1 **Analyzing the Economic Sustainability of Tourism Development: Evidence from Hong**

2 **Kong**

3 **Abstract**

4 Despite increased concerns about the negative economic impacts of tourism on host communities,

5 insufficient attention has been paid to assess tourism economic sustainability. This paper aims to

6 develop and validate a framework for assessing economic sustainability from the perspective of

7 local stakeholders. In-depth interviews with 12 major stakeholders and a telephone survey with

8 1839 Hong Kong citizens were conducted. The tourism economic sustainability construct

9 consisted of three dimensions: economic positivity, development control and individual welfare.

10 The reliability and validity of the dimensions were confirmed by the data of sub-samples. The

11 links between socio-demographic characteristics and attitudes toward tourism economic

12 sustainability were evaluated. This paper enhanced our understanding of tourism economic

13 sustainability by expanding the measurement from the macro level to micro level. Using the

14 study setting in Hong Kong, it transcends previous analysis by providing a context to learn from

15 ongoing controversies about the effects of tourism on host community.

16 **Keywords:** Economic sustainability; host-guest conflict; Hong Kong; economic positivity;

17 development control; individual welfare

18 **Introduction**

19 Tourism industry is currently facing unprecedented challenges worldwide due to the sector's

20 maturity and the rapidly evolving environments. Concerns about the negative economic impacts

21 of tourism on host communities continue to surface, highlighting the importance of evaluating

1 economic sustainability in the development of tourism destinations (Logar, 2010; Calgaro, Lloyd,

2 & Dominey-Howes, 2014). However, most existing sustainability evaluation tools and guidelines

3 tend to focus on environmental and social perspectives (Buckley, 2012). Some do refer to

4 economic sustainability but mainly focused on macro-level and objective indicators such as GDP,

5 employment rate and investment. While useful, macro level and objective perspective fails to

6 capture many other indicators with significant importance to local stakeholders, who are

7 impacted by tourism development strategies and who have their own interpretations of

8 sustainability (Muresan et al., 2016).

9   Sustainable tourism, an alternative approach of developing destinations that can establish

10 a harmonious relationship between tourism and its encompassing environment (environmental,

11 economical, and social), has become more complicated due to an increased number of

12 stakeholders involved, and the often divergent interests they pursue. Tourism activities and

13 development may influence the host-guest relationship, which in turn can have significant impact

14 on the potential of tourism industry (Sharpley, 2008). Thus, it has been advised that

15 incorporating local perspectives would tap into the complex knowledge related to sustainability

16 and thus, be a better way of evaluating sustainability (Veenhoven, 2001; Choi & Sirakaya, 2005).

17 Therefore, the aim of this paper is to develop and validate an indicator framework for assessing

18 economic sustainability from the perspective of local stakeholders in Hong Kong. While this

19 indicator framework was developed specifically for Hong Kong, the case study may be relevant

20 for many other popular destinations that are experiencing stagnation of tourism growth.

21   Hong Kong provides an appropriate case for studying economic sustainability of tourism.

22 Over the last few decades, stimulated by the visa liberalization such as the Individual Visit

1   Scheme (IVS) in 2003 and the multiple-entry permits of Shenzhen residents in 2009, the number

2   of visitor arrivals from mainland China has enjoyed a rapid and sustained growth from 8.47

3   million in 2003 to 45.84 million in 2015, which accounted for 77.56% of the inbound market

4   share (Hong Kong Tourism Board [HKTB], 2016). The increase of Chinese visitors has brought

5   billions of tourism receipts per year and generated numerous job opportunities. However, as

6   more mainland visitors came to Hong Kong, they started to visit non-tourism regions and bought

7   many daily used items such as milk powder and diapers which caused the increase of price and

8   shortage of some goods (Liu & McKercher, 2016). Such behavior deteriorated the relationship

9   between the mainland visitors and the Hong Kong residents. Reports related to physical conflict

10   between tourists and residents can be found in social media and more importantly, arrivals from

11   China suffered a decline since 2015 which is the first time since IVS was launched (Wong &

12   Buckley, 2015; HKTB, 2016).

13   It is only recently that sustainable development of tourism in Hong Kong has attracted

14   attention from researchers. For example, Zhang, Fan, Tse and King (2016) measured

15   sustainability of tourism development form the social perspective. Shen, Luo, and Zhao (2017)

16   examined local residents' attitudes toward mainland Chinese tourists as well as the factors that

17   influences these attitudes. However, systematic understanding of the residents' attitude and its

18   causes are still lacking. To provide a better understanding of the progress toward sustainable

19   tourism and to relieve the conflict between the visitors and the hosts, a tool which could analyze

20   the economic sustainability of tourism development is urgent and necessary. The measurement

21   tool developed in the study could provide the Hong Kong government and also practitioners with

1   the opportunity to assess tourism economic sustainability from the viewpoint of local

2   communities and then undertake any appropriate and necessary actions.

3

4   **Literature Review**

5   *Economic Sustainability of Tourism*

6   Despite its pivotal role for tourism, the economic dimension of tourism sustainability remains

7   poorly defined and studied. There was insufficient agreement on what conditions constitute a

8   position of sustainability as it is a continuous and future state. To the best of our knowledge,

9   three definitions have been provided by public organizations and researchers. According to

10   UNWTO (2004), economic sustainability addresses long-term viability of economic operations,

11   fairness and equity of benefits distribution, employment and income-earning opportunities, and

12   poverty alleviation. United Nations Environmental Programme (UNEP) and UNWTO's (2005)

13   definition concerns with economic prosperity at different levels of society, cost-effectiveness and

14   economic efficiency, and vitality of tourism enterprises. Choi and Sirikaya (2006) referred to

15   economic sustainability as a process "optimizing the development growth rate at a manageable

16   level with full consideration of the limits of the destination environment." Economic

17   sustainability of tourism is, in all these versions of definitions, a multidimensional construct of

18   comprehensive meaning. However, existing studies on sustainability indicators often view

19   economic sustainability as a uni-dimensional construct (Miller, 2001; Lawson, 2001; Su & Lin,

20   2004; Timur & Getz, 2009; Muresan et. al, 2016). One exception is from the World Tourism

21   Organization (UNWTO, 2004), which proposed seven sub-dimensions of economic

22   sustainability: tourism seasonality, leakages, employment, tourism as a contributor to nature

4

1 conservation, community and destination economic benefits, tourism and poverty alleviation and

2 competitiveness of tourism businesses. It was advised that the guidebook should be used as a

3 menu for destination managers to develop meaningful indicators that can adapt to specific

4 circumstances of the destination.

5   Most research on economic sustainability drew heavily on macro-level objective

6 indicators, with less effort devoted to develop micro-level subjective indicators from the

7 stakeholders' perspective (Sirakaya-Turk & Gursoy, 2013). Only a few exceptions can be found

8 in the literature. An important study was conducted by Choi and Sirakaya (2005) to build the

9 residents' attitudes toward sustainable tourism scale (SUS-TAS). In their scale, several

10 dimensions identified were related to economic sustainability such as perceived economic

11 benefits, community-centered economy, and visitor satisfaction. Timur and Getz (2009)

12 investigated how destination stakeholders (tourism industry and government) perceive

13 sustainable urban tourism. Three economic indicators were selected for the study: provide long

14 term business profitability, continue to grow city's tourism industry, and ensure that city's

15 tourism marketing budget is sustained and increased. Muresan et. al (2016) assessed the local

16 residents' attitude toward economic sustainability of rural tourism development based on overall

17 economic development, tax revenue, employment, and living cost. Overall, these studies

18 emphasized on residents' attitudes toward tourism development and consider less about how

19 residents' feelings toward tourists.

20   Research devoted to the drivers of tourism economic sustainability are scant. Seasonal

21 operations of tourism, which have brought about decreased occupancy rates, transportation

22 difficulties, and increased prices, was considered as a chief factor in the sustainability of the

tourism corporations (Altinay, 2000; Shen, Luo, & Zhao, 2017). Researchers have suggested

that characters of tourists such as travel mode and social status may be related directly to

economic sustainability (Faulkner & Tideswell, 1997). The quality of accommodation facilities

and sufficiency of trained work force were also identified as major issues affecting economic

sustainability of tourism destination (Logar, 2010). Focusing on the temporal dynamic of

tourism development, Giannoni and Maupertuis (2007) suggested that the trade-off between

tourism investments and environmental preservation is critical to ensure the sustainability of

population income in the long run. Bramwell (2011) highlighted the state's influence on

economic sustainability of tourism.

Economic Impacts of Tourism

One area of research that is highly relevant for economic sustainability of tourism is the

measuring and managing of tourism impacts. Previous research has widely explored positive

economic consequences of tourism. Tourism seems to constitute a good engine of growth and

provide vast welfare gains (Katircioglu, 2011). Such economic outcome may be attained from

export and foreign exchange earnings, employment and adding sources of income, balance of

payments, and tax revenues (Oh, 2005; Katircioglu, 2009; Seetanah, 2011). In the context of

developing countries and indigenous people, tourism is considered an alternative source for

poverty alleviation and sustainable livelihood (Tao & Wall, 2009). Nonetheless, tourism must

not be viewed as a panacea or the easiest way out of economic problems. It may also generate

static and perverse effects. For example, tourism is found to be an unstable source of income, as

it is often very sensitive to actual or perceived changes to the environmental and social

conditions of destinations (Giannoni & Maupertuis, 2007). Over-development, excessive visitor

6

1   use, and the pursuit of short-term economic gains can threaten the longevity of many tourism

2   destinations (Burak, Dogan, & Gazioglu, 2004). The issue of economic leakage and

3   distributional inequality has limited the benefits of tourism on host communities (Nepal, 2002).

4   Tourism jobs are often low paid with high turnover rates, which calls for attention on the

5   employment quality and opportunity cost of of labor (Lacher & Oh, 2012). In an era when

6   sustainability has become a major paradigm, investigating merely tourism impacts is not

7   sufficient (Choi & Sirakaya, 2005). More efforts are needed to integrate knowledge of economic

8   impacts of tourism into the development of tools for measuring economic sustainability of

9   tourism.

10

11   *Residents' Attitudes Toward Tourism*

12   Understanding residents' attitudes toward tourism has long been of interest to tourism scholars.

13   Previous research showed that residents' responses to tourism development varied based on a

14   number of factors such as the level of tourism development, socio-demographic characteristics,

15   economic dependence on tourism, extent of local residents' interaction with tourists, and spatial

16   proximity to the tourist attractions (Uriely, Israeli, & Reichel, 2003; Ho, Chia, Ng, &

17   Ramachandran, 2017). Theoretical approaches to the study of residents' attitudes toward tourism

18   have typically employed stage-based models such s Doxey's (1975) Irridex model and Butler's

19   (1980) tourism area life cycle model. Their basic premise is that with the increase of adverse

20   tourism impacts, residents' support for tourism decreases. Taking into account the trade-off

21   between positive (benefits) and negative effects (costs) of tourism, social exchange theory has

22   been frequently employed to explain individual's decision making toward tourism related issues

1   (Ap, 1992). A resident is likely to be supportive of tourism development as long as the perceived

2   benefits exceed the perceived costs. Hinges upon the notion of fairness, stakeholder theory has

3   also been used to deal with conflicts and trade-offs among various stakeholders (Kuvan & Akan,

4   2012). It requires simultaneous attention to the legitimate interests of all appropriate stakeholders

5   in the establish of policies and case by case- decision-making (Freeman, 1984). Another

6   influential theoretical approach draws upon social representation theory, which enables us to see

7   the attitudes, ideas, and action orientations of tourism as shared knowledge of local residents (Lai,

8   Hsu, & Nepal, 2013).

9

10   ***Knowledge Gap***

11   Based on the discussion above, several gaps can be identified in the literature. First, although

12   great progress has been made for assessing sustainable tourism, few studies have focused on the

13   economic aspects of sustainable tourism. There are no agreements on either of the phenomenon

14   itself or its main drivers. Also, existing studies often treat economic sustainability of tourism as

15   a uni-dimensional construct, which failed to reflect the comprehensive contents of the definition

16   proposed by UNWTO (2004). Thus, there is a need to deepen the understanding of economic

17   sustainability by exploring its dimensions. Second, it is worthy of note that current research

18   mainly relies on objective macro-level indicators to measure economic sustainability in tourism.

19   Other subjective micro-level criteria that emphasize the perceptions of local stakeholders (e.g.,

20   economic benefits for individuals and tourism development control) tend to be overlooked. As a

21   result, economic sustainability indicators of extant research fall short in assessing all aspects of

22   the development progress toward sustainable tourism. Third, although there have been many

1 studies carried out on residents' attitudes toward tourism, only a few have employed sustainable

2 development perspective to comprehend residents' attitudes toward tourism. Fourth, although the

3 respective concepts of economic impact and economic sustainability are closely related, little

4 effort has been made to integrate the results of economic impacts into the assessment of

5 economic sustainability. To address the aforementioned research gaps, this study aims to analyze

6 tourism economic sustainability as a multi-dimensional concept from the host perspective. This

7 study also attempts to transform dimensions of economic effect into an evaluation tool of of

8 economic sustainability.

9

10 **Methodology**

11 *Item and Questionnaire Development*

12 Measurement development is a crucial step in research design and could fundamentally affect the

13 research results. Regarding this research, due to the scarcity of literature on multi-dimensional

14 measurements of economic sustainability, a systematical development of the instruments is in

15 need. According to Churchill's (1979) classical framework and the continuous development by

16 different researchers (e.g. Hung & Petrick, 2010; Zhang et al., 2016), the current measurement

17 instruments were developed by following the 10-step approach (Table 1).

18 **Insert Table 1 Here**

19   As the first and second steps, literature search and in-depth interviews were conducted to

20 specify the domain of the construct and to generate a sample of items. The literature related to

21 economic sustainability of tourism development was reviewed by the research team to clarify the

1   domain of economic sustainability and to look for the items used by scholars to measure

2   sustainability. Specifically, though the uni-dimensional measurements in the literature had

3   limited ability to reflect the comprehensive meaning of social sustainability, they formed a good

4   knowledge base for the current study. Items such as those developed by Lawson (2001), Su and

5   Lin (2004) as well as UNEP and UNWTO (2005) were considered as part of the item pool. To

6   solicit the tourism industry view, interviews were carried out with different main stakeholders of

7   the Hong Kong tourism industry. Purposive sampling was adopted to select interviewees. This

8   sampling method is appropriate when researchers with expertise in a particular field seek for

9   interviewees who meet specific criteria and can represent a cross-section of the population

10   (Black, 2010). Specifically, members in the research team have rich industry experiences and

11   network. Applying such expert knowledge, the study conducted 12 in-depth interviews with

12   leaders or representatives from major stakeholders of the Hong Kong's tourism industry,

13   including Hong Kong Tourism Board, China National Tourism Administration, Travel Industry

14   Council, Quality Tourism Services Association, Hong Kong Association of Travel Agents, Hong

15   Kong Hotel Association, Ocean Park, Disneyland, and local residents. An organization or

16   association was selected from each industry sector that best represented the respective sector.

17   This qualitative method allowed the research team to capture the interviewees' perceptions, ideas,

18   and experiences and gain the necessary insights. All interviewees were first invited by an e-mail

19   that clearly stated the project's background and objectives, and guideline questions were

20   provided. With their consent, the interviews were scheduled based on mutual convenience.

21   Interviewees may also nominate other organizations or associations if they were considered to be

22   related. As a result, the pool of items was further expanded by taking the knowledge from

23   tourism practitioners into consideration. By comprehensively analyzing the literature and

1   interview transcripts, 28 items were developed including destination attractiveness, leakage

2   reduction, market understanding, managed tourism seasonality, employment opportunities,

3   visitor satisfaction, as well as development control (Fredline & Faulkner, 2000; Lawson, 2001;

4   Su & Lin, 2004; Tosun, 2002; UNEP & UNWTO, 2005; UNWTO, 2004).

5   In the third step, a panel of experts was invited to provide comments on the item pools. A

6   panel discussion was held with five scholars who hold expertise in sustainability. Revision was

7   made according to the comments from the panel and a questionnaire was then developed. The

8   sources of items were displayed in Appendix 1. The questionnaire was distributed to 80 Hong

9   Kong university students as a pilot test. The questionnaire was further revised based on the

10 results of the pilot test and 23 items were maintained for the main survey.

11   The questionnaire included two parts. The first set was to obtain respondents' perceptions

12 regarding economic sustainability using a 5-point Likert-type agreement scale with 1

13 representing "strongly disagree" and 5 representing "strongly agree". The second section was

14 related to the demographic information. The questionnaire was originally designed in English.

15 For the convenient distribution purpose to Hong Kong residents, it is translated into traditional

16 Chinese by back translation technique.

17

18 *Data Collection*

19   As the fourth step, data were collected by telephone interviews. The telephone survey is the

20 most convenient way to conduct simple random sampling regarding time, labor and financial

21 cost. This technique has been widely used in tourism related studies (Losada, N., Alén, E.,

22 Nicolau, J. L., & Domínguez, T., 2017). Furthermore, because both the questionnaire and the

11

1 interview process are standardized, the impact of interviewers on the response of interviewees is

2 limited. By conducting the non-face-to-face interview, respondents are more likely to give the

3 real information instead of the socially desirable one (Carr & Worth, 2001; Marcus & Crane,

4 1986; Robson, 1993). Scholars also documented the advantages of this technique, especially

5 where random sampling dialing is available, including equal chance of selection (Carr & Worth,

6 2000; Robson, 1993), quality control and dealing with security issues (Marcus & Crane, 1986).

7 As any other technique, telephone interviews also have some disadvantages, such as the

8 difficulty of building rapport, lack of visual cues, and limitations on the interview length (Carr &

9 Worth, 2000; Robson, 1993). It may also disregard some groups who are unable to communicate

10 via phone.

11   A sample size of 2,000 was targeted for this study considering the number of items in the

12 survey and the variable sample ratios discussed in the literature (Byrne, 2010; Hair et al., 2010).

13 Quota sampling was conducted based on the current geographical distribution of the Hong Kong

14 population in selecting prospective survey respondents. As reported by the Hong Kong Census

15 and Statistics Department (2013), Hong Kong Island, Kowloon, and the New Territories have

16 populations of 1,277,200 (17.9%), 2,146,800 (30.0%), and 3,729,600 (52.1%), respectively. As a

17 result, 358 residents from Hong Kong Island, 600 residents from Kowloon, and 1,042 residents

18 from the New Territories were decided as the sample for the telephone interviews.

19   The survey was conducted from July to August in 2014. The respondents must be 18-year-

20 old or above. The telephone numbers were selected and dialed by simple random sampling

21 method in the three regions of Hong Kong with the calculated quotas, which ensured that each

22 member of the population is equally likely to be chosen as part of the sample. In particular,

1   respondents were selected by the last-birthday method within a sampled household. The selected

2   respondents were the ones whose birthdays were closest to the interview date among the eligible

3   household members. A computer-assisted interview system was employed to standardize the

4   interview process and control the data quality. Fifteen calls were made to be the pilot interviews

5   and these calls were not included in the main survey data. At least three calls should be made in

6   different time periods of a day before the sample was categorized as unreachable. Finally, 1,839

7   responses were collected with the contact rate and the overall cooperation rate of 85.75% and

8   42.41%, respectively. According to Gripp, Luloff and Yonkers (1994), response rate is not

9   appropriate for telephone survey and such two indicators are more meaningful to show the

10   efficiency of the telephone survey. More details of the telephone survey of this research can be

11   found in Table 2.

12   **Insert Table 2 Here**

13

14   *Data Analysis*

15   The data was analyzed by the Statistical Package for the Social Science (SPSS) and

16   Analysis of Moment Structures (AMOS). As the fifth step, after data screening and descriptive

17   analysis, the exploratory factor analysis (EFA) was conducted to abstract factors from the data

18   by SPSS. In step six, Cronbach's alpha was employed to test the reliability of the items under

19   each factor. In step seven, the EFA result's stability was validated by splitting data into high and

20   low density groups and performing separate EFA tests and reliability tests again in both groups.

21   In step eight, the confirmatory factor analysis (CFA) was carried out in the next step by AMOS

22   to confirm and further purify the factors explored by EFA. In step nine, a series of tests were also

1   implemented to examine the reliability and validity of the CFA results including composite

2   reliability, discriminant validity, convergent validity, nomological validity and overall fit indices.

3   Last, the CFA structure stability was also validated by splitting data into high and low density

4   groups and performing the aforementioned tests again in both groups. After the establishment of

5   the measurements, to evaluate the features of economic sustainability, the relationship between

6   socio-demographic characteristics and attitudes toward tourism economic sustainability was

7   examined by ANOVAs and t-tests. Detailed explanation for each of the steps is presented in the

8   findings.

9

10   **Findings**

11   *Respondent Demographic Profiles*

12   Table 3 shows the profiles of the respondents. Among the 1,839 responses, 55.5% of them were

13   female whereas the other 44.5% were males. In terms of marriage, 60.4% of the respondents

14   were married and 70.8% of them were aged from 18 to 59. Regarding the educational attainment,

15   44.5% of them held secondary/matriculation and 31.9% of them held bachelor or higher degrees.

16   Among all the respondents, 56.6% of them were working and 87% of them were not related to

17   tourism industry. Only half of the respondents agreed to report their monthly personal income

18   and around 56% of them earned from 10,000 HKD to 30,000 HKD. To test the sampling bias,

19   the demographic information of the sample was compared with the results of the Hong Kong

20   2011 Population Census (2012). It is found that the key indicators such as gender, age,

21   educational attainment and income were similar to the census results, indicating that the selected

22   sample of this study can represent the population of Hong Kong residents.

1 **Insert Table 3 Here**

2

3 *The Exploration of the Dimensions*

4   Missing data were eliminated via listwise deletion before conducting any analysis. Two cases

5 were deleted during the assessment of normality and outliers because of their high Mahalanobis

6 d-squared values. As a result, a total of 1406 cases were retained for the analysis. Descriptive

7 analysis was conducted with all the 23 items and their mean and standard deviation were

8 reported accordingly (Table A.1. in Appendix 2). EFA was employed to deduct the dimensions

9 and abstract the representative factors measuring the economic sustainability of tourism

10 development. According to Hair, Black, Babin, and Anderson (2010), principal axis factoring

11 method and direct oblimin rotation were selected to obtain a more robust result.

12   The Kaiser–Meyer–Olkin (KMO) was 0.863 and the p value of Bartlett's test was 0.001,

13 indicating the data collected was qualified to run EFA. From Table 4, it can be found that 11

14 items were deleted via EFA from the item pool because their loadings were smaller than 0.40 or

15 they caused cross-loading problems. The factor loadings of all the items remained in the model

16 were higher than 0.643 without any cross-loadings. Three factors were abstracted, namely

17 Economic Positivity (6 items), Development Control (5 items), and Individual Welfare (2 items).

18 The three factors explained 53.2% information included in the data. Cronbach's alpha was

19 applied to obtain the internal consistency estimate of reliability for each construct. As a result,

20 Cronbach's alpha ranged from 0.639 to 0.862. Although the cut-off point of Cronbach's alpha is

21 0.7, it may decreases to 0.6 for an exploratory study (Hair et al., 2010). Thus, the reliability of

22 the EFA result was acceptable.

15

1   **Insert Table 4 Here**

2

3   *The Assessment of Factor Structure Stability*

4   To test the robustness of the EFA result, the overall sample was further divided into two

5   subgroups. Hong Kong has 18 districts across its three regions. The resident population and

6   number of tourists vary across these districts. The study sought to compare the economic

7   sustainability measurement in both the high- and low-density areas. Due to the lack of statistics

8   of the volume of tourist flow, the number of tourism attraction in each district was used to

9   represent the tourism density. The resident-attraction density of a district could be calculated

10   using the following equation, which considered the population and attraction densities in a

11   particular district:

$$\text{Resident} - \text{attraction density} = \sqrt{\left(\frac{district\ population}{distrct\ area}\right)\left(\frac{no.of\ attractions\ in\ district}{district\ area}\right)}$$

12   As a result, the resident-attraction density of the 18 districts were ranged from 0.013 to 0.518.

13   Following Zhang et al. (2016), 0.1 was employed to be the cut-off point. This cut-off point was

14   employed considering the sample size for each sub-groups and the distribution of each district in

15   the traditional categorization of tourism regions. As a result, eight districts (i.e., Central and

16   West, Wan Chai, East, Yau Tsim Mong, Sham Shui Po, Kowloon City, Wong Tai Sin, and

17   Kwun Tong) were grouped into high density districts whereas the other 10 districts (i.e., South,

18   Tsuen Wan, Kwai Tsing, Sai Kung, Sha Tin, Tai Po, North, Tuen Mun, Yuen Long, and Island)

19   were low density districts. The categorization was consistent with the fact that districts in Hong

20   Kong Island (except South) and Kowloon were considered as high resident-attraction density

1   regions, whereas those in New Territories were not as popular as the other two regions for

2   tourists.

3   There are 607 and 790 responses in the high and low density group, respectively. It should

4   be noted that nine respondents did not provide their addresses in the survey, and were hence

5   excluded from the sub-samples. And the nine responses with missing address were excluded

6   from the sub-sample analysis. As shown in Table 4, satisfactory KMO values and significant

7   results of Bartlett's test were obtained from both the two sub-groups, indicating that they were

8   eligible for EFA analysis. Factor loadings of the high density group were ranged from 0.610 to

9   0.890, whereas the low density group was 0.633 to 0.823. The results were similar to the whole

10   sample, which means that all the loadings contributed significant information to the

11   corresponding factors. The Cronbach's alpha of each construct in the two groups was larger than

12   0.635, meaning acceptable reliability (Hair et al. 2010). The EFA results of the sub-groups

13   indicated that the three factors derived from the whole sample were robust and the structure of

14   the factors were stable.

15   *The Confirmation of the Dimensions*

16   The CFA results are displayed in Table 5. It is shown that the standardized factor loadings of

17   all the 13 items were above 0.5 and significant at 0.001 significance level, indicating good

18   representativeness of the items to the corresponding three factors. The composite reliability of

19   the factors ranged from 0.670 to 0.864, indicating good reliability (Bagozzi & Kimmel, 1995).

20   The extent of the correlation between the intended measure and the other measures in the

21   construct was evaluated using convergent validity. Convergent validity represents the internal

22   consistency of the variables within one construct. The standardized item-to-factor loading

1   magnitude should be at least 0.5, and the factor loadings should reach the level of statistical

2   significance (Hair et al., 2010). Average variance extracted (AVE) was also calculated for each

3   construct to estimate the convergent validity, and the results were all above the cut-off point 0.5

4   (Hair et al., 2010), indicating a satisfactory convergent validity. The differences between

5   constructs are examined using discriminant validity (Byrne, 2010). The test does not provide

6   strong evidence of discriminant validity if the squared correlation between any two constructs

7   exceeded the corresponding AVE. In this study, each of the squared correlation between any two

8   constructs was smaller than the corresponding AVE (Table A.2. in Appendix 2), confirming the

9   discriminant validity of the measurement scale. Last, the nomological validity was employed to

10   examine the correlations among the constructs in a measurement model which should be

11   theoretically related (Hair et al., 2010). In this study, correlations were found to be statistically

12   significant, indicating a nomological validity of the measurement model (Table A.2. in Appendix

13   2). Therefore, the convergent validity, discriminant validity, and nomolocigal validity were all

14   confirmed. The model also passed a series of model fit indices such as the root mean square error

15   of approximation (0.070), the goodness-of-fit index (0.941) and the comparative fit index (0.940).

16   The details of the validity tests can be found in Table A.3. in Appendix 2.

17   CFA was also conducted for the two subgroups (high and low resident-attraction density

18   regions). It can be found in Table 5 that the loadings of each item in both the two subgroups were

19   similar to the results of the whole sample. The composite reliability were all larger than 0.6,

20   indicating good reliability. The CFA results of the two subgroups were similar to the whole

21   sample and the reliability, validity and model fit indices were all acceptable (see Table A.3. in

1   Appendix 2). It means the factors abstracted from the data were robust and the factor structure

2   was stable.

3   As shown in Table 5, the factor mean of Development Control was the highest among all

4   dimensions (3.6), followed by Economic Positivity (3.4) and Individual Welfare (1.7). The

5   relationship between socio-demographic characteristics and attitudes toward tourism economic

6   sustainability was examined by ANOVAs and t-tests (see Table A.4.-A.7. in Appendix 2). The

7   results showed that those who were single, female, employed, younger, with low income,

8   moderate level of education, living in the high tourism density area were more in favor of

9   Development Control. People who were older, married, and have jobs related to tourism rated

10   higher on Economic Positivity. People who were older, married, unemployed, with higher level

11   of education, higher income, have jobs related to tourism, and living in the high tourism density

12   area reported higher level of Individual Welfare.

13   **Insert Tables 5 Here**

14

15   **Discussion**

16   This paper makes an important contribution to the literature on economic sustainability of

17   tourism by expanding the measurement from the macro level to micro level, which reveals the

18   concerns of residents and makes the measurement more comprehensive. Using the study setting

19   in Hong Kong, it transcends previous analysis by providing a context to learn from ongoing

20   controversies about the effects of tourism on local community. By employing telephone survey

21   with quota sampling based on geographical distribution of the Hong Kong, the results of the

22   study are considered as representative. Further, the robustness and stability of the measurement

1   is verified by comparing the results from residents from both high and low resident-attraction

2   density areas.

3   Our study revealed that economic sustainability has three dimensions, Economic Positivity,

4   Development Control and Individual Welfare. Economic Positivity is composed of six items

5   which focus on the macro-economic benefits brought by inbound tourism and IVS. It means the

6   items which are related to the positive economic impact confirmed by this research are robust to

7   measure economic sustainability (Choi & Sirakaya, 2005; Sirakaya-Turk & Gursoy, 2013). The

8   ratings on this dimension showed that residents believe tourism only has a slightly positive

9   impact on the community (e.g., visitors could enlarge the destination's tourism market, bring

10   more job opportunities and increase government revenue). This finding reflects that the Hong

11   Kong tourism industry may have entered the stage of stagnation, a later stage of tourism

12   development (Butler, 1980). Since 2015, the total number visitors to Hong Kong has declined

13   because of falling mainland tourists (HKBT, 2016).   Consistent with Doxey (1976), residents'

14   positive attitudes toward tourism development will be weakened as a destination moves towards

15   stagnation. Hong Kong has long been the shopping hotspots for mainland Chinese tourists who

16   try to avoid high tariffs (Zhang, et al., 2016). However, with the development of duty free

17   shopping options in the surrounding area such as South Korea, Japan, and mainland China, the

18   selling point of Hong Kong as shopping paradise has been gradually weakened. In addition, the

19   anti-mainland sentiments expressed by the locals also changed the previous image of Hong Kong

20   as hospitable. It has affected the sustainable growth of the mainland Chinese market that Hong

21   Kong relied very much on (Shen, Luo & Zhao, 2017). To cope with the slowdown, Hong Kong

22   needs to renew its charm by offering tourists more authentic, real-life, and welcoming experience.

1   The Development Control dimension consisted of issues related to limit the number of

2   tourists, impose restrictions to preserve the environment, and suppress prices. Our study shows

3   that although residents recognize the economic benefits of tourism, they are more concerned with

4   limits relevant to the destination environment. Tourism, as a demand-driven industry, is likely to

5   be sustained only in places where natural and cultural resources remain attractive to tourists

6   (Holden, 2013). This finding reinforces that long-term well-being of a tourism community

7   requires intervention mechanisms to reduce potential negative impacts as well as to enhance

8   resilience to tourism induced change (Berkes & Ross, 2013). In our study, Hong Kong residents

9   asked the government to limit the number of visitors, particularly from mainland China because

10   they believed that the prices of the local commodities were pushed up by them. This result is

11   contrary to the results of previous research. The Nielsen Company (2010) reported that over 80%

12   of respondents were either positive or neutral towards the increasing number of mainland tourists

13   shopping in Hong Kong. Another study conducted by Shen, Luo & Zhao (2017) found that while

14   Hong Kong residents worried about the negative impacts of tourism, they expected more

15   Mainland Chinese tourists. The finding is a complement to some previous studies. Kuvan and

16   Akan (2012) found that residents were much more negative about tourist impacts than other

17   stakeholders. In addition, residents were less supportive of further allocation of land to tourism

18   development. The finding may be understood in the specific context of Hong Kong. It's been 20

19   years since Hong Kong, a former British colony, reverted to Chinese sovereignty, yet tensions

20   between local people and those from the mainland run deeper than ever. Mainlanders have been

21   described by some local media as locusts that usurped medical resources, increased inflation, and

22   disturbed goods supply in Hong Kong.   These tensions have also been mediated by cultural

23   stereotypes toward Chinese tourists such as speaking loudly, littering, and jumping in queue

1   (Yeung & Leung, 2007). These kinds of conflicts are often complex and challenging to deal

2   with. Thus, gaining a better understanding of conflicts is essential to improve economic

3   sustainability of tourism in Hong Kong.

4   The third construct abstracted by this study is the Individual Welfare. In published studies,

5   all measurements of economic sustainability are based on the macroeconomic indicators such as

6   objective index used UNWTO (2004) and subjective ones in Choi and Sirakaya (2005). The

7   findings of this research expand the measurement from the macro level to micro level, reveals

8   the concerns of residents for their own welfare and makes the measurement of economic

9   sustainability of tourism development more comprehensive. Hong Kong residents disagreed that

10   the increase of their income and the expansion of their consumption correlate to the growth of

11   tourism. This pattern is in agreement with the earlier research which found significant correlation

12   between residents' net economic gain and attitudes associated with tourism (Lindberg & Johnson,

13   1997). This finding is also consistent with recent research suggesting that while tourist

14   expenditure benefited land tycoons and big retail business, ordinary people suffered from

15   increased real estate price, inflation, crowding, as well as shortage of local commodities caused

16   by tourism expansion (Zhang, et al., 2016). Improving the well-being for local residents is an

17   important goal of sustainability (OECD, 2011). The government should use the transfer payment

18   to balance the tourism economic positivity perceived by various groups of stakeholders and

19   allocate more resources to the construction of infrastructures to improve the welfare of all

20   residents.

21   In addition, this study reveals that the evaluation of sustainability construct is inconsistent

22   across various socio-demographic groups. The benefits brought by tourism development are

1   mostly appreciated by senior residents, married individuals and people whose jobs are related to

2   tourism. It is easy to understand that the abovementioned three groups also believe the arrivals of

3   mainland visitors could improve their welfare. It is interesting to notice that people with low

4   education or income levels, unemployed or living in high tourism density areas tend to express a

5   higher level of agreement that tourism can enhance their individual welfare. It can be explained

6   that the increase of employment opportunities brought by tourism development mainly go to the

7   frontline staff with the increase of newly opened hotels, retail shops and other service related

8   sectors. Meanwhile, residents living in low-density regions were more supportive to control the

9   tourism development. Comparing with their original living areas, people in low-density regions

10   are now receiving more and more tourists in their territories, along with pushing up the prices of

11   the local commodity and real estate. Such kind of disturbance, especially at its beginning stage,

12   may arouse the uncomfortable sentiment from the residents (Lindburg & Johnson, 1997).

13   **Conclusion and Limitations**

14   The scale developed in this study contributes to the literature by considering some micro aspects,

15   such as the individual welfare, into the economic sustainability measurement. It also pioneers the

16   economic sustainability of tourism research by including the policy suggestions of residents. The

17   finding of this study can also be useful when government and industries prepare future

18   development plans and to make policy decisions. The scale expresses the expectation of residents

19   to the government and reveals what they care about for their own welfare. Those views are

20   essential for the success of any development plans and policies. As suggested by Zhang et al.

21   (2016), it is necessary to conduct the resident survey on a regular basis, thus the stakeholders

could be aware of the residents' attitudes and formulate policies proactively to correspond to their views and maintain the sustainability of tourism development.

The current decline in the number of mainland Chinese tourists to Hong Kong is a cause of concern with particular effects on retail trade, hotel occupancy rates and government revenues. It demonstrates how the Irritation Effect (Doxey, 1975) can impact on residents' views on both the number and behaviors of visitors. There is some evidence of recent events in Hong Kong suggesting that on the Doxey scale, residents' attitudes towards mainland tourists have moved from "irritation" to "antagonism". It may be one major factor influencing mainland tourists' decision not to visit Hong Kong. It further reinforces the view of this study that in any research on residence and community attitude to tourism development and its sustainability, their views can be a major factor in how tourism and tourists are perceived in a destination. In a heavily-urbanized area like Hong Kong, the community is where most tourism takes place, and therefore, host-guest conflicts take place. In relation to tourism expansion, environmentally friendly forms of tourism such as ecotourism should be encouraged in order to eliminate the negative impacts of mass tourism-oriented activities.

As in any study, this research is not without limitations. As a Hong Kong based study, the current measurement will need to be tested in different cultural contexts and different destination types. After further refinement, the scale may provide a more comprehensive measurement to academia, industry and communities.

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Table 1. Procedure for Developing the Measurement Instruments

Procedures	Techniques
1. Specify the domain of the construct	Literature search
2. Generate a sample of items	Literature search
	In-depth interviews
3. Purify items and design a questionnaire	Panel of experts, pilot study
	(content validity)
4. Collect data	Survey
5. Explore dimensionality	Exploratory factor analysis
6. Assess reliability	Coefficient alpha
7. Assess factor structure stability (1)	Data split: Conduct steps 5 and 6 in both high and low resident-tourism density groups
8. Confirm dimensionality	Confirmatory factor analysis
9. Assess reliability and validity	Composite reliability
	Convergent validity
	Discriminant validity
	Nomological validity
10. Assess factor structure stability (2)	Data split: Conduct step 9 in both high and low resident-tourism density groups

Table 2. Results of the Telephone Reviews

Types	Number of calls
Complete interviews	1,839
Partial interviews	131
Refused eligible units	2,366
No eligible units	1,056
Not contacted, but known eligible units	7,401
Other non-interviewed units	40,207
Total number of dialed telephone numbers	53,000

Table 3. Demographic Distribution of the Respondents (%)

Telephone Survey of This Study (without missing values)		Hong Kong Census (2011)
Gender		
Male	44.5	46.7
Female	55.5	53.3
Marital status		
Single	36.5	41.7
Married	63.5	58.3
Age		
18–29 years	17.6	17.0
30–39 years	11.8	19.2
40–49 years	17.9	21.0
50–59 years	24.1	19.8
60–69 years	14.5	11.0
70 years or above	14.1	12.0
Educational attainment		
No schooling	1.8	6.3
Primary	10.0	16.5
Secondary/Matriculation	44.7	50.0
Tertiary	11.4	9.3
Bachelor or above	32.1	18.0
Working status		
Working	56.8	59.7
Not working	43.2	40.3
Industry occupation		
Managers and administrators	22.2	10.1
Professionals	13.1	6.5
Associate professionals	20.0	19.6
Clerks	21.2	15.6
Service workers and shop sales workers	12.3	16.2
Craft and related workers	2.3	7.4
Plant and machine operators and assemblers	3.9	5.0
Elementary occupations	5.0	19.6
Job relation to tourism		
Directly related	7.9	N/A
Indirectly related	15.9	N/A
Not related	76.2	N/A
Monthly personal income (HKD)		
0 to 9,999	14.5	39.7
10,000 to 14,999	20.1	21.4
15,000 to 19,999	14.3	11.6
20,000 to 29,999	20.4	12.1
30,000 to 39,999	12.0	6.1
40,000 or above	18.7	9.1

Table 4. Exploratory Factor Analysis Results for the Overall, High Density, and Low Density Samples

Measures	Overall (N=1406)[a]			High Density (N=607)[b]			Low Density (N=790)[c]		
	Factor loading/ Cronbach's alpha	Eigenvalue	% of variance	Factor loading/ Cronbach's alpha	Eigenvalue	% of variance	Factor loading/ Cronbach's alpha	Eigenvalue	% of variance
Factor One: Economic Positivity	α=0.862	3.476	30.473	α=0.864	3.497	30.691	α=0.862	3.484	30.378
Overall, inbound tourism is important to Hong Kong economically	0.750			0.744			0.762		
Mainland visitors enlarge Hong Kong's tourism market.	0.705			0.741			0.708		
Mainland visitors bring more job opportunities.	0.731			0.737			0.724		
A great number of Hong Kong residents will lose their jobs when the tourism shrinks in Hong Kong.	0.675			0.686			0.661		
The increase of taxes related to the tourism industry has raised the government revenue.	0.639			0.610			0.653		
The Individual Visit Scheme brought economic benefits to Hong Kong.	0.772			0.794			0.768		
Factor Two: Development Control	α=0.839	2.900	15.292	α=0.851	2.992	15.927	α=0.828	2.816	15.114
Hong Kong has to limit the number of visitors.	0.699			0.733			0.660		
Hong Kong has to limit the number of mainland visitors.	0.838			0.890			0.823		
Government should impose restriction to preserve the environment and to conserve tourism resources.	0.704			0.691			0.713		
The Government should impose restriction to suppress prices.	0.668			0.674			0.650		
Mainland visitors negatively impact local commodity price.	0.655			0.673			0.649		
Factor Three: Individual Welfare	α=0.639	1.491	6.299	α=0.635	1.433	6.273	α=0.642	1.531	6.369
The increase of my income was related to the development of tourism industry after the Individual Visit Scheme.	0.643			0.689			0.633		
I bought some extra commodities, which is affected by the demonstration effect of mainland visitors.	0.727			0.691			0.746		

[a]KMO =0.854, Bartlett's Test of Sphericity p<0.000; [b]KMO =0.842, Bartlett's Test of Sphericity p<0.000; [c]KMO =0.854, Bartlett's Test of Sphericity p<0.000

Table 5.Confirmatory Factor Analysis Results for the Overall, High Density, and Low Density Samples

Measures	Overall				High			Low		
	Means	Composite Reliability	Standardized Factor Loading	p	Composite Reliability	Standardized Factor Loading	p	Composite Reliability	Standardized Factor Loading	p
Factor One: Development Control	**3.60**	0.839			0.849			0.830		
Hong Kong has to limit the number of visitors.	4.03		0.715	NA		0.760	NA		0.674	NA
Hong Kong has to limit the number of mainland visitors.	3.79		0.903	***		0.930	***		0.877	***
Government should impose restriction to preserve the environment and to conserve tourism resources.			0.724	***		0.694	***		0.745	***
The Government should impose restriction to suppress prices.	3.64		0.590	***		0.604	***		0.579	***
Mainland visitors negatively impact local commodity price.	3.32		0.619	***		0.621	***		0.628	***
	3.21									
Factor Two: Economic Positivity	**3.41**	0.864			0.865			0.864		
Overall, inbound tourism is important to Hong Kong economically	3.62		0.749	NA		0.733	NA		0.770	NA
Mainland visitors enlarge Hong Kong's tourism market.	3.49		0.747	***		0.750	***		0.751	***
Mainland visitors bring more job opportunities.	3.42		0.742	***		0.742	***		0.736	***
A great number of Hong Kong residents will lose their jobs when the tourism shrinks in Hong Kong.			0.672	***		0.676	***		0.670	***
The increase of taxes related to the tourism industry has raised the government revenue.	3.32		0.598	***		0.604	***		0.600	***
The Individual Visit Scheme brought economic benefits to Hong Kong.	3.32		0.783	***		0.801	***		0.711	***
	3.28									
Factor Three: Individual Welfare	**1.71**	0.670			0.673			0.699		
The increase of my income was related to the development of tourism industry after the Individual Visit Scheme.			0.824	NA		0.851	NA		0.815	NA
I bought some extra commodities, which is affected by the demonstration effect of mainland visitors.	1.84		0.585	***		0.558	***		0.600	***
	1.59									

*** p<0.001

5