

# Are all tourism markets equal? Linkages between market-based tourism demand, quality of life, and economic development in Hong Kong

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## ABSTRACT

Tourism markets are heterogeneous, and their performance and effects can be better understood when considered separately. This paper investigates the linkages between tourism demand from several markets and quality of life, using Hong Kong as a case of study. The literature has, initially only considered a unilateral relationship running from aggregate tourism development to residents' quality of life, and a bilateral connection has only recently been recognized. The study contributes to the literature by considering a market-segmented (mainland China, Japan, the U.S., and other markets) approach to tourism demand, using a relatively underemphasized objectively-based method, and by providing building blocks for theoretical propositions. The methodology consists of unit root and cointegration testing, together with the application of the Three-Stage Least Squares method with the Seemingly Unrelated Regression approach on time-series data. The identified market-based differences can help academia and industry in better understanding the diverse markets and building a competitive edge.

## 1. Introduction

Tourism is one of the largest economic sectors in the world, accounting for 10.4% of global gross domestic product and 10.0% of employment in 2018 (World Travel & Tourism Council, 2019a). It can contribute not only to economic prosperity but its outcome can ultimately provide residents of a destination with the freedom to decide on their development (Ridderstaat, Croes, & Nijkamp, 2013). Tourism demand (TD) creates job opportunities, enhances infrastructures and services, and promotes a sustainable destination environment, which can improve the quality of life (QOL) of residents (Andereck & Nyaupane, 2011; Andereck & Vogt, 2000; Kreishan, 2011; Lanza, Temple, & Urga, 2003; Marzuki, 2009; Sharpley, 2014). In this framework, researchers have always considered QOL as a passive construct that could be affected by TD. In recent years, some researchers have questioned this assumption, proposing a more active role of QOL, i.e., with the ability to influence TD (e.g., Croes, 2012; Croes, Ridderstaat, & van Niekerk, 2018; Ridderstaat, Croes, & Nijkamp, 2016a, 2016b). These studies found that QOL can indeed impact TD, opening a new strand of studying the relationship between these two constructs.

Whether the connection between TD and QOL is assumed unilateral

or bilateral, these studies tend to consider tourism as an aggregate phenomenon as if tourists from different countries are all part of a homogeneous group. The aggregate consideration implies that tourists as consumers of goods and services are all the same. In reality, consumers are heterogeneous and can differ widely over their preferences (Browning & Zuphan, 2015; Mankiw, 2018), which could translate as well to the realm of tourists and their different markets of origin. Market heterogeneity could also be relevant for residents' QOL, as they could end up better or worse with more tourists from specific markets. If residents get more utility and benefit from a particular market, they can in turn affect future TD (Fan, Liu, & Qiu, 2018). Thus, researchers should consider TD as a heterogeneous group rather than a homogeneous one, and a market-based approach of TD in its connection with QOL would provide a better understanding of the link between these constructs. Therefore, this study investigates the relationship between TD and QOL, considering economic development (ED) as a mediating factor. The latter construct, based on Ridderstaat et al. (2016a, 2016b), offers the opportunity to determine the possibility of an indirect connection between TD and QOL, running through ED. The study uses Hong Kong as the case of study. Being one of the world's most densely populated destinations, Hong Kong is home to almost 7.5 million residents who

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share space with close to 60 million tourists annually (Census and Statistics Department, 2018). With the influx of tourists, residents started to believe that TD affected their QOL in one way or another. Notably, the tension between residents in Hong Kong and tourists from mainland China, which is the most important source market, has been regularly reported in popular media and academic research, drawing on anecdotal or interview-based findings (Chen, Hsu, & Li, 2018; Lai & Lam, 2018; Loi & Pearce, 2015). Nevertheless, to the knowledge of the authors, there has been no study investigating the long-term effects of Hong Kong's tourism on residents' QOL and vice versa.

The methodology for examining the TD-ED-QOL nexus in this study consists of unit root and cointegration testing, together with the application of the Three-Stage Least Squares (3SLS) method with the Seemingly Unrelated Regression (SUR) approach on time-series data. This study contributes to the literature in the following ways. First, it builds further on the path set by Croes (2012) and Ridderstaat et al. (2016a, 2016b) on the bilateral relationship between TD and QOL (with ED as a mediating factor), by including a market-segmented approach to TD. The latter provides a deeper understanding of the workings of different market segments on ED and the QOL of residents. Second, the study objectively addresses the question of whether and how TD affects residents QOL, which is a pressing yet an under-examined issue. By specifying how different source markets (mainland China, Japan, the U.S., and other markets) contribute to the relationship between TD and QOL, this study provides direct evidence for the dynamics between QOL, TD, and ED, as well as which source market(s) has more influence in Hong Kong. Third, by using Hong Kong as a case study, this investigation provides building blocks for theoretical propositions that could assist in the theory-building process (Amaratunga & Baldry, 2001; Smith, 2010; Veal, 2006; Yin, 2014). Moreover, knowledge about the connection between TD-ED-QOL allows for more effective tourism policy-making and destination management.

The remainder of this paper is as follows. Section two presents an examination of the existing literature on the relationship between TD and QOL, whereas the third section provides a brief discussion of Hong Kong, the case of interest in this study. Section four describes the data and applied methodology, while section five presents and discusses the study findings. Section six presents the conclusions and implications of the study.

## 2. Literature review

### 2.1. Different approaches to QOL

QOL has been conceptualized and operationalized in multiple ways, either objectively or subjectively. Objective QOL is reflected in indicators such as the economic well-being (e.g., gross domestic product, household income, poverty rate), leisure well-being (e.g., number of recreational facilities per thousand inhabitants), environmental well-being (e.g., carbon dioxide emissions), and health well-being (e.g. average life expectancy) (Genç, 2012; Stiglitz, Sen, & Fitoussi, 2009; Uysal, Sirgy, Woo, & Kim, 2016). Subjective QOL, often self-reported, is about people's subjective assessment of objective conditions, mainly accounting for the psychological concepts, such as subjective well-being, life satisfaction, sense of safety, and happiness (Dolnicar, Lazarevski, & Yanamadram, 2013; Genç, 2012; Kim, Woo, & Uysal, 2015; Stiglitz et al., 2009; Uysal et al., 2016).

The literature has also classified QOL into material and non-material dimensions, which define people's lives (Easterlin & Angelescu, 2012; Felce & Perry, 1995; Ridderstaat et al., 2016b). Previous research has measured the material dimensions of QOL at the country, community, family, and individual level (e.g., Andrews & Withey, 2012; Uysal et al., 2016). While the material domains are essential, QOL could also include other factors, beyond the material sphere (e.g., life satisfaction, political voice and participation, health, and education) that could influence what people value in living (Stiglitz et al., 2009). Most of the

measurement items of the objective indicators and material dimensions overlap each other, so are subjective indicators and non-material dimensions (Easterlin & Angelescu, 2012). In the tourism context, QOL has been extensively studied using a subjective approach. However, by mentally appraising (through feelings and emotions) the objective condition, the subjective well-being approach is not truly measuring the condition itself (Croes et al., 2018).

In both objective and subjective approaches, QOL has been measured either multidimensional or uni-dimensionally, utilizing different levels of units (e.g., global, national, or local scope) (Woo, Kim, & Uysal, 2015). Gregory, Johnston, Pratt, Watts, and Whatmore (2009) posited that QOL encompasses both the individual and national level income, wealth and employment, environment, physical and mental health, education, social disorganization, social belonging, recreation and leisure, human rights, and happiness. Alternative thoughts hold that QOL is an umbrella concept (Dolnicar, Lazarevski, & Yanamadram, 2012) that refers to all aspects of people's life, addressing family relationships, friendships, and work (Cummins, 1997; Felce & Perry, 1997; Ryff & Keyes, 1995).

As a uni-dimensional construct, QOL has also been simply understood as the overall life satisfaction, indicating an individual's satisfaction with different life domains such as family, health, and work (Campbell, Converse, & Rodgers, 1976; Ryff & Keyes, 1995; Sirgy, Lee, Larsen, & Wright, 1998). Life satisfaction is an essential indicator in the study of psychological well-being and is an interchangeable concept with QOL (Ryff & Keyes, 1995). Aligned with this viewpoint, QOL has been operationalized as a unidimensional concept for subjective QOL (Ryff & Keyes, 1995), measured through one or two items (Dolnicar et al., 2012). For example, Andrews and Withey (2012) measured QOL by way of the questions, "how do you feel about your life as a whole?" and "how happy are you these days?" (p.11). Overall, the many considerations in QOL have shown that there are different ways to interpret this construct and that there is no unique method of looking at QOL.

### 2.2. One-sided relationship: TD→QOL

Existing literature has documented two strands of research on the relationship between TD and QOL. The first strand is a unilateral relationship (TD→QOL), at the individual resident level or on the destination as a whole. TD has influenced QOL, from economic, social-cultural, and physical and environmental perspectives (Uysal et al., 2016). The economic studies are related to material life satisfaction, such as residents' employment opportunities, income, standard of living, and household expense (Andereck & Nyaupane, 2011; Andereck & Vogt, 2000; Croes, Rivera, & Semrad, 2011; Kim, Uysal, & Sirgy, 2013; Rempel, 2012; Woo, Uysal, & Sirgy, 2018). As for social-cultural effects, cultural exchange among residents and tourists has been studied by, e.g., Kim et al. (2013) and Yolal, Gursoy, Uysal, Kim, and Karacaoglu (2016). In physical and environmental fields, environmental damage, and urban issues in the destination community are significant concerns of researchers (Andereck & Nyaupane, 2011; Rempel, 2012).

Most of the prior studies examined the TD→QOL linkage using a survey-based, subjective approach, with only a few exceptions. Using macro statistics from 31 provinces in China, Meng, Li, and Uysal (2010) proved that TD positively influences on QOL, so residents living in provinces with a higher level of TD experienced significantly higher QOL compared to residents of provinces with a lower level of TD. Adopting a five-year period macro statistics (i.e., real per capita GDP, education index, and the ratio of tourist arrivals to population) from multiple countries, Sequeira and Nunes (2008) noted that while in general, TD enhances the QOL, the effect was negative when considering smaller countries with less than 5 million population. This strand of studies assumed that QOL was just a passive construct held for an extended time, but additional studies started to assign a more active role to QOL in the relationship.

### 2.3. One-sided relationship: QOL→TD

The second strand of the literature considers QOL as a precursor of TD (Cecil, Fu, Wang, & Avgoustis, 2010; Meng et al., 2010; Ridderstaat et al., 2016a) to explicate the challenges facing countries with low levels of QOL in developing tourism (Ridderstaat, Croes, & Nijkamp, 2013). Earlier studies hinted the possible QOL→TD linkage but failed to confirm this proposition or interrogate the nature of the causality through empirical elaboration (Cecil et al., 2010; Crots & Holland, 1993; King, Pizam, & Milman, 1993; Meng et al., 2010; Perdue, Long, & Gutske, 1991). More recent studies supported the possibility that QOL could indeed affect TD (Croes, 2012; Ridderstaat et al., 2016a, 2016b, Woo et al., 2015), possibly through the mechanisms of (1) support for tourism, (2) amenities provided at the destination, (3) residents' education and skill, and (4) residents' intentional misuse of tourists for monetary gains (Ridderstaat, Croes, & Nijkamp, 2013; 2016b).

In rural Midwestern U.S., Yu, Cole, and Chancellor (2018) found that the community's QOL is a valid predictor of residents' support for tourism development. Supportive residents would not oppose policies or investments set for TD, which is critical to ensure the sustainability of tourism (Ridderstaat et al., 2016b; Yu et al., 2018). Evidence from cultural tourism development also demonstrates the importance of investments in tourism amenities or tourism development. Studies in Indianapolis, the U.S. (Cecil et al., 2010) and Hong Kong, China (Raco & Gilliam, 2012) have proven that the sociocultural amenities built by local government bring benefits to both residents and tourists. Also, the QOL of residents has been exemplified in a group of better-educated individuals, who are in a better health condition, have lower unemployment rates and more social connections, and engage more in community events and political decisions (Stiglitz et al., 2009). With higher-educated and more skilled residents actively participating in TD, one can expect the sustainable development of tourism. As for the last mechanism of QOL→TD, it is related to the scenario whereby residents' pursuit of economic benefits from tourists in an unethical way, such as misleading tourists due to their unfamiliarity with the environment, overcharging or shortchanging, or selling counterfeit merchandise, thereby restraining future TD (Ridderstaat et al., 2016b).

### 2.4. A two-sided relationship between TD and QOL (direct and indirect effects)

For a further understanding of the nexus, Croes (2012), as one of the first studies, tested the mutual relationship between TD and QOL for Nicaragua and Costa Rica. As for Nicaragua, tourism brought more resources to the destination including direct income and improved conditions of education, health, and food, while in turn, the better destination service environment attracted more tourists and generated more revenues. However, in the case of Costa Rica, the TD↔QOL linkage diminished in the long term, showing that the relationship was unstable.

Recent studies have shifted from a direct TD↔QOL connection to more considerable attention to a more complex dynamic. In the context of Aruba, Ridderstaat et al. (2016a) investigated the mediating effect of economic development (ED) on TD↔QOL linkage using a survey approach. Their study found direct influences for TD→QOL, TD→ED, and QOL→ED, while for indirect impacts, both TD and QOL affected each other indirectly. However, the study did not find a direct influence from QOL to TD. Applying the same framework, Ridderstaat et al. (2016b) studied these relationships with an objective approach. Testing for both short-term and long-term periods, the researchers identified direct influences for TD→QOL (short-term only), QOL→TD, TD→ED, and QOL→ED, and QOL indirectly influenced TD through ED. Adding QOL as an active influencer of TD increases the number of linkages in the relationship between both constructs, and shows that there may be a potential role of residents to affect TD through their QOL developments.

### 2.5. Market segmentation approach

Tourism is a global marketplace, entailing multinational and diverse tourism demand (Huang & Crots, 2019), which may implicate that the overall market can be too large to serve (Ridderstaat, Singh, & DeMicco, 2018). Knowing typologies of international visitors would greatly benefit tourism practitioners (Dolnicar, 2008) because "one size fits all does not work in attracting and serving heterogeneous markets" (Huang & Crots, 2019, p. 240). Residents may prefer one specific market over others, which could ultimately affect tourism development. Thus, knowing the market differences will benefit the allocation of marketing resources.

Market segmentation is a method to explain the heterogeneity among tourists by grouping them into market segments (Dolnicar, 2008). With such knowledge, destinations can better understand the contribution of each source market to the economy and residents' QOL (and vice versa), which could help to predict their future performance and achieve a competitive advantage (Hoek, Gendall, & Esslemont, 1996). Notably, past research has primarily examined tourism demand from an aggregate approach, treating tourists as a homogenous group. What has been missing is a differentiated understanding of different source markets and their impacts on the destinations. As a recent exception, Ridderstaat et al. (2018) studied the influences of different demand markets on the health tourism spending in the U.S. The results showed that several major tourism markets have a positive effect on the growth of health tourism spending in the long-term. However, to date, no study has used market segmentation as the basis for detecting the connection between TD and QOL. For a destination, there may be specific source markets that are more impactful on residents' QOL. The information about different impacts of individual markets is a prerequisite of the formulation of targeted strategies (Walker, 2006). This study posits that this approach can be an effective way to segment visitors for better understanding the nexus between TD and QOL from each country's or region's visitors. As a result, marketing strategies can be formulated to target those market segments, obtaining a competitive advantage among competitors (Dolnicar, 2008).

## 3. The case of Hong Kong

Hong Kong is a special administrative region of China located on the southeast coast of China. It is one of the most popular destinations in Asia with international cuisine, world-class shopping centers, arts and entertainment, and unique East-meet-West cultures (Au & Law, 2000). Starting to boom in the 1980s (Hobson & Ko, 1994), Hong Kong's inbound tourists' arrivals have increased steadily over time, where since 1980, the dominating source markets have been mainland China, the U.S., and Japan. Mainland Chinese tourists, in particular, increased dramatically over the past three decades. On average, the Chinese market accounted for 34% of all visitors to Hong Kong between 1980 and 2016 (64.2% between 2003 and 2016).

Along with tourism growth, the associated social tensions have continuously been noticed, along with some of their repercussions. Past literature, for example, has reported residents' negative sentiments toward mainland Chinese tourists, and even anti-tourism protests (e.g. Lai & Lam, 2018; Luo & Zhai, 2017; Prendergast, Lam, & Ki, 2016; Zhang, Pearce, & Chen, 2019), despite the economic benefits attributed to tourism (Shen, Luo, & Zhao, 2017; Yeung & Leung, 2007). The locals have depicted Chinese tourists as "locust," accused of being rude to service staff, talking loudly, jumping the queue, being unhygienic and littering, and causing inconveniences such as merchandise shortage and traffic tensions (Li, 2014, Sun, Li, & Zhou, 2016).

Recent debate regarding this phenomenon has aroused scholarly interest. Some studies argued for a negative chain effect, that is, a large number of Chinese tourists troubled the Hong Kong locals with problematic behaviors, causing hostility of residents towards tourists and making tourists feel unwelcomed, thus restraining tourism development

(e.g., Luo & Zhai, 2017). On the other hand, others rebutted that there is no clear evidence that the negative feelings have an actual impact on tourist arrivals from mainland China, to the contrary, the destination has seen steady tourism increase mostly from Chinese tourists (Tolkach, 2018). Based on subjective or descriptive measures, these studies are inconclusive about the nexus between tourism in Hong Kong and residents' QOL. Notably, no study has objectively understood the actual impact and long-term effect of residents' QOL on Hong Kong tourism (Tolkach, 2018; Zhai & Luo, 2018). The current study is expected to cover this hiatus.

#### 4. Schematic overview, data, and methodology

##### 4.1. Schematic overview

Synthesizing and expanding previous studies (e.g., Croes, 2012; Ridderstaat, Croes, & Nijkamp, 2013; Ridderstaat et al., 2014, 2016a, 2018), this study investigates the relationship between TD and QOL (with ED as a mediating factor) using the objective approach. The current study also draws on the premise of market segmentation, i.e., that not all tourist markets are equal in promoting residents' QOL in Hong Kong, and aims to delineate which market has a more significant impact on ED and QOL of Hong Kong. In doing so, this study considers four segments of the overall tourism market, together with the aggregate.

Fig. 1 provides a schematic overview of the study. The study considers both a direct and indirect relationship between TD (from both the selected market and the overall) and QOL, whereby ED is considered as a

mediating variable. The latter intervenes between dependent and independent variables and requires a significant connection with both the dependent and independent variables (Baron & Kenny, 1986). The mediating role of ED between TD and QOL has been acknowledged in studies by Ridderstaat et al. (2016a, 2016b). Further building on the previous framework (Ridderstaat et al., 2016a; 2016b), this study segments TD in Hong Kong into the critical inbound visitor markets and an "Other" group, which represents the rest of markets.

##### 4.2. Data

This study used three types of annual data (1980–2016). The first category included both total and disaggregated tourism demand data, where the latter included visitor arrival statistics from top source markets including mainland China, Japan, the U.S., and a pool of the remaining countries headed under the "Other" group. The source of these data was the Census and Statistics Department of the Government of Hong Kong, SAR (Census and Statistics Department, Hong Kong, various years). Visitor numbers are a widely used indicator in tourism demand analysis (Song & Li, 2008; Song, Witt, & Li, 2009), and these data were grouped by country/territory of residence in the annual statistics. The second data was on the real gross domestic product (GDP, constant prices of 1979) as the measure of ED, collected from the World Economic Outlook Database of the International Monetary Fund. The third form of data (The Human Development Index, or HDI), as the proxy of QOL, was driven primarily from the Human Development Reports of the United Nations Development Programme. As an often-used

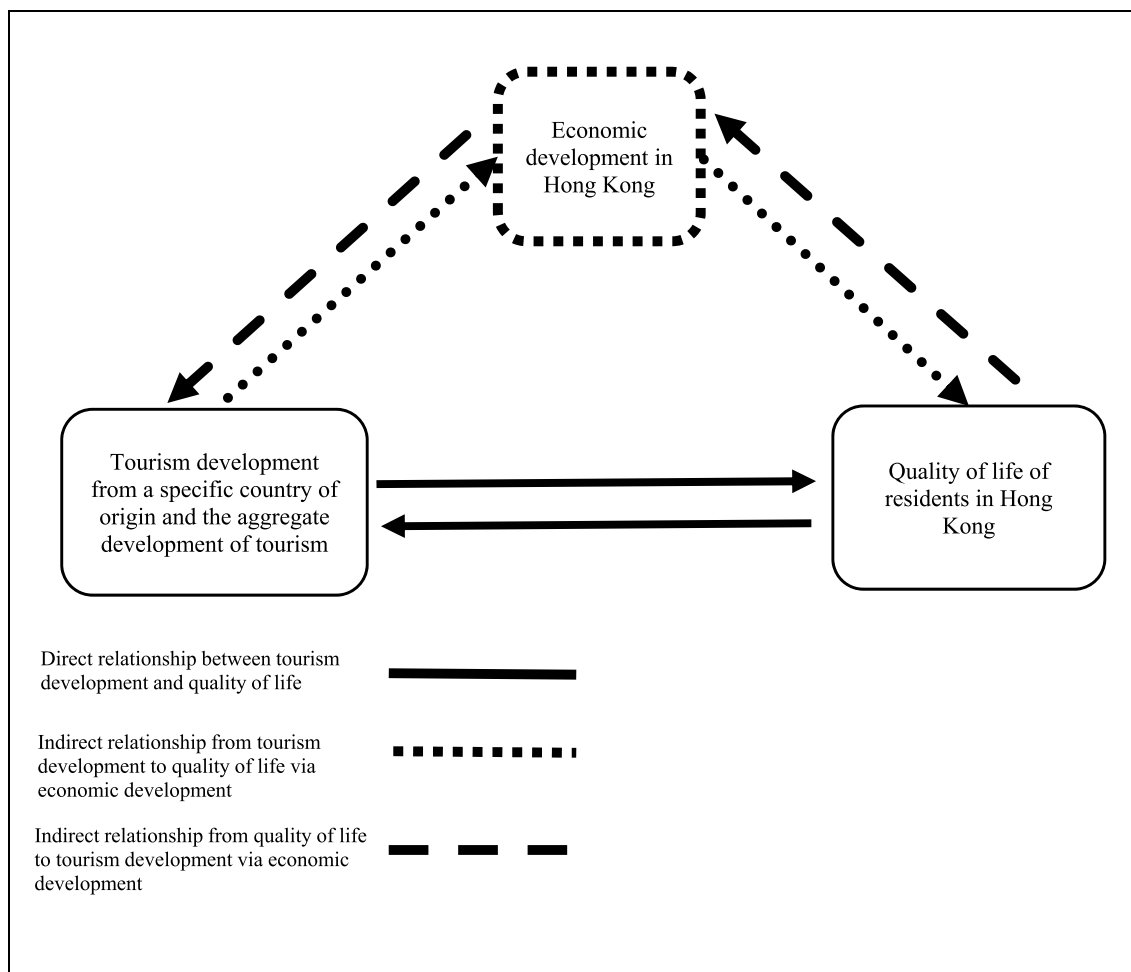


Fig. 1. Schematic overview of the study.



proxy for QOL (e.g., Ridderstaat et al., 2016b), the HDI consists of three dimensions, including life expectancy index, education index, and GNI index (GNI = gross national income) (United Nations Development Programme, 2011). The HDI data for Hong Kong was published originally every five years until 2009, requiring estimation for the missing data using the geometric mean method, in line with Gaynor and Kirkpatrick (1994). Since then, it is available annually.

Besides the mentioned variables, the study considered four dummy variables, which aim to control for qualitative influences on the dependent variable (Gaynor & Kirkpatrick, 1994). Specifically, the study found the effects of the terrorist attacks of September 11, 2001 (D\_911), the Asian crisis of 1997–1999 (D\_ASIA\_CRISIS), the avian flu crisis of 2004–2007 (D\_BIRD), and the global financial crisis of 2008–2010 (D\_GLOBALFIN).

The collected data (except for the dummy variables) were first transformed into logarithms, as this approach offers several benefits, including a limitation of heteroskedasticity or skewness in the data, and the narrowing of its range, which could compensate for outliers or extreme values (Wooldridge, 2013). Table 1 provides an overview and description of the applied variables, including descriptive statistics.

### 4.3. Methodology

The methodology involves several procedures. First, the data were analyzed for stationarity using the Augmented Dickey-Fuller test (ADF), the Phillips-Perron test (PP) and the modified Dickey-Fuller test based on general least squares (DF-GLS) (Dickey & Fuller, 1979; Elliot, Rothenberg, & Stock, 1996; Phillips & Perron, 1988). A series is stationary if (i) it exhibits mean-reversion properties, meaning that it fluctuates around a constant long-run trend; (ii) it has a finite time-invariant variance; and (iii) it has a theoretical diminishing correlogram as the lag length increases (Asteriou & Hall, 2007). Testing for stationarity is a requirement to avoid spurious or nonsense regression results (Gujarati & Porter, 2009).

Second, the study tested the variables for long-run relationships (cointegration) between the selected variables using the Autoregressive Distributed Lag (ARDL) bounds test approach, a technique suggested by Pesaran, Shin, and Smith (2001). It assesses whether there is an absence of cointegration ( $H_0$ ) or if there is cointegration ( $H_1$ ) between variable combinations. The test involves a comparison between a joint F-statistic with an upper or lower bound critical value, and the study followed Ridderstaat et al. (2014) on the five scenarios of possible outcomes of the ARDL bounds test approach.

The third step involves estimating the relationship between TD and QOL, with EG as the mediating variable. For this purpose, the study applied a three-stage least squares (3SLS) approach to estimate a system of equations by a Seemingly Unrelated Regression Estimation (SURE). The 3SLS is the most common system estimation in structural equation modeling, and, as a system estimation method, it is more efficient than

estimating each equation using two-stage least squares (2SLS) (Wooldridge, 2013). The SURE consists of a set of individual equations written as one giant equation (Kennedy, 2008). The time associated data consist of a cross-section of time series assumed not to be subject to an overall environment, which makes it possible to link them to a multivariate model where the components can be contemporaneously correlated (Harvey & Fernandes, 1989). The models applied in this study are:

$$\Delta QOL_t = \alpha_0 + \alpha_1 \Delta ED_t + \alpha_2 \Delta TD_{i,t} + \alpha_3 QOL_{t-1} + \alpha_4 D_{911_t} + \alpha_5 D_{ASIA\_CRISIS_t} + \alpha_6 D_{BIRD_t} + \alpha_7 D_{GLOBALFIN_t} + \varepsilon_1 \quad (1)$$

$$\Delta TD_{i,t} = \beta_0 + \beta_1 \Delta ED_t + \beta_2 \Delta QOL_t + \beta_3 TD_{i,t-1} + \beta_4 D_{911_t} + \beta_5 D_{ASIA\_CRISIS_t} + \beta_6 D_{BIRD_t} + \beta_7 D_{GLOBALFIN_t} + \varepsilon_2 \quad (2)$$

$$\Delta EG_t = \gamma_0 + \gamma_1 \Delta TD_{i,t} + \gamma_2 \Delta QOL_t + \gamma_3 EG_{t-1} + \gamma_4 D_{911_t} + \gamma_5 D_{ASIA\_CRISIS_t} + \gamma_6 D_{BIRD_t} + \gamma_7 D_{GLOBALFIN_t} + \varepsilon_3 \quad (3)$$

where

$\Delta$  = First difference;

$i$  = Aggregate or tourism demand from a specific country of origin (mainland China, Japan, the United States, or other);

$t$  = Time.

Each of the presented models contains a lagged version of the dependent variable (in the level form) to indicate the possible structural dependency on previous periods. Kennedy (2008) stated that previous period outcomes affecting economic variables are not uncommon. Such an effect, according to the authors, could be explained by the habit persistence in consumption. Habit persistence (using lagged dependent variables) could also be reflected in tourism demand models (see, for example, Song et al., 2009), and human development is also affected by past events, given the trend approach in analyzing the evolution of this index (see, for example, UNDP, 2018). The next section details and discuss the findings of this study.

## 5. Findings and discussion

### 5.1. Unit root test results

Unit root tests show data integration at both the level and first difference forms, except for total per capita TD for Hong Kong ( $TD_{TOT}$ ), where there was integration at the first difference form only (Table 2). Given the latter outcome, the authors continued the analysis using the variables in the first difference form.

### 5.2. Cointegration

Next, the authors tested whether there were long-term relationships

**Table 1**  
Description of applied variables and their statistical characteristics.

Variable	Description	Mean	Median	Maximum	Minimum	Std. Dev.
$TD_{TOT}$	Total tourism demand for Hong Kong, per inhabitant of Hong Kong	0.6664	0.5392	2.1284	-0.7884	0.8795
$TD_{CHIN}$	Tourism demand from China to Hong Kong, per inhabitant of Hong Kong	-0.9530	-0.9240	1.8756	-5.8765	2.1919
$TD_{JAP}$	Tourism demand from Japan to Hong Kong, per inhabitant of Hong Kong	-1.7654	-1.7061	-0.9935	-2.3724	0.3120
$TD_{US}$	Tourism demand from the US to Hong Kong, per inhabitant of Hong Kong	-2.0515	-2.0401	-1.7261	-2.6807	0.2532
$TD_{OTH}$	Tourism demand from other markets to Hong Kong, per inhabitant of Hong Kong	-0.1679	-0.0885	0.4709	-1.2385	0.5426
EG	Economic growth measured by the real gross domestic product of Hong Kong (1979=100)	5.8712	5.9933	6.6692	4.6825	0.6197
QOL	Quality of life of Hong Kong residents, measured by the Human Development Index of Hong Kong	-0.2001	-0.2009	-0.0856	-0.3567	0.0821
D_911	Dummy for the terrorist attacks of September 11	0.1081	0.0000	1.0000	0.0000	0.3148
D_ASIA_CRISIS	Dummy for the Asian Crisis of 1997-1999	0.0811	0.0000	1.0000	0.0000	0.2767
D_BIRD	Dummy for the avian flu crisis of 2004–2007	0.1081	0.0000	1.0000	0.0000	0.3148
D_GLOBALFIN	Dummy for the global financial crisis 2008–2010	0.0811	0.0000	1.0000	0.0000	0.2767

Note: Except for the dummy variables, all variables have been transformed to logarithm.

**Table 2**  
Unit Root Tests of normal variables.

variable		ADF	PP	DF-GLS	Integration
TD <sub>TOT</sub>	level	-0.5564	-0.5516	1.2177	I(1)
	first difference	-6.0695***	-6.0709***	-6.0719***	
TD <sub>CHIN</sub>	level	-3.1159**	-3.5600**	-0.4751	I(0) or I(1)
	first difference	-4.4047***	-4.4047***	-4.0380***	
TD <sub>JAP</sub>	level	-2.4099	-2.3163	-1.6289*	I(0) or I(1)
	first difference	-4.2009***	-5.8788***	-5.8106***	
TD <sub>US</sub>	level	-3.2327*	-2.9866	-2.8154	I(0) or I(1)
	first difference	-6.7423***	-7.4464***	-6.9429***	
TD <sub>OTH</sub>	level	-1.7990	-3.1444**	-0.0861	I(0) or I(1)
	first difference	-6.5987***	-6.7021***	-6.5683***	
QOL	level	-2.1278	-3.2563**	-0.6919	I(0) or I(1)
	first difference	-1.8320	-1.6526	-1.5926*	
EG	level	-4.5616***	-5.2978***	0.1742	I(0) or I(1)
	first difference	-4.0726***	-4.2922***	-4.1148***	

Note: \*\*\*, \*\*, \* indicate significance at, respectively, 1%, 5%, and 10%.

(cointegration) among the variables described in Fig. 1 and Table 1, using the bounds test approach. The results, as presented in Table 3, showed that long-term relationships were in most connections of TD-ED-QOL unless TD was represented by the total (TD<sub>TOT</sub>) or by Chinese tourism demand (TD<sub>CHIN</sub>). The relative importance of mainland Chinese market in the overall tourism demand for Hong Kong may explain the absence of a long-term connection with QOL and ED.

5.3. TD-ED-QOL: total visitors

With these findings, the study determined the effects of the relationship between TD (total and per selected country of origin) and QOL, considering ED as the intermediary variable. Tables 4–8 provide the results of the 3SLS with SURE. Each table contains the results interchangeably considering each of the three constructs as a dependent variable. With QOL as the dependent variable, both ED and TD<sub>TOT</sub> came out not statistically significant from zero, implying that they had no impact on Hong Kong residents' QOL (Table 4, equation (1)). However, the incidental factors (dummy variables) and the lagged dependent variable were statistically relevant explanators of QOL. Remarkably, most effects of the incidental factor on QOL were positive, implying that they were beneficial for residents' QOL. Possible adverse social impacts resulting from fewer tourists visiting during these challenging moments could explain these positive outcomes. These adverse social effects could

**Table 3**  
Bounds test results.

	F-statistic
F <sub>QOL (QOL TD<sub>TOT</sub>, EG)</sub>	3.7382
F <sub>QOL (QOL TD<sub>CHIN</sub>, EG)</sub>	6.3630***
F <sub>QOL (QOL TD<sub>JAP</sub>, EG)</sub>	6.8251***
F <sub>QOL (QOL TD<sub>US</sub>, EG)</sub>	8.1258***
F <sub>QOL (QOL TD<sub>OTH</sub>, EG)</sub>	9.5610***
F <sub>TD<sub>TOT</sub> (TD<sub>TOT</sub> QOL, EG)</sub>	8.0572***
F <sub>TD<sub>CHIN</sub> (TD<sub>CHIN</sub> QOL, EG)</sub>	0.6010
F <sub>TD<sub>JAP</sub> (TD<sub>JAP</sub> QOL, EG)</sub>	12.2024***
F <sub>TD<sub>US</sub> (TD<sub>US</sub> QOL, EG)</sub>	8.3132***
F <sub>TD<sub>OTH</sub> (TD<sub>OTH</sub> QOL, EG)</sub>	11.4464***
F <sub>EGK (EG QOL, TD<sub>TOT</sub>)</sub>	14.2124***
F <sub>EGK (EG QOL, TD<sub>CHIN</sub>)</sub>	6.6898***
F <sub>EGK (EG QOL, TD<sub>JAP</sub>)</sub>	15.5924***
F <sub>EGK (EG QOL, TD<sub>US</sub>)</sub>	18.4589***
F <sub>EGK (EG QOL, TD<sub>OTH</sub>)</sub>	14.7019***
<b>Critical values</b>	<b>I(0)</b> <b>I(1)</b>
10%	3.17      4.14
5%	3.79      4.85
1%	5.15      6.36

Note: Critical values are based on Narayan (2005). Model selection benchmark is based on Schwarz criterion. \*, \*\*, \*\*\* indicate significance at, respectively, 1%, 5%, and 10%.

range from changes in value systems, individual behavior, family relationships, collective lifestyles, loss of cultural identity, safety levels, moral conduct, creative expressions, traditional ceremonies, to community organizations (Pizam, 1978; Ap, 1990; Pizam & Milman, 1988). The statistically significant outcome of the lagged dependent variable indicates a possible structural dependency of QOL on its past period values.

With TD<sub>TOT</sub> as the dependent variable, the results show that only QOL had a statistically positive impact on tourism demand (Table 4, equation (2)). The influence of QOL on TD implies that improvements in residents' QOL could have positive repercussions on TD of Hong Kong. With ED being the dependent variable, the findings indicate that both QOL and TD<sub>TOT</sub> were statistically significant and positive determinants (Table 4, equation (3)). The statistically significant and positive outcome means that both tourism and residents' QOL seem supportive of economic development in Hong Kong.

5.4. TD-ED-QOL: Mainland Chinese visitors

With Chinese tourism demand, the results show a similar outcome when QOL is the dependent variable. Both TD<sub>CHIN</sub> and ED did not have a statistically significant impact on Hong Kong's residents' QOL (Table 5, equation (1)). The statistically significant lagged effect of QOL indicates possible structural dependency, similar to the case of aggregate tourism in Table 4. Neither ED nor QOL has a statistically significant influence on TD<sub>CHIN</sub>, which is contrary to the aggregate, where Hong Kong residents' QOL had a statistically significant impact on TD<sub>TOT</sub> (Table 5, equation (2)). With ED as the dependent variable, Hong Kong residents' QOL was statistically significant and positive, implying a constructive impact of QOL on ED (Table 5, equation (3)).

5.5. TD-ED-QOL: Japanese visitors

For the Japanese visitors, the results show again no statistically significant influence of both ED and TD<sub>JAP</sub> on QOL (Table 6, equation (1)). Similar to the cases of total visitor and Chinese visitors, the lagged version of QOL came out statistically significant and negative again, consistently implying structural dependency. Hong Kong residents' pursuit for a better QOL appears to have a positive impact on TD<sub>JAP</sub>, judging by the statistically significant and positive elasticity outcome. While Chinese tourism demand did not show this effect, it was the case when considering TD<sub>TOT</sub> (Table 6, equation (2)). Both QOL and TD<sub>JAP</sub> had a statistically significant and positive impact on ED, mirroring the effects found in the case of the aggregate market (Table 6, equation (3)).

5.6. TD-ED-QOL: the U.S. Visitors

When considering the U.S. tourism, both ED and TD<sub>US</sub> did not have a

**Table 4**  
Estimated outcomes (Aggregate tourism demand) under 3SLS with seemingly unrelated regression.

Equation	RMSE	R <sup>2</sup>	F	p-value	
1	0.0018	0.9620	104.7800	0.0000	
2	0.0840	0.6146	6.6100	0.0000	
3	0.0250	0.8747	28.9200	0.0000	
Equation 1 (dep. = ΔQOL)	Coefficient	Equation 2 (dep. = ΔTD <sub>TOT</sub> )	Coefficient	Equation 3 (dep. = ΔEG)	Coefficient
D_911 <sub>t</sub>	0.0042 ***	D_911 <sub>t</sub>	0.0785	D_911	-0.0466 ***
D_ASIA_CRISIS <sub>t</sub>	-0.0023 **	D_ASIA_CRISIS <sub>t</sub>	-0.0967 *	D_ASIA_CRISIS	0.0240
D_BIRD <sub>t</sub>	0.0023 **	D_BIRD <sub>t</sub>	0.0455	D_BIRD	-0.0040
D_GLOBALFIN <sub>t</sub>	0.0023 **	D_GLOBALFIN <sub>t</sub>	0.0353	D_GLOBALFIN	-0.0242
ΔEG <sub>t</sub>	0.0046	ΔEG <sub>t</sub>	-2.6158	ΔEG <sub>t-1</sub>	5.3939 ***
ΔTD <sub>TOT,t</sub>	0.0008	ΔQOL <sub>t</sub>	1.5436 ***	ΔTD <sub>TOT,t</sub>	0.1318 ***
QOL <sub>t-1</sub>	-0.0320 ***	TD <sub>TOT,t-1</sub>	0.0075	QOL <sub>t</sub>	0.0016
Harvey LM Test for autocorrelation (H <sub>0</sub> : No overall system autocorrelation)					
Equation 1			0.0751 (p = 0.7841)		
Equation 2			1.0928 (p = 0.2959)		
Equation 3			1.2391 (p = 0.2656)		
Engle LM ARCH Test (H <sub>0</sub> : Homoscedasticity)					
Equation 1			0.879 (p = 0.3485)		
Equation 2			0.5538 (p = 0.4568)		
Equation 3			1.6162 (p = 0.2036)		

Note: \*\*\*, \*\*, \* indicate significance at, respectively, 1%, 5%, and 10%.

**Table 5**  
Estimated outcomes (Chinese tourism demand) under 3SLS with seemingly unrelated regression.

Equation	RMSE	R <sup>2</sup>	F	p-value	
1	0.0018	0.9620	104.9300	0.0000	
2	0.3060	0.4706	3.6800	0.0016	
3	0.0271	0.8525	23.9500	0.0000	
Equation 1 (dep. = ΔQOL)	Coefficient	Equation 2 (dep. = ΔTD <sub>CHIN</sub> )	Coefficient	Equation 3 (dep. = ΔEG)	Coefficient
D_911 <sub>t</sub>	0.0042 ***	D_911 <sub>t</sub>	0.1965	D_911	-0.0443 ***
D_ASIA_CRISIS <sub>t</sub>	-0.0023 **	D_ASIA_CRISIS <sub>t</sub>	-0.0827	D_ASIA_CRISIS	0.0136
D_BIRD <sub>t</sub>	0.0024 **	D_BIRD <sub>t</sub>	-0.0203	D_BIRD	0.0052
D_GLOBALFIN <sub>t</sub>	0.0024 **	D_GLOBALFIN <sub>t</sub>	0.0906	D_GLOBALFIN	-0.0227
ΔEG <sub>t</sub>	0.0052	ΔEG <sub>t</sub>	0.1062	ΔQOL <sub>t</sub>	5.3720 ***
ΔTD <sub>CHIN,t</sub>	0.0003	ΔQOL <sub>t</sub>	2.4094	ΔTD <sub>CHIN,t</sub>	0.0202
QOL <sub>t-1</sub>	-0.0317 ***	TD <sub>CHIN,t-1</sub>	-0.0498	EG <sub>t-1</sub>	0.0026
Harvey LM Test for autocorrelation (H <sub>0</sub> : No overall system autocorrelation)					
Equation 1			0.0596 (p = 0.8071)		
Equation 2			0.5362 (p = 0.4640)		
Equation 3			0.7906 (p = 0.3739)		
Engle LM ARCH Test (H <sub>0</sub> : Homoscedasticity)					
Equation 1			0.9140 (p = 0.3391)		
Equation 2			0.0715 (p = 0.7892)		
Equation 3			1.6478 (p = 0.1993)		

Note: \*\*\*, \*\*, \* indicate significance at, respectively, 1%, 5%, and 10%.

statistically significant effect on Hong Kong residents' QOL (Table 7, equation (1)). With the statistically significant outcome of the lagged QOL variable, these findings were similar to those found for the total tourism market and, respectively, mainland China and Japan. Hong Kong's economic development had a statistically significant and negative effect on TD<sub>US</sub> (Table 7, equation (2)). The total and Japanese markets had a similar effect, but none of these two cases were statistically significant. The lagged dependent variable (TD<sub>US</sub>) came out statistically significant, implying that the U.S. tourism demand for Hong Kong is structurally affected by its past values. When ED is the dependent variable, the results show both Hong Kong residents' QOL and the U.S. tourist arrivals having a statistically significant positive effect on economic activities in Hong Kong, similar to the case of TD<sub>TOT</sub> and TD<sub>JAP</sub> (Table 7, equation (3)).

5.7. TD-ED-QOL: other visitor markets

Estimations for other markets indicate that neither ED nor TD<sub>OTH</sub> had a statistically significant impact on the QOL of Hong Kong residents, a finding similar to the total and selected markets discussed previously (Table 8, equation (1)). Also, the estimation indicated structural dependency, considering the statistically significant lagged dependent variable (QOL). When examining TD<sub>OTH</sub> as the dependent variable, the results show that ED had a positive impact on TD<sub>OTH</sub> (Table 8, equation (2)), similar to the case of mainland China, although the latter effect was not statistically significant. With ED as the dependent variable, the results show that both Hong Kong residents' QOL and TD<sub>OTH</sub> had a statistically significant positive impact on ED, in line with the findings for the total, Japanese, and the U.S. markets (Table 8, equation (3)). The results are best summarized using Fig. 2, indicating both the aggregate and market-based connections.

**Table 6**  
Estimated outcomes (Japanese tourism demand) under 3SLS with seemingly unrelated regression.

Equation	RMSE	R <sup>2</sup>	χ <sup>2</sup>	p-value	
1	0.0017	0.9636	109.6700	0.0000	
2	0.1657	0.3456	2.1900	0.0429	
3	0.0259	0.8648	26.5000	0.0000	
Equation 1 (dep. = ΔQOL)	Coefficient	Equation 2 (dep. = ΔTD <sub>JAP</sub> )	Coefficient	Equation 3 (dep. = ΔEG)	Coefficient
D_911 <sub>t</sub>	0.0041 ***	D_911 <sub>t</sub>	-0.0363	D_911	-0.0366 **
D_ASIA_CRISIS <sub>t</sub>	-0.0030 **	D_ASIA_CRISIS <sub>t</sub>	-0.3257 **	D_ASIA_CRISIS	0.0285
D_BIRD <sub>t</sub>	0.0024 **	D_BIRD <sub>t</sub>	0.0658	D_BIRD	-0.0019
D_GLOBALFIN <sub>t</sub>	0.0023 **	D_GLOBALFIN <sub>t</sub>	-0.0156	D_GLOBALFIN	-0.0216
ΔEG <sub>t</sub>	0.0097	ΔEG <sub>t</sub>	-13.0261	ΔQOL <sub>t</sub>	5.6950 ***
ΔTD <sub>JAP,t</sub>	-0.0022	ΔQOL <sub>t</sub>	2.0872 *	ΔTD <sub>JAP,t</sub>	0.0574 **
QOL <sub>t-1</sub>	-0.0314 ***	TD <sub>JAP,t-1</sub>	-0.0162	EG <sub>t-1</sub>	0.0026
Harvey LM Test for autocorrelation (H <sub>0</sub> : No overall system autocorrelation)					
Equation 1			0.0438 (p = 0.8342)		
Equation 2			0.8090 (p = 0.3684)		
Equation 3			1.9411 (p = 0.1635)		
Engle LM ARCH Test (H <sub>0</sub> : Homoscedasticity)					
Equation 1			0.8923 (p = 0.3449)		
Equation 2			0.0016 (p = 0.9683)		
Equation 3			0.4934 (p = 0.4824)		

Note: \*\*\*, \*\*, \* indicate significance at, respectively, 1%, 5%, and 10%.

**Table 7**  
Estimated outcomes (US tourism demand) under 3SLS with seemingly unrelated regression.

Equation	RMSE	R <sup>2</sup>	χ <sup>2</sup>	p-value	
1	0.0017	0.9636	109.6700	0.0000	
2	0.1657	0.3456	2.1900	0.0429	
3	0.0259	0.8648	26.5000	0.0000	
Equation 1 (dep. = ΔQOL)	Coefficient	Equation 2 (dep. = ΔTD <sub>US</sub> )	Coefficient	Equation 3 (dep. = ΔEG)	Coefficient
D_911 <sub>t</sub>	0.0042 ***	D_911 <sub>t</sub>	0.0615	D_911	-0.0414 ***
D_ASIA_CRISIS <sub>t</sub>	-0.0023 **	D_ASIA_CRISIS <sub>t</sub>	-0.0283	D_ASIA_CRISIS	0.0100
D_BIRD <sub>t</sub>	0.0027 ***	D_BIRD <sub>t</sub>	0.1803 **	D_BIRD	-0.0077
D_GLOBALFIN <sub>t</sub>	0.0022 **	D_GLOBALFIN <sub>t</sub>	0.0710	D_GLOBALFIN	-0.0220
ΔEG <sub>t</sub>	0.0096	ΔEG <sub>t</sub>	-16.4176 **	ΔQOL <sub>t</sub>	5.7137 ***
ΔTD <sub>US,t</sub>	-0.0035	ΔQOL <sub>t</sub>	1.1447	ΔTD <sub>US,t</sub>	0.0780 **
QOL <sub>t-1</sub>	-0.0313 ***	TD <sub>US,t-1</sub>	-0.3031 ***	EG <sub>t-1</sub>	0.0028
		Intercept	-0.5694 ***		
Harvey LM Test for autocorrelation (H <sub>0</sub> : No overall system autocorrelation)					
Equation 1			0.0230 (p = 0.8793)		
Equation 2			0.0567 (p = 0.8118)		
Equation 3			0.6663 (p = 0.4144)		
Engle LM ARCH Test (H <sub>0</sub> : Homoscedasticity)					
Equation 1			0.9235 (p = 0.3366)		
Equation 2			0.6915 (p = 0.4057)		
Equation 3			0.4416 (p = 0.5064)		

Note: \*\*\*, \*\*, \* indicate significance at, respectively, 1%, 5%, and 10%.

5.8. Model statistics

The additional statistics following the estimated regression models showed acceptable outcomes. The Root Mean Square Errors (RMSE), which is a standard deviation of the residuals, were lower than 0.32, while the F-statistics were all statistically relevant, indicating that at least one of the applied variables were relevant for fitting the data. The Harvey LM tests for autocorrelation were statistically not relevant, indicating no rejection of the null hypothesis of no system autocorrelation. Similarly, the Engle LM ARCH tests all came back statistically not relevant, implying no rejection of the null hypothesis of no heteroskedasticity (or homoskedasticity).

6. Conclusions and implications

The relationship between TD and residents' QOL continues to

develop, indicating a more complex dynamic than previously suggested by the literature. On the one hand, research on the TD-QOL nexus, using an objective approach, urges for a need to test cross-market evidence for the same destination, as tourism demand is diversified (e.g., Croes, 2011). On the other hand, popular media and academia have noticed the social conflicts in favored destinations such as Hong Kong due to the massive influx of tourists from a major market, however, lacking reliable causal conclusions beyond descriptive and subjective assessments. This study fills the void by addressing the calls from both streams of studies, making several unique and valuable contributions to the literature.

First, the present study joins the ongoing scholarly endeavor by investigating the reciprocal connection between TD and QOL, a topic of sustained interest in tourism. Specifically, building on the previous framework by Ridderstaat et al. (2016a, 2016b), this study objectively tests an analytical model describing the triangle relationship among TD, ED, and QOL, including their bilateral relations and the ED's mediating



**Table 8**  
Estimated outcomes (Other markets' tourism demand) under 3SLS with seemingly unrelated regression.

Equation	RMSE	R <sup>2</sup>	χ <sup>2</sup>	p-value
1	0.0018	0.9620	103.8100	0.0000
2	0.0919	0.3745	2.4500	0.0243
3	0.0256	0.8679	26.9200	0.0000

Equation 1 (dep. = QOL)	Coefficient	Equation 2 (dep. = TD <sub>OTH</sub> )	Coefficient	Equation 3 (dep. = EG)	Coefficient
D_911 <sub>t</sub>	0.0042 ***	D_911 <sub>t</sub>	0.0034	D_911	-0.0350 **
D_ASIA_CRISIS <sub>t</sub>	-0.0024 **	D_ASIA_CRISIS <sub>t</sub>	-0.0721	D_ASIA_CRISIS	0.0178
D_BIRD <sub>t</sub>	0.0024 **	D_BIRD <sub>t</sub>	0.1312 **	D_BIRD	-0.0092
D_GLOBALFIN <sub>t</sub>	0.0023 **	D_GLOBALFIN <sub>t</sub>	0.0396	D_GLOBALFIN	-0.0218
ΔEG <sub>t</sub>	0.0073	ΔEG <sub>t</sub>	1.1762 *	ΔQOL <sub>t</sub>	5.2352 ***
ΔTD <sub>OTH,t</sub>	-0.0011	ΔQOL <sub>t</sub>	-7.9996	ΔTD <sub>OTH,t</sub>	0.1089 **
QOL <sub>t-1</sub>	-0.0318 ***	TD <sub>OTH,t-1</sub>	-0.0667	EG <sub>t-1</sub>	0.0027
		Intercept	0.0178		

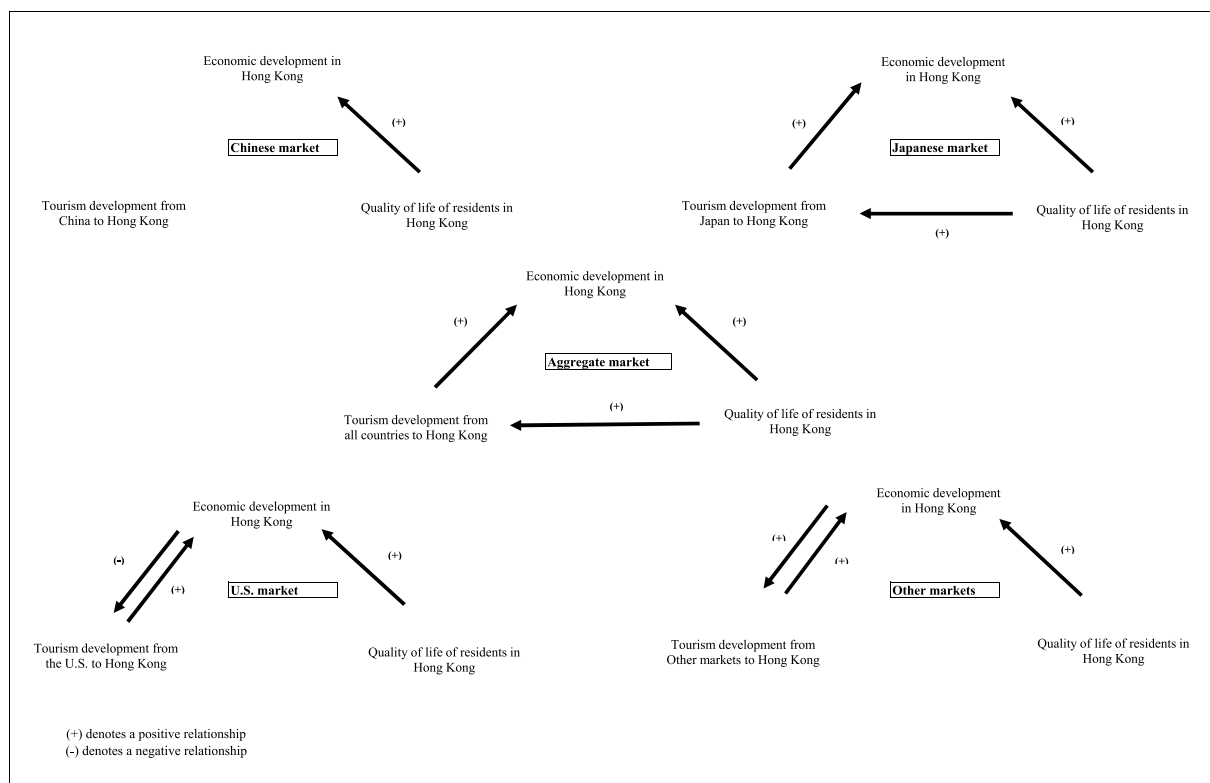
  

Harvey LM Test for autocorrelation (H <sub>0</sub> : No overall system autocorrelation)	
Equation 1	0.0301 (p = 0.8622)
Equation 2	2.6714 (p = 0.1022)
Equation 3	2.1010 (p = 0.1472)

Engle LM ARCH Test (H <sub>0</sub> : Homoscedasticity)	
Equation 1	0.9324 (p = 0.3342)
Equation 2	0.1389 (p = 0.7094)
Equation 3	0.0445 (p = 0.8330)

Note: \*\*\*, \*\*, \* indicate significance at, respectively, 1%, 5%, and 10%.



**Fig. 2.** Visual findings for aggregate and main source markets.

effects. With long-term evidence from Hong Kong, this study contributes to the literature with a more nuanced understanding of the nature and causality of the interrelationships. By showing that enhanced QOL could contribute to sustainable TD in the aggregate and the specific markets, this study expands existing literature by contributing to a better understanding of TD and QOL and suggesting opportunities for improving both.

Second, this study is a pioneering effort to provide objective evidence

on the TD-QOL linkage for Hong Kong, a destination where evergrowing tourism influx debatably impacted residents' QOL (e.g., Luo & Zhai, 2017). Existing studies mostly emphasized descriptive statistics and interview- and survey-based approach. Therefore, the findings so far appear to be inconclusive at best. This study investigated and provided substantial evidence on the long-term causal chains between TD, QOL, and ED in Hong Kong, using an objective assessment, thereby advancing the understanding of a timely issue.

Third, this study is also the first among the current objective TD-QOL research by providing market-specific information when previous studies mostly relied on aggregated data. It investigated the differentiated dynamics across different source markets, including three major markets and other markets. The in-depth approach suggests diverse patterns between the aggregate and the individual markets of tourism demand, which means that not all markets have equal dynamics between TD, QOL, and ED. This not only endorses previous propositions that tourism demand is diverse and global (Huang & Crofts, 2019) but also substantiates the Social Exchange Theory in tourism (e.g., Ap, 1990) by showing how each market affects QOL and their different impacts on TD and ED in Hong Kong. Also, this study provides two theoretical propositions as building blocks for the future theory-building process (e.g., Yin, 2014). Specifically, (i) the relationship between tourism demand and residents' quality of life is market-specific; and (ii) the relationship between tourism demand and economic development is also market-specific.

Following the market-segmentation approach, this study puts forth a more complex dynamic relationship between these constructs, by focusing on country-specific TD. Specifically,

*Mainland China:* The study findings showed only the QOL→ED linkage, while all other possible ties were not statistically significant. Corroborating Ridderstaat et al. (2016b), this study calls for future attention to QOL as a multi-faceted concept. Unlike destinations that rely on tourism for their economy, such as island destinations (Croes et al., 2018), tourism impacts only 17.4% of Hong Kong's economy, including direct, indirect, and induced effects (World Travel & Tourism Council, 2019b). Therefore, tourism may not play a significant role in residents' QOL. Other non-tourism (e.g., financial sectors) and/or nonmonetary factors (e.g., social contact) could determine residents' QOL to a more significant extent. Since the measurement of QOL only covers three aspects (life expectancy, education, and standard of living), future studies can zoom into other aspects of QOL, possibly through a subjective study. Another plausible explanation is that mainland China is a fast-growing emerging market while other markets have longer-standing close relationships with Hong Kong. Hong Kong was not extensively open to mainland Chinese because of the Chinese government's control, and tourist arrivals from mainland China have experienced an exponential growth since 1984 but only became a leading market after 1994, according to the government statistics. Therefore, tourism's effect on residents' QOL may not be immediate and could take some time to materialize.

*Japan:* The Japanese market exhibits the same dynamics as the aggregate market, probably due to its historic role as an established market. QOL contributes to both TD and ED, while TD contributes to ED. The unilateral relationship of TD→ED explains that tourism demand from Japan enhances the local economy in Hong Kong. The last result is reasonable since Japan has historically been a significant market in Hong Kong's tourism development. Similar to mainland China, it is possible that other non-tourism, non-economic factors are determining residents' QOL.

*The U.S.:* The U.S. market shows a unilateral relationship from QOL to ED, and a bilateral relationship between TD and ED. It is noteworthy that the U.S. shows a similar pattern to "other markets" except for a negative impact of ED on TD. It is possible that although TD from the U.S. contributes to the economy in general, economic growth in Hong Kong did not result in comparable marketing fund increases allocated to the U.S. market. Alternatively, other mediating forces may affect the relationship, such as workers' productivity and education levels in the tourism and hospitality industries. Employees in both industries may be attracted to other economic sectors due to higher wages, leaving less qualified workers. As a labor-intensive industry, tourism depends on the quality of the labor force to deliver and manage the experience (Amoah & Baum, 1997). Therefore, proper education and training can shape the attitudes of employees or residents, which contributes to a positive future TD.

*Other markets:* The results show reciprocal, positive causation between ED and TD, and a unilateral connection from QOL to ED. The link means that tourism from these markets contributes to economic growth in Hong Kong, which in turn could generate more marketing funds to be allocated for future tourism (Ridderstaat et al., 2014). The mutual connection between tourism and the economy for other markets as well as the U.S. market is not visible for all markets, suggesting that tourism markets are heterogeneous with their interaction with the economy and the residents' life quality.

To summarize, a common finding across all cases is that QOL contributes to ED, but not vice versa. In Japan and the aggregate market, QOL promotes TD, but a reciprocal relationship is lacking. Tourism's overall contribution to the economy (less than 18%) suggests that Hong Kong's economy is highly diversified, unlike island destinations with higher levels of tourism specialization (Croes et al., 2018). The lower level of diversification may affect the possible effect of ED on residents' QOL. Also, QOL is a multidimensional concept, and some dimensions may interact with/counter each other (Ridderstaat et al., 2016b). Therefore, it is crucial to understand how specific dimensions of QOL interact with TD and ED to improve the effectiveness of TD and ED on QOL (Ridderstaat et al., 2016b). Overall, tourism contributes to the Hong Kong in a sustainable, positive way, which substantiates the fact that tourism expenditure from inbound tourism reached over 20 billion USD in 2018 alone (Hong Kong Tourism Board, 2019).

### 6.1. Practical implications

Understanding the (lacks of) TD-QOL linkages at individual market levels is essential for tourism management and planning because not all source markets have equal impact on the economic development and residents' well-being of the host region. The findings from this study could assist tourism management authorities, governmental agencies, and marketing organizations in considering segmentation criteria and creating a competitive edge for destinations. With explicit evidence from Hong Kong, the findings offer better insights into the TD-ED-QOL connection for individual markets and their respective contributions. Since budgets assigned for tourism-related development are generally limited, market segmentation must precede strategy-making for a better understanding of the market and its customers, and effective allocation of financial sources. By dividing tourists into heterogeneous geographical groups, destination managers can thus ascertain specific segments that are more attractive to target (Walker, 2006). This study affords managers and policymakers a greater understanding of the market, considering a steady increase in the number of international tourist arrivals to Hong Kong over the years. From a managerial and policy-making perspective, this research suggests a market-based policy stance instead of a one-size-fits-all approach, which is relevant for selecting the right mix of policies at a destination.

To establish a positive TD→QOL connection, for the Chinese market, for example, policymakers need to understand better the relative importance of the drivers of Hong Kong residents' QOL, such as which specific elements of residents' well-being are affected by Chinese visitors, and how tourism activities can contribute to the quality of life of the people. Surveying residents' perceptions and sentiments are thus advisable, which allows for more targeted strategies to reap the optimal benefits of exponential tourism growth and residents' QOL improvement. Also, policymakers should consider programs that bring together residents and tourists for a better mutual understanding. Programs should be designed for residents to understand the benefits from tourism (e.g., job creation and foreign exchange receipts) and to ensure proper training for hospitality and tourism staff, to improve tourism services and ensure long-term tourism development. Furthermore, making the marketing of Chinese tourism more effective and self-financing could help policymakers establish the missing positive TD-ED connection. Understanding the return on spent marketing dollars and establishing passenger fee programs at airports for the necessary marketing funds

could be part of the connection policies.

For the markets with a TD→ED linkage, the local destination organizations such as the Hong Kong Tourism Board should continue to nurture the relationship and bridge it with the QOL of residents. However, it is impossible to do this without understanding how TD and ED interact with the dimensionality of QOL. For example, how taxes generated from tourism can be converted into government expenditures and then allocated as public services to improve human development. Therefore, it is vital to understand how residents and public services can receive benefits from tourism. One example is that tourism and economic policies can be adjusted to improve the human capital competitiveness of residents, such as enhancing healthcare, education, and work-related flexibility and adaptability.

For Japan and the overall market, destination management should recognize the potential of QOL to influence TD and ED, and contribution of tourism to the government through providing jobs and income, and then taxes. For the U.S. and the other markets, Hong Kong should continue to promote and/or establish the positive two-way connection between TD, QOL, and ED to be mutually reinforcing over time. For example, to effectuate the ED→TD connection, more funds should be allocated to maintain adequate conditions and resources in not only tourism activities such as tourism supply and promotion, but also tourism-related industries, such as infrastructure, transportation, and communication. Policymakers should also encourage innovative methods and ideas in leadership and entrepreneurship of tourism businesses for long-term growth of tourism, and eventually, higher levels of economic growth in the future.

## 6.2. Limitations and future studies

Several limitations are associated with this study, providing opportunities for future research. First, this study used the HDI, an aggregate index, as the proxy of QOL, and overall GDP, in the equations. It is advised to consider segmenting the GDP by sectors and focus on tourism's contribution as other aspects may not be relevant. Also, future studies should examine the relationship between TD-ED and the sub-dimensions of QOL (including possible interactions between them) to achieve a deeper understanding of the interconnectedness between these constructs. The new cognizance can clarify questions such as how different aspects of residents' life benefit from tourism earnings. Second, the anomalies in the relationships merit further endeavor to discover the conditions under which the nexus between tourism, economy, and QOL is less obvious. It is highly possible that nonlinear, mediatory effects influenced the links, possibly through secondary paths. A more in-depth analysis should be carried out to examine the mediating effects of TD and QOL, such as social, cultural, and environmental factors. Third, other methodological approaches, such as a survey with a representative number of Hong Kong residents, are recommended. Findings from the subjective approach can be compared with those from the objective approach for an integrated and more balanced understanding of the phenomenon (Das, 2008; Kazana & Kazaklis, 2009; Stiglitz et al., 2009). Last but not least, to deepen the understanding of the workings of market segmentation on the connection between TD-ED-QOL, future studies should validate the findings with other destinations and their respective market segments.

## Author contribution

Dr. Fu led this project throughout the entire process. She contributed to idea development, conceptualization, data collection, writing-up of drafts, and manuscript editing. Dr. Ridderstaat contributed to the conceptualization, data collection, data analysis, writing-up of results, and manuscript editing. Ms. Jia assisted with literature identification, literature review preparation, paper formatting, and references.

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