u)$, where * represents the complex conjugate. The wavelet squared coherence is defined as follows:

$$R^2{}_{\varepsilon,}(a,u)=\frac{|Q\left(\varepsilon^{-1}W_{\varepsilon.\tau}(a.u)\right)|^2}{Q(|(\varepsilon^{-1}W_{\varepsilon.\tau}(a))|^2|Q(\varepsilon^{-1}W_{\varepsilon.\tau}(u))|^2} \quad (1)$$

Note that $R^2{}_{\varepsilon,\ \tau}\ (a,\ u)$ similar to the coefficient of determination ranges between 0 (uncorrelated) and 1 (perfectly correlated). The 5%-level significance is determined using the Monte Carlo simulation (Torrence and Compo, 1998). Also, the coupling degree via the phase of wavelet coherence measures lead-lag relations so that captures the degree of causal dependence at various frequencies. The phase between the tourism and GPR a(t) and u(t) is defined as follows:

$$\theta_{\varepsilon,}(a,u)=tan^{-1}\left(\frac{Z\{Q\left(\varepsilon^{-1}W_{\varepsilon.\tau}(a.u)\right)\}}{R\{Q\left(\varepsilon^{-1}W_{\varepsilon.\tau}(a.u)\right)\}}\right) \quad (2)$$

where symbols Z and R represent the imaginary and real parts of the wavelet parameters, respectively. Here, a two-step process is followed. In the first step, the relationship of tourist arrivals with GPR and WEPU is examined using the wavelet coherence technique. Some of the limitations of the traditional econometric techniques are reduced by the Monte Carlo simulation and a time frequency-based analysis is facilitated. In the second step, the Partial Wavelet Coherence (PWC) is used. It is expected that the WEPU and GPR indices include some common events (Tiwari et al., 2019).

Table 1. Data and Descriptive Statistics

	Tourist Arrivals	Geopolitical Risk Index	World Economic Policy Uncertainty Index
Code	Tourist	GPR	WEPU
Source	Malaysia' Ministry of Tourism	https://www.policyuncertainty.com/	https://www.policyuncertainty.com/
Mean	1748913	96.175	121.139
Median	1906304	89.806	109.429
Maximum	2806565	278.881	311.813
Minimum	459374	22.628	50.932
Jarque-Bera	17.149	422.667	74.397
Probability	0.175	0.000	0.000
Sum Sq. Dev.	5.99E+13	320839.4	660075.7
Obs.	230	230	230

Source: Research finding.

Table 1. shows the data and descriptive statistics. Data used in this study are monthly and set from 2000M1-2019M7. The dependent variable is Malaysia' tourist arrivals and independent variables are Geopolitical risk index (GPR) and the world economic policy uncertainty index (WEPU). Geopolitical risks are measured using the monthly index for geopolitical risks developed by Caldara and Iacoviello (2016). The index was created by searching electronic archives of major newspapers for keywords such as geopolitical threats, geopolitical risks, terrorist acts and war acts, nuclear threats, war threats and terrorist threats. The monthly search of newspaper articles containing these keywords was conducted. The 2000-2009 period is then set to a mean value of 100 via normalization so that values greater than 100 show higher levels of geopolitical risks compared to those recorded in the 2000-2009 period, and values smaller than 100 show lower levels of geopolitical risk compared to those observed in the 2000–2009 period. To measure tourism, the number of inbound tourists must be counted. Data on GPR[1] and WEPU[2] are obtained from the works of Caldara and Iacoviello (2018) and Baker et al. (2016), respectively.

The GEPU index is sharply increased due to events, such as the Asian Financial Crisis, the 9/11 terrorist attacks, the U.S.-led invasion of Iraq in 2003, the Global Financial Crisis in 2008-09, the European immigration crisis, concerns about the Chinese economy in late 2015, and the Brexit referendum in June 2016 (Steven J. Davis, 2016). As mentioned before, the index of world economic policy uncertainty has been extracted from a webpage[3], To construct a Global Economic Policy Uncertainty (GEPU) Index, the process is as follows: First, re-normalize each national EPU index to a mean of 100 from 1997 (or first-year) to 2015. Second, impute missing values for certain countries using a regression-based method. This step yields a balanced panel of monthly EPU index values for 21 countries from January 1997 onwards. Third, compute the GEPU Index value for each month as the GDP-weighted average of the 21 national EPU index values, using GDP data from the IMF's World Economic Outlook Database[4] that construct two versions of the GEPU Index - one based on current-price GDP measures, and one based on PPP-adjusted GDP. The 21 countries that enter into the GEPU Index account for about 71% of global output on a PPP-adjusted basis and roughly 80% at market exchange rates. The automated text-search results of the electronic archives of 11 national and international newspapers are reflected by the GPR index; these newspapers include Financial Times, The Boston Globe, Chicago Tribune, The Globe and

1. https://www2.bc.edu/matteo-iacoviello/gpr.htm
2. http://www.policyuncertainty.com
3. http://www.policyuncertainty.com
4. http://www.policyuncertainty.com

Mail, The Daily Telegraph, The Guardian, The New York Times, The Times, Los Angeles Times, The Washington Post, and The Wall Street Journal. The index was calculated by Caldara and Iacoviello (2016) by counting the number of articles related to geopolitical risk in each newspaper for each month (as a share of the total number of newspaper articles). Then the index is normalized to the average value of 100 in the 2000-2009 period (policyuncertainty.com). Both indices are constructed based on a text-search algorithm over the leading national newspapers. The EPU index includes many words in the newspaper articles, such as "economy" or "economic"; "uncertain" or "uncertainty". Also, the following word string can help construct the GPR index: "war", "military", "terrorism", and "geopolitics". The time-trends of GPR and EPU are shown in Figure 1. As can be seen from the figure, the influence of the GPR index (blue line) is stronger than the EPU index (orange line) in the long term. It is concluded that over the last twenty years, the geopolitical risk in Malaysia has been volatile rather than the global economic policy uncertainty.

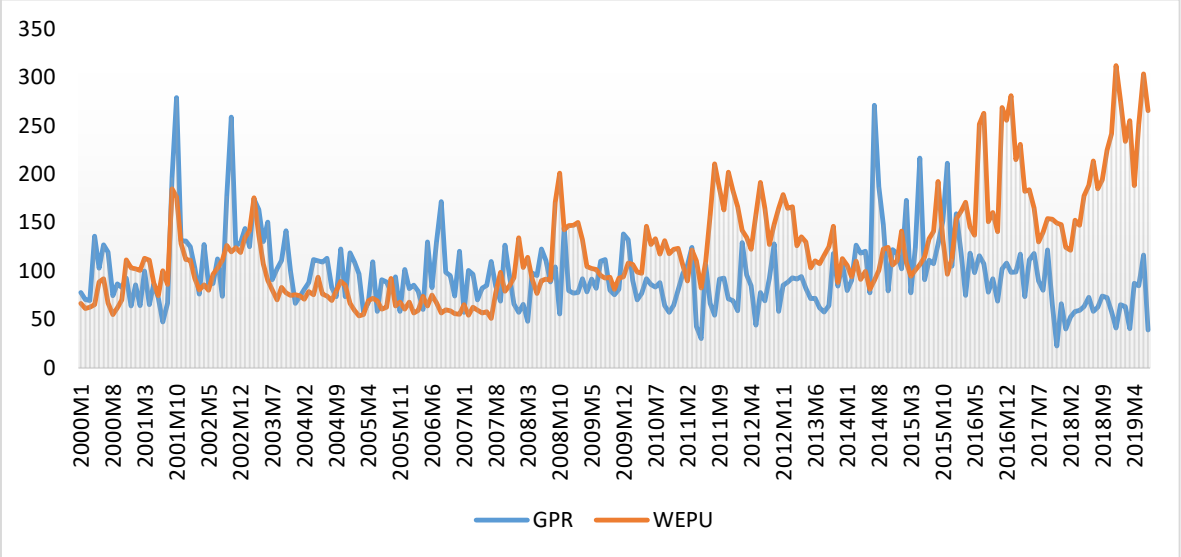

Figure 1. Time Trends of WEPU and GPR Index (2000 M1 – 2019 M4)
Source: Research finding.

Empirical Results

In this section, the empirical results' implications are discussed. Table 2. shows the Granger causality test. The results regarding the short-term causal relationships are displayed in Table 2. As clearly seen in Table 1, there is a bi-directional causality running between Tourism – GPR and Tourism – WEPU.

Table 2. Granger Causality Test

	F - stat	P-value	Lag	Decision			
				1 % level	5 % level	10 % level	Obs.
Tourist → GPR	1.054	0.038	5	X	√	√	230
GPR → Tourist	1.227	0.002	7	√	√	√	230
Tourist → WEPU	2.494	0.032	5	X	√	√	230
WEPU → Tourist	1.362	0.065	6	X	X	√	230

Source: Research finding.

The coherencies of the tourist arrivals with GPR and WEPU are shown in Figures 2 and 3, respectively. The wavelet coherency between tourist arrival and GPR is shown in Figure 2.

The timeline and the frequencies are indicated in the horizontal and vertical axes, respectively. For ease of interpretation, the frequency is transformed in form of months. Figure 2 shows the phase plot, where movements towards $\pi/2$ and $-\pi/2$ reflect the positive and negative relationships, respectively. The yellow zones show strong coherencies, while the blue zones indicate weaker zones. The areas of statistical significance at a 5-percent level are shown by the black bounds in the contour, generated by 10,000 sets of Monte-Carlo simulations.

Short-term strong coherencies up to the period of four months are presented in Figure 2. The mid-term inconsistent coherence islands are also found in the long term during 2000, which could be resulted from the Asian Financial Crisis (1998) and Severe Acute Respiratory Syndrome (SARS, 2003). International tourists who are on holiday and do not belong to the country they visit are more worried about safety and security compared to domestic tourists (Da Silva, 2014). Natural disaster leads to the decline of tourist arrivals in the affected area and also creates negative images for the visitor, thus preventing them from traveling to the destination. According to the Malaysian Ministry of Tourism, the total tourist arrivals from Hong Kong, China, and Taiwan have reduced by about 80% because of the outbreak of SARS. In 2003, tourist arrivals in Malaysia declined to 10.58 million compared to 13.29 in 2012 and the government lost income of around US$ 1.5 billion because people were afraid of SARS and bird flu epidemics in the region. More negative impacts on Malaysia's tourism industry were created due to false reporting about some incidents in Islamic countries including Malaysia. A shadowy picture of Osama bin Laden in Malaysia was shown in the 11 February 2002 edition of Time Magazine. The article claimed that Malaysia was a good platform for terrorists.

The missing of the MH370 plane with most Chinese passengers has decreased tourists from China as a key source of visitor arrivals in Malaysia. Due to the disappearance of this plane, at least 30,000 tourists from China canceled their holiday flights to Malaysia. According to the reports by the Malaysian Ministry of Tourism in April (2014), 35.6%, 33.1% and 21.3% drops in tourist arrivals were observed from Brunei Darussalam, Japan and China, respectively. The double MAS tragedies of the MH370 and MH17 crises caused a month-over-month decrease of 14% in foreign tourist arrivals to Malaysia.

In 2000, the kidnapping incident in Sipadan Island, Sabah, also deteriorated Malaysia's image. The Abu Sayyaf group took 21 hostages including 10 tourists and 11 workers from Europe and the Middle East and they were taken to the Abu Sayyaf base in Jolo, Sulu (Ayob and Masron, 2014). Since it happened, Malaysia reportedly arrested more than 100 Islamic militant suspects, many of them are alleged members of Jemaah Islamiyah (JI). And international media publicity of JI's presence in Malaysia negatively affected tourism (Nazri, 2014). In February 2013, a new crisis happened in Malaysia when more than 100 individuals of an armed group suspected to be militants landed in Lahad Datu. This group, known as the Royal Army of Sulu Sultanate, claimed Sabah as their own country and this intrusion took nearly 100 lives of militants, and 10 of Malaysia's officers, of whom eight were police officers and two were army officers (Ayob and Masron, 2014). Many tourist guides in Sabah changed their careers or worked part-time in another industry. Tour agencies started selling their assets and many others closed their businesses (Daniel Dougty, 2015).

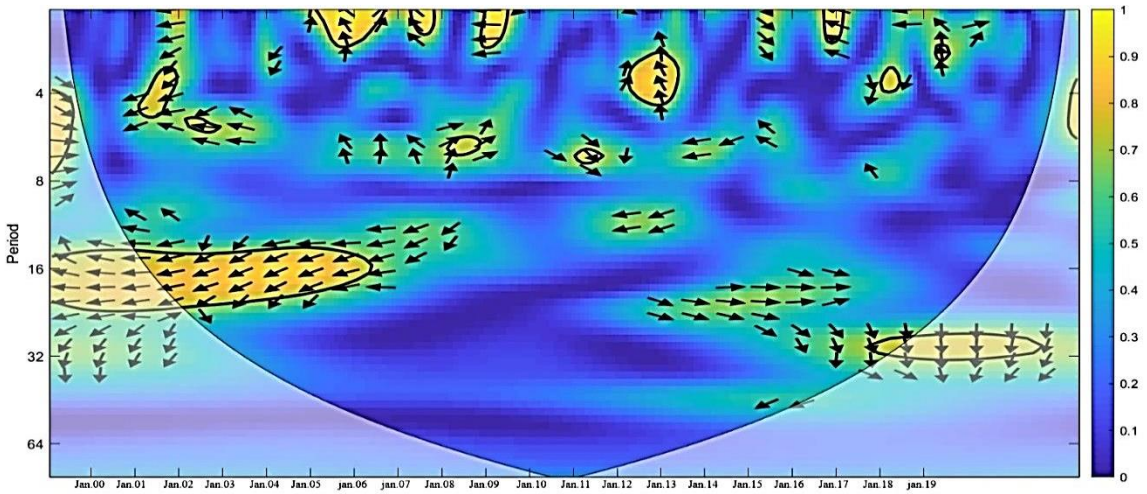

Figure 2. Wavelet Coherence (WC): Tourist Arrivals – GPR (2000 M1 – 2019 M4)
Source: Research finding.

The effect of the WEPU on tourist arrivals is eliminated in Figure 3. As can be seen, the surface area of significance has significantly reduced. It shows that the GPR events have a mid-term effect on the tourist arrival trends. The phase plots for both coherence maps for the frequencies of 1–8 and 8–16 months indicate that there is a negative relationship. In Fig. 3, strong short-term coherencies of tourist arrivals with WEPU are shown, but the long-term coherencies seem to be weak. The significant coherencies get weaker when the influence of the GPR is eliminated in Figure 3b1. The phase plots' behaviors are similar to those of GPR. Thus, if the plots of GPR and WEPU are compared with each other, two interesting phenomena may be found: (a) the coherency of GPR is stronger than that of WEPU and (b) GPR has long-term effects, while the WEPU has short-term effects on tourist arrivals.

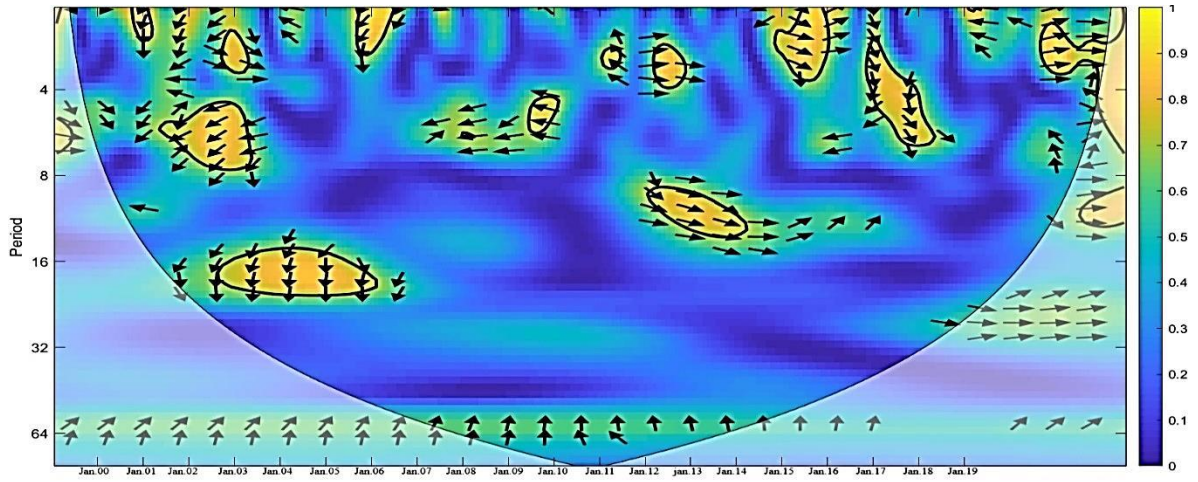

Figure 3. Wavelet Coherence (WC): Tourist Arrivals – WEPU (2000 M1 – 2019 M4)
Source: Research finding.

Conclusion

The wavelet analysis allows us to make a simultaneous assessment of the co-movement and causality between GEPU, GPR and Tourism in both the time and frequency domains. The present paper examined the influence of world economic policy uncertainties (WEPU) and geopolitical risk (GPR) on the tourist arrivals in Malaysia using the wavelet analysis for monthly data set from 2000M1 to 2019M7. Our empirical investigation yields two interesting

findings. The first finding is that the GPR's coherency is stronger than that of WEPU. The second finding indicates that the GPR has long-term effects, while the WEPU has short-term effects on tourist arrivals. The results indicate that the GPR is stronger than the WEPU influences tourist arrivals to Malaysia during the study period. A 14% month-over-month decline in the foreign tourist arrivals to Malaysia has resulted from the double MAS tragedies of the MH370 and MH17 crises. the double MAS tragedies of MH370 and MH17, the spate of kidnappings and the recent murder of a policeman in Sabah have had a devastating impact on tourism in Malaysia. The missing MH370 with most of the passengers on the plane is Chinese, which tourist from China as a key source of visitor arrivals in Malaysia has pinned much of their hopes for further development on this sector.

International tourists become more anxious about the safety and security while their holiday rather than domestic tourist since there not belong to the country they visit. The outbreak of COVID-19 has exposed a major risk to the Visit Malaysia 2020 (VM2020) campaign as 50% of Malaysia's tourists originate from Singapore and China. A total of 170,084 hotel room bookings during the period 11 January 2020 until 16 March 2020 had been canceled, which caused a loss of revenue amounting to RM68,190,364. The loss was directly attributable to the outbreak of COVID-19

Improving bilateral diplomatic relationships, safety, and security will reduce the political risk. Therefore, the governments of developing countries should prioritize these areas. The results obtained in this study are consistent with the argument of Ghalia et al. (2019), suggesting that the reduction of political risk can play a significant role in the tourism sector's promotion. Therefore, the government and officials must take necessary actions and required measures to ensure international harmony, national security, and public protection against such unpleasant events. Finally, to propose a policy direction for directors of the tourism sector and an economic policy offering complete strategies for managing and maximizing shocks, it is necessary to examine the causality relationship between the geopolitical risk and tourism demand. Last but not least, the increase of tourist inflow may be restricted by the malfunctioning of the national security and diplomatic protocol.

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