Journal of Hospitality and Tourism Management 48 (2021) 312–321

Contents lists available at ScienceDirect

Journal of Hospitality and Tourism Management

journal homepage: www.elsevier.com/locate/jhtm

The effects of tourism on income inequality: A meta-analysis of econometrics studies

Jiekuan Zhang *

Asean Tourism Research Centre of China Tourism Academy, Guilin Tourism University, China

ARTICLE INFO

Keywords:
Tourism
Income inequality
Gini coefficient
Meta-Analysis
Moderating effects

ABSTRACT

Tourism has a significant impact on income inequality, which seems to be an academic consensus. However, there are still great differences in impact direction and intensity. This study uses the meta-analytic technique to reconcile the results of 12 econometrics studies derived from the Web of Science and Scopus databases examining the relationship between tourism and income inequality measured as the Gini coefficient. The results show that tourism increases income inequality significantly. Moreover, economic growth and trade openness positively moderate the effects of tourism on income inequality. Besides, the sample characteristics, including research period, midpoint of research period, sample size, destination type, and data type, significantly affect the relationship between tourism and income inequality as well. This study reaches a more reliable, robust and universal conclusion about the relationship between tourism and income inequality. Also, it gives theoretical and practical implications for future research and decision-makers.

1. Introduction

Income inequality is a major factor restricting global sustainable development, and eliminating inequality is one of the United Nations' primary goals towards 2030 sustainable development. The development of different industries and the income distribution caused by them are the main reasons for income inequality (Piketty & Saez, 2003). As is well known, the tourism industry, especially before the COVID-19 pandemic, has had a significant positive impact on global economic growth and employment. In the ongoing debate on tourism's association with poverty alleviation, tourism is often regarded as an effective instrument for alleviating poverty and improving the socio-economic conditions of poor rural communities (Llorca-Rodríguez, Casas-Jurado, & ; Qin, Xu, & Chung, 2019). However, as Roslan and Noor (2008) stated, a pressing issue is that in addition to encouraging the poor's participation in tourism, the inequalities generated by their tourism participation should also be taken into account. In other words, the potential of tourism as a tool to increase the poor's income should not lead to the expansion of inequality, which may lead to social and political instability.

Cole and Morgan (2010) argued that tourism has long been seen as a source of social inequality, and as it continues to overgrow, people increasingly need to understand its consequences better. Therefore, tourism's performance in income inequality has captured more and more academic attention. The existing studies used different research methods to investigate the impact of tourism on regional income distribution from different spatial scales or within different tourism sectors, for example, Tosun, Timothy, and Öztürk (2003), Nguyen, Schinckus, Su, and Chong (2020), Alam and Paramati (2016) and Incera and Fernández (2015), to name a few.

However, previous empirical studies have not reached a consistent conclusion on the direction and intensity of tourism's influence on income inequality. Some studies indicate that tourism increases income inequality (Alam & Paramati, 2016; Raza & Shah, 2017; Uzar & Eyuboglu, 2019). On the contrary, some scholars argued that tourism is conducive to relatively fair income distribution (Lv, 2019; Nguyen et al., 2020). Therefore, the following problem is how tourism affects income inequality on earth. More importantly, what factors influence the relationship between tourism and income inequality in the process of development? This paper aims to quantitatively summarize and review existing econometrics literature on tourism and income inequality through a meta-analytic approach so as to draw more universal conclusions and test the moderators affecting tourism's relationship with income inequality.

The remainder of this study is structured as follows: Section 2 presents the literature review and research hypothesis; Section 3 explains the meta-analytic method for this study; the following section reports

* No.26, Liangfeng Road, Yanshan District, Guilin, Guangxi, China.
E-mail address: zhangjiekuan@126.com.

https://doi.org/10.1016/j.jhtm.2021.07.009
Received 31 January 2021; Received in revised form 15 July 2021; Accepted 16 July 2021
Available online 24 July 2021

the results and section 5 discusses these results and gives theoretical and practical implications for future research and decision-makers; the final section concludes this study.

2. Literature review

Income inequality is becoming an increasingly severe economic and social phenomenon in the world. The Gini coefficient proposed by Corrado Gini in 1912 is currently widely accepted to measure income inequality. The economic definition of the Gini coefficient refers to the proportion of income used for unequal distribution of total household income. The income inequality in the current study refers in particular to the Gini coefficient. As mentioned above, more and more scholars are concerned about the relationship between tourism and income distribution related to economic growth.

2.1. Tourism and income inequality

On the one hand, many studies indicated that tourism contributes to increasing income inequality. For example, Blake (2008) found that tourism-related industries provide much less income to poor households than other export activities. This means that tourism development has widened the income gap among the poor. Similarly, Kinyondo and Pelizzo (2015) argued that tourism-led growth is not always pro-poor, nor has it consistently contributed to reducing poverty and inequality. Li, Gong, and Ke (2021) pointed out that in nature reserves, with the increase in participation in eco-tourism, farmers are more likely to become wealthy groups with high income and high assets, while engaging in traditional logging and forest product collection is not conducive to farmers' current income increase. The same conclusion was found by Ma, Cai, Zheng, and Wen (2019). The above empirical studies conclude the increasing impact of tourism on income inequality, but the impact process is quite different. Blake (2008) and Kinyondo and Pelizzo (2015) believed that tourism lowers the income of a certain group. On the contrary, Li et al. (2021) and Ma et al. (2019) believe that tourism increases the income of some group.

A recent survey on rural tourism showed that although all respondents approved the positive contribution of tourism to the local economy, they had different views on tourism income distribution: tourism may not contribute to equal income distribution, but is seen as creating unequal benefits, and also creating a gap between tourism villages and non-tourism villages (Nguyen & Funck, 2019). These results are also supported by Zeng, Ryan, Cui, and Chen (2015), Lee and O'Leary (2008) and Lee (2009). Tourism's increasing income inequality also exists in urban areas. For instance, Li and Lian (2010) indicated that tourism has brought more relative income to high-income urban residents. Incera and Fernández (2015) also believed that high-income families benefit more from tourism than low-income families. Moreover, a more extreme finding shows that tourism has not reduced poverty, nor has it reduced the inequality of income distribution (Oviedo-García, González-Rodríguez, & Vega-Vázquez, 2019). Besides, there is also a clear income gap within the tourism industry. Petit (2017) found that the tourism industry exacerbates wage inequality at the expense of the most unskilled workers.

On the other hand, some scholars confirmed the adverse effects of tourism on income inequality. Some examples include that Haddad, Porsse, and Rabahy (2013) asserted that tourism is an important channel for improving resource allocation efficiency and reducing regional disparities. Similarly, Beheshti, Mohammadzadeh, and Ghasemloo (2017) argued that there exists a significant negative relationship between tourism and income inequality. Llorca-Rodríguez et al. (2016) also believed that tourism has a potential function to reduce income inequality, but the premise is that it should be managed in accordance with the sustainable tourism guidelines of the UNWTO. In addition, Khan et al. (2020) supported the positive relationship between tourism and welfare. Of course, equal income distribution is just one component of the welfare here. Specially, Gatti (2013) found that inbound tourism could reduce the Atkinson index (another measurement of income inequality); however, the negative impact on the Gini coefficient is much weaker.

In addition to the above empirical studies, some studies rely on panel or time series data to explore the impact of tourism on income inequality. For example, Alam and Paramati (2016), Raza and Shah (2017) and Uzar and Eyuboglu (2019) substantiated the increasing effects of tourism on income inequality. Mahadevan and Suardi (2019) also did not found the negative effects of tourism on income inequality. However, Alam and Paramati (2016), Raza and Shah (2017) and Uzar and Eyuboglu (2019) pointed out that there is a Kuznets curve between tourism and income inequality. That is, with the further development of tourism, its negative impact on income inequality begins to appear. Through the econometric models, Lv (2019), Li, Chen, Li, and Goh (2016), Nguyen et al. (2020) and Shahbaz, Solarin, Azam, and Tiwari (2019) supported the negative relationship between tourism and income inequality. Besides, Mahadevan, Amir, and Nugroho (2017a, 2017b) and Shi et al. (2019) investigated the relationship between tourism and inter-regional inequality.

In summary, the effects of tourism on income inequality are inconclusive. These mixed findings lead to the following hypotheses:

Hypothesis 1. **a)** There exists a positive relationship between tourism and income inequality; **b)** There exists a negative relationship between tourism and income inequality.

2.2. Potential moderators

Previous studies focusing on tourism and income inequality have proposed many additional variables affecting income inequality, such as economic growth (measured as GDP per capita, GDPpc), foreign direct investment (FDI), and trade openness (TRO). Economic growth is the public choice variable to discuss tourism and income inequality. Choi (2006), Uzar and Eyuboglu (2019), Alam and Paramati (2016) and Oviedo-García et al. (2019) found the negative effects of economic growth on income inequality. On the contrary, Berisha, Gupta, and Meszaros (2020) identified the positive relationship between economic growth and income inequality. Furthermore, Cheng and Wu (2017) and Lv (2019) indicated the non-linear relationship between economic growth and income inequality. Particularly, Chi (2020) found that economic growth reduces income inequality in developed countries while increases income inequality in developing countries. In addition to the tourism literature, Berisha et al. (2020) also believed that economic growth is an important factor affecting income inequality. Therefore, economic growth must be considered in discussing tourism and income inequality and constitutes the first potential moderator in the meta-analysis.

In addition to economic growth, FDI and TRO are also often taken into account when dealing with tourism and income inequality. For example, Choi (2006) argued that the increase in the ratio of FDI to GDP helps reduce income inequality. Differently, Uzar and Eyuboglu (2019) and Alam and Paramati (2016) confirmed the increasing influence of FDI on income inequality. Besides, Uzar and Eyuboglu (2019) identified the negative effects of TRO on income inequality. On the contrary, Alam and Paramati (2016) and Chi (2020) found the increasing effects of TRO on income inequality. Some other individual studies have pointed out other factors leading to income inequality in tourism development, such as land transfer methods in rural tourism (Pang and Zhang (2020), Hukou (Zhang, Ding, & Bao, 2008), foreign aid (Chao, Laffargue, & Sgro, 2010), natural amenities (Marcouiller, Kim, & Deller, 2004), tax and its transfer payment (Mahadevan et al., 2017a, 2017b) and gambling industry (Gu, Li, Chang, & Guo, 2017); however, these studies did not quantify the relationship between these variables and income inequality and these variables are not universal. Therefore, from a meta-analysis point of view, these factors are not suitable as moderators.

In the above studies, economic growth, FDI and TRO appear as control variables. Meanwhile, notably, prior studies have also proved that these variables have a significant impact on tourism, such as FDI and tourism (Fereidouni & Al-mulali, 2014), economic growth and tourism (Dogan & Aslan, 2017) and TRO and tourism (Dogan, Seker, & Bulbul, 2017). In summary, the simultaneous influence of these variables on income inequality and tourism leads to their potential moderating effects on the relationship between tourism and inequality. Therefore, we obtain the following hypotheses:

Hypothesis 2. Economic growth moderates the association between tourism and income inequality.

Hypothesis 3. Foreign direct investment moderates the association between tourism and income inequality.

Hypothesis 4. Trade openness moderates the association between tourism and income inequality.

2.3. Additional potential moderators

Since the above studies are based on different empirical cases and data, this study assumes that different sample characteristics play a certain moderating role in the influence of tourism on income inequality. Earlier, Marcouiller and Xia (2008) argued that income inequality in the tourism industry is both sector-dependent and space-dependent. Moreover, regional development and resource endowments are closely related to analyzing income inequality (Porto & Espinola, 2019). For example, Chi (2020) concluded that the long-term relationship between tourism and income inequality differs between developed and developing countries. In developing economies, the N-shaped Kuznets curve between tourism and income inequality exists. However, in developed economies, tourism has little impact on income inequality. Fang, Gozgor, Paramati, and Wu (2020) and Ghosh & Mitra (2021) also found that tourism's relationship with income varies significantly across different types of countries.

Besides the destination type, various empirical studies involve different research periods and their midpoints. These two variables refer specifically to different temporal characteristics, namely that the impact of tourism on income inequality may be time-varying. As is known to all, both tourism and income inequality show significant temporal characteristics. Therefore, the possible moderating effects of the research period and its midpoint on tourism's association with income inequality exist. Related to the destination type is the number of destinations. Combining the research period and the number of destinations produces two other possible moderating variables, namely the sample size and data type. The sample size is the product of the number of destinations and the research period and may reflect the common and individual characteristics of tourism's influence on income inequality. Data type involves two aspects: panel data and time-series data. If multiple destinations are explored, the panel data model is adopted; if it is a single destination, the time-series data model is adopted. Theoretically, the data type will also affect the impact of tourism on income inequality.

Consequently, we summarize the following hypotheses.

Hypothesis 5. a) Research period moderates the association between tourism and income inequality; b) Midpoint of research period moderates the association between tourism and income inequality; c) Sample size moderates the association between tourism and income inequality; d) Destination type moderates the association between tourism and income inequality; e) Data type moderates the association between tourism and income inequality.

Based on the above hypotheses, we build the following conceptual framework explored in the current study (see Fig. 1).

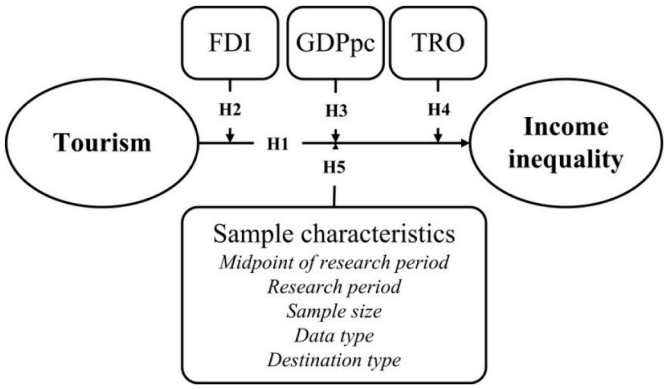

Fig. 1. Conceptual framework of this study.

3. Methodology

3.1. Literature retrieval and selection

The final literature search was completed on Nov. 21, 2020. In order to ensure the scientificity of the meta-analysis results and reduce publication bias, we limited the search database to the web of science and Scopus. In the former database, we collected 137 studies by setting all fields: (tourism) and all fields: (income inequality). In the latter database, we collected 472 studies by respectively limiting the "title, abstract and keywords" to tourism and income inequality (obtaining 114 studies) and tourism and income distribution (obtaining 358 studies). Then we summarized the above results.

Similar to existing studies such as Bilal, Chen, and Komal (2018), Yang, Park, and Hu (2018) and Wang, Lai, and Shou (2018), the studies were chosen for meta-analysis according to the following inclusion criteria: 1) Empirical studies quantifying the relationship between tourism and income inequality and 2) Empirical studies reporting t-statistics, p-values and regression coefficients.

According to the above criteria, we manually screened the collected literature and finally selected 12 studies listed in Table 1. Table 1 reports the selected studies, journals and their categories, research period, empirical cases and number of estimates. The identification of estimates depends on different model designs, sample divisions, and tourism variables (Castro-Nuño, Molina-Toucedo, & Pablo-Romero, 2013). The estimates will be explained in detail in the following coding section. Table 1 shows that all the studies on tourism and income inequality were published in tourism journals. The publication year is concentrated in the recent five years, especially the recent two years, indicating that the relationship between tourism and inequality is a hotspot in current tourism research. Because of this, we expect the current study to provide support for further exploration of this topic in the future.

3.2. Coding and effect size

The purpose of coding is to obtain many individual estimates and calculate their corresponding effect sizes. Scholars often find various relationships between tourism and income inequality due to different model designs, sample divisions, and tourism variables in different or even the same research. Therefore, such relationships need to be coded one by one according to strict standards. Effect size quantifies the intensity of a phenomenon. The larger the absolute value of the effect size is, the closer the relationship between the two variables is. Each independent effect size means a unique relationship between tourism and income inequality.

The coding of a meta-analysis depends on the characteristic information and effect-value information of different studies. The former refers to the literature's basic information, including authors, publication year, research method, sample size, research period, data type,

Table 1
Studies included in the meta-analysis.

Study	Research period	Journal	Journal status	Empirical cases	Number of estimates	Method	Data	Conclusion (tourism→ income inequality)
Alam and Paramati (2016)	1991–2012	Annals of Tourism Research	JCR. Q1	49 developing economies	3	FMOLS	Panel	Increase
Chi (2020)	1995–2015	Current Issues in Tourism	JCR. Q1	20 developed countries and 16 developing countries	9	FMOLS, DOLS	Panel	Increase in developing countries
Fang et al. (2020)	1995–2014	Tourism Economics	JCR. Q2	102 countries	80	Fixed-effects, FMOLS	Panel	Decrease in developing countries
Ghosh & Mitra (2021)	1995–2016	Tourism Management	JCR. Q1	41 countries	8	FMOLS	Panel	Decrease in developing countries, increase in developed countries
Li et al. (2016)	1997–2010	Annals of Tourism Research	JCR. Q1	China	3	SAR	Panel	Decrease
Lv (2019)	1995–2012	Tourism Management	JCR. Q1	113 countries	2	FMOLS	Panel	Decrease
Nguyen et al. (2020)	2002–2014	Journal of Travel Research	JCR. Q1	97 countries	40	PCSE	Panel	Decrease
Oviedo-Garcia, Gonzalez-Rodriguez and Vega-Vazquez (2019)	2000–2013	Journal of Travel Research	JCR. Q1	Dominican Republic	1	ARDL	Time series	Increase
Porto and Espinola (2019)	2004–2015	Tourism Economics	JCR. Q2	Argentina	7	Fixed-effects, SEM	Panel	Increase
Raza and Shah (2017)	1995–2015	Asia Pacific Journal of Tourism Research	JCR. Q3	42 tourist arrival countries	4	FMOLS	Panel	Increase
Shahbaz et al. (2019)	1991–2017	Current Issues in Tourism	JCR. Q1	Malaysia	2	ARDL	Time series	Decrease
Uzar and Eyuboglu (2019)	1974–2015	Asia Pacific Journal of Tourism Research	JCR. Q3	Turkey	3	ARDL	Time series	Increase

Notes: JCR denotes Journal Citation Reports; Q denotes quarter. FMOLS represents fully modified ordinary least squares, DOLS represents dynamic ordinary least squares, SAR represents spatiotemporal autoregressive model, PCSE represents Panel Corrected Standard Errors, ARDL represents autoregressive distributed lag, SEM represents spatial error mode.

empirical cases, dependent variable, independent variable and moderators. The latter refers to sample statistics, including correlation coefficient, t-statistics, p-values, F-values and regression coefficient. In order to ensure the accuracy of coding, we strictly designed the coding process. First, the author and another scholar familiar with the meta-analytic method independently coded. Then, the two coding results were compared. For the inconsistent codes, the author and the invited scholar jointly negotiated and formed the final coding result. This study ended up with 162 independent estimates (see the supplementary file). Notably, Fang et al. (2020) and Nguyen et al. (2020) account for the majority of estimates. The reason lies in that these two studies covered a global sample of 102 and 97 countries, respectively. Moreover, the two studies performed a variety of sample divisions and employed different estimation methods, thus generating numerous estimates.

Although the number of selected studies is only 12, they contain 162 different estimates, enough for meta-analysis. In fact, meta-analysis does not have strict requirements for the number of documents. For example, Castro-Nuño et al. (2013) collected 13 studies and a total of 87 estimates to discuss tourism's relationship with GDP. Larger sample size is mainly aimed at reducing publication bias. Nevertheless, if there is no significant publication bias in collected studies, they can be used for meta-analysis.

Generally, the correlation coefficient r is strongly recommended to be used as the effect size measure in the meta-analysis (Roschk, Loureiro, & Breitsohl, 2017; Rosenthal & DiMatteo, 2001). Of course, there are other measures like odds ratio; however, r is the most widely used and is certainly convenient because it is well understood by most scholars (Rosenthal & DiMatteo, 2001). Since many documents often do not directly report the correlation coefficient between tourism and income inequality but report the t-statistics or regression coefficient, this study uses the following methods to convert these statistics into r.

First, when reporting regression coefficient β only and β= (−0.5, 0.5), β is converted to r with reference to Peterson and Brown (2005) as follows:

$$r = 0.98*\beta + 0.05*\lambda, \quad (1)$$

where if $\beta \geq 0$, $\lambda = 1$; if $\beta < 0$, $\lambda = 0$.

Second, if $|\beta| \geq 0.5$ and t-statistics were reported, r can be calculated using Equation (2) (Bilal et al., 2018),

$$r = \frac{t}{\sqrt{t^2 + N - 3}}, \ N \text{ denotes the sample size, } t \text{ denotes t-value.} \quad (2)$$

According to equations (1) and (2), we finally obtained a total of 162 effect sizes. The supplementary file shows how each effect size is calculated.

In order to examine moderators' effects on the relationship between tourism and income inequality more conveniently, we set each moderator as a categorical variable and input it into the Comprehensive Meta Analysis (CMA) 3.0 software designed by Biostat. Among the 162 estimates, GDPpc or FDI or TRO was set as 1 when it appeared and 2 when it did not. According to the sample size distribution, sample size was1 if it was less than 500, 2 if it was 500–1000, and 3 if it was greater than 1000. According to the distribution of the research period, 1 was set for those less than or equal to 20 years, and 2 was set for those greater than 20 years. Twenty years is also a customary threshold for unit root test; usually greater than this number will cause the instability of time series. Because Lin and Huang (2012) discovered the convergence of income inequality before 2005 and the income inequality has increased globally in recent years (Darvas, 2019), midpoint before-2005 is 1 and post-and-in-2005 is 2. Destination includes developing countries 1, developed countries 2, and developing and developed countries 3. The data is naturally divided into two types: panel 1 and time series 2.

Table 2
Moderators and their descriptions.

Moderators	Description	Category
GDPpc	GDP per capita	Existed, 1; non-existed, 2
FDI	Foreign direct investment	Existed, 1; non-existed, 2
TRO	Trade openness	Existed, 1; non-existed, 2
Midpoint	Midpoint of research period	Before-2005, 1; post-and-in-2005, 2
Research period	Research period	≤20 years, 1; >20years, 2
Sample size	Product of the number of destinations and the research period	≤500, 1; 500–1000, 2; >1000, 3
Destination type	Different types of countries	Developing, 1; developed, 2; mixed, 3
Data type	Data type	Panel, 1; time-series, 2

Table 2 presents all the moderators.

4. Results

Following the meta-analysis steps proposed by Schmidt and Hunter (2014), this study conducts a meta-analysis from the following aspects.

I. Publication bias test. Publication bias refers to a publishing phenomenon in which significant findings are more likely to be published than insignificant ones because researchers do not submit them or reviewers tend to reject insignificant results. In addition, publication bias is also caused by researchers' inability to possess relevant literature fully. Publication bias leads to that the meta-analysis is more based on significant findings, thus resulting in the overestimation or underestimation of the influence of tourism on income inequality. In order to avoid this phenomenon, the article not only searches the web of science, which contains a large amount of peer-reviewed literature but also searches the Scopus database with wider coverage. Therefore, some findings in the collected estimates are insignificant. Typically, this study performs the publication bias test by means of the funnel plot, Classic Fail-safe N, and Egger's regression.
II. Heterogeneity test. The purpose of the heterogeneity test is to determine the model of meta-analysis. Hedges and Vevea (1998) asserted that if the effect size distribution shows high heterogeneity, the random effects model is adopted; otherwise, the fixed effects model is adopted.
III. Meta-analysis results. This study reports the main effect of tourism on inequality and the moderating effects of moderators, represented by point estimates.
IV. Sensitivity test. Generally, sensitivity analysis is the last step of meta-analysis, which tests the robustness of meta-analysis results.

All of the following results are generated by CMA 3.0.

4.1. Publication bias test

The funnel plot is a simple and effective graphic technique to explore potential publication bias (Light & Pillemer, 1984), and it is a qualitative method to test publication bias. If the data is unbiased, the graph will show funnel-shaped symmetry around the vertical line. Therefore, this study first uses the funnel plot (see Fig. 2) to test publication bias. The abscissa represents the Fisher's Z value of γ after Fisher's Z transformation, which approximately obeys the normal distribution with the mean as standard deviation. The ordinate represents the standard error. The vertical line represents the population effect size estimate; the diagonal lines represent the 95 % confidence interval.

Fig. 2 illustrates that the effect sizes are mainly distributed at the top of the funnel plot, roughly symmetrical. This distribution indicates that studies on the relationship between tourism and income inequality may not have publication bias. Since the funnel plot can only be used to intuitively and qualitatively check publication bias, we further use the Classic Fail-safe N method and Egger's regression method to quantitatively test publication bias. Fail-safe N was proposed by Rosenthal (1979) who believed that when the meta-analysis results are statistically significant, in order to exclude possible publication bias, it is necessary to calculate the minimum number of unpublished studies needed to make such results insignificant. Egger, Smith, Schneider, and Minder (1997) proposed that whether the intercept in the regression equation is 0 can be used to judge the existence of publication bias. If the intercept is close to 0 and not significant ($p > 0.05$), the risk of publication bias is considered low.

The Classic Fail-safe N value implies that it is necessary to include another 5052 research documents involving the relationship between tourism and income inequality to make the total effect size insignificant. Moreover, the results of Egger's regression (see Table 3) show that there is also no significant publication bias in the collected studies of tourism and income inequality.

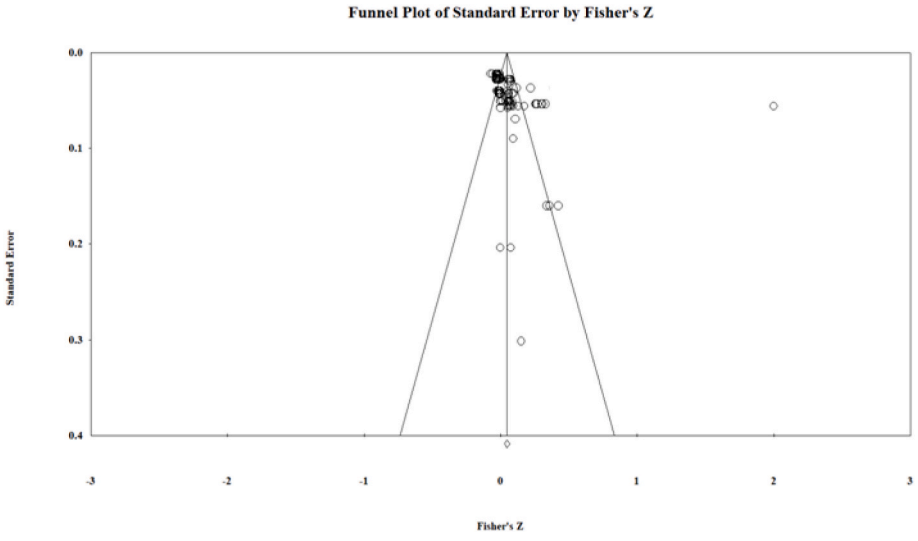

Fig. 2. Funnel plot of effect size.

Table 3
Egger's regression.

Intercept	Standard error	95 % Lower limit [2-tailed]	95 % Upper limit [2-tailed]	t-value	p-value [1-tailed]	p-value [2-tailed]
0.821	0.819	0.498	1.145	1.002	0.101	0.152

4.2. Heterogeneity test

Q-value and I^2 are the primary indicators to test heterogeneity in the meta-analysis. Q-value is to test whether there is a difference between theoretical and observational variations, that is, whether there is a statistical difference between Q-value and df. I^2 represents the percentage of variation caused by various studies rather than sampling error in the total variation. It indicates how much observed variation is caused by the true differences in effect sizes, while the rest is caused by sampling error. The results of the heterogeneity test (see Table 4) show that the Q-value of the relationship between tourism and income inequality is significant ($Q_{(162)} = 2328.116$, $p = 0.000 < 0.001$), indicating that heterogeneity exists among different effect sizes. The degree of heterogeneity is distinguished according to the I^2 value. Concretely, 75 %, 50 %, 25 % are the thresholds for distinguishing high, medium, and low heterogeneity (Higgins, Thompson, Deeks, & Altman, 2003). In the current study, the I^2 value is 93.085 %, implying high heterogeneity across the studies. Therefore, this meta-analysis adopts the random effects model.

4.3. Meta-analysis results

First, we examine the relationship between tourism and income inequality as a whole. Table 4 reports the meta-analysis results. The 162 effect sizes involve 156798 observations. Point estimates in the meta-analysis refer to the correlation coefficient between tourism and income inequality, indicating the impact of tourism on income inequality. The overall correlation coefficient r between tourism and income inequality is 0.046, significant at the 1 % level (p = 0.000). Lipsey and Wilson (2001) suggested that the correlation coefficient $r \leq 0.10$ denotes a weak correlation; $0.1 < r < 0.4$ denotes a moderate correlation; $r \geq 0.40$ denotes a high correlation. Here the correlation coefficient r is 0.046; hence, the relationship between tourism and income inequality is weakly correlated. Nevertheless, such a correlation coefficient is positive, suggesting that tourism significantly increases income inequality. This finding supports Hypothesis 1a.

4.4. Moderation analysis

Then we examine the moderating effects on tourism's relationship with income inequality. Table 5 shows the results that are also calculated using random effects models. Table 5 shows that all moderators except FDI have a significant moderating effect on tourism's effects on income inequality. These results substantiate Hypotheses 3–5 however do not support Hypothesis 2. The results demonstrate that GDPpc exerts a significant positive moderating impact on the relationship between tourism and income inequality. The effect size of GDPpc (0.101) is far more than that of non-GDPpc (0.010). FDI's moderating effects on the relationship between tourism and income inequality are not statistically significant. However, the existence of FDI has more impact on the relationship between tourism and income inequality than the absence of FDI. TRO also has significant moderating effects. Moreover, in the presence of TRO, tourism increases income inequality more significantly.

Regarding the sample characteristics, the midpoint significantly moderates the effects of tourism on income inequality. The moderating effects of the post-and-in-2005 midpoint are positive and significant, while the moderating effects of the before-2005 midpoint are negative and insignificant. These results demonstrate that tourism significantly increases income inequality after 2005, while tourism is conducive to reducing income inequality before 2005. Besides, different research periods significantly affect the relationship between tourism and income inequality. Either a short research period (≤20 years) or long research period (>20 years) has significant positive moderating effects on this relationship. However, the latter has a larger moderating impact, and its effect size is 0.191.

Sample size exerts a significant moderating impact on tourism's relationship with income inequality as well. Small and medium sample size has positive moderating effects, and smaller sample size means the greater moderating effects. In contrast, a large sample size adversely moderates the relationship between tourism and income inequality. This indicates that in a large sample, tourism prefers to reduce income inequality. Both destination type and data type significantly affect tourism's relationship with income inequality. Specifically, the moderating effects in developing countries are the greatest, and the effect size is 0.093. This result suggests that tourism is more conducive to increasing income inequality in developing countries. Developed countries have the least moderating effects on tourism's relationship with income inequality, and the effect size is merely 0.013 and insignificant. The moderating effect of mixed countries lies between developed and developed countries. In diverse cases, tourism still increases income significantly. In the case of time series data, tourism prefers to increase income inequality, and the effect size is 0.249; however, this result is not statistically significant, which may be related to the small sample. In panel data analysis, tourism significantly increases income inequality as well.

4.5. Sensitivity tests

Generally speaking, sensitivity tests for meta-analysis can be performed in two ways. One is to replace the outcome variable, such as income inequality in this study. However, income inequality in the collected studies is all represented by the Gini coefficient, so we perform another sensitivity test. Another method is to exclude some studies according to specific criteria, then re-estimate the combined effect size, and compare the new meta-analysis results with the previous ones. If there is no significant change in the results before and after excluding some studies, it indicates low sensitivity and relatively robust results of the previous meta-analysis. On the contrary, if the results before and after are significantly different or even opposite, it indicates high sensitivity and low robustness of the results. In this case, the meta-analysis results should be treated carefully. It is necessary to analyze the reasons for these significant deviations further.

According to the feature of selected studies in Table 1, this study deletes the survey on a single country and only keeps the country-level panel data studies. By doing so, Li et al. (2016), Oviedo-García et al. (2019), Porto and Espinola (2019), Shahbaz et al. (2019) and Uzar and Eyuboglu (2019) are excluded in the new meta-analysis. Obviously, the

Table 4
Results of meta-analysis.

Model	Effect size and 95 % interval					Test of null (2-Tail)		Heterogeneity			
	Number of estimates	Obs.	Point estimates	Lower limit	Upper limit	Z-value	p-value	Q-value	df(Q)	p-value	I^2
Random	162	156798	0.046	0.027	0.065	4.651	0.000	2328.116	161	0.000	93.085

Table 5
Moderating effects on the relationship between tourism and income inequality.

Moderator	Effect size and 95 % interval					Test of null (2-Tail)		Heterogeneity		
	Number of estimates	Obs.	Point estimates	Lower limit	Upper limit	Z-value	p-value	Q_W	Q_B	I^2
GDPpc	67	43844	0.101	0.072	0.131	6.668	0.000	1773.667***	22.016***	96.279
	95	112954	0.010	−0.013	0.034	0.855	0.393	331.701***		71.661
FDI	58	38996	0.063	0.030	0.095	3.794	0.000	420.298***	1.601	86.438
	104	117802	0.037	0.013	0.060	3.079	0.002	1802.275***		94.285
TRO	68	43370	0.100	0.071	0.129	6.759	0.000	1697.412***	22.628***	96.053
	94	113428	0.010	−0.014	0.033	0.806	0.420	346.045***		73.125
Midpoint	93	114392	−0.002	−0.026	0.022	−0.160	0.873	294.992***	37.362***	68.813
	69	42406	0.112	0.084	0.140	7.831	0.000	1714.814***		96.035
Research period	132	143692	0.017	−0.002	0.037	1.754	0.079	421.945***	50.323***	68.953
	30	13106	0.191	0.147	0.233	8.490	0.000	1494.940***		98.060
Sample size	46	13820	0.155	0.119	0.191	8.289	0.000	1292.946***	50.275***	96.520
	40	24795	0.044	0.008	0.080	2.386	0.017	372.870***		89.541
	76	118183	−0.005	−0.030	0.020	−0.421	0.673	306.056***		75.495
Destination type	67	49085	0.093	0.062	0.124	5.896	0.000	1764.157***	14.709***	96.259
	41	22353	0.013	−0.025	0.052	0.672	0.502	23.764		0.000
	54	85360	0.018	−0.014	0.050	1.081	0.280	503.291***		89.469
Data type	156	156604	0.043	0.024	0.063	4.380	0.000	2312.656***	5.328**	93.298
	6	194	0.249	0.076	0.407	2.801	0.005	4.249		0.000

Notes: Q_W represents the heterogeneity test statistics within a group; QB represents the heterogeneity test statistics between groups. *p < 0.1, **p < 0.05, ***p < 0.01.

results of studies in multiple countries are more general than studies in a single country. Finally, we collected the meta-analysis data consisting of 146 effect sizes. Table 6 reports the results of sensitivity tests. The results show that tourism still positively affects income inequality significantly. In addition, the moderators besides FDI significantly affect tourism's relationship with income inequality. Overall, the influence direction and significance level of each moderating variable are consistent with the results in Tables 4 and 5. Therefore, the findings of the meta-analysis are robust.

5. Discussion and implications

5.1. Regarding the results

First, our meta-analysis results demonstrate that income inequality positively correlates with tourism, indicating that tourism growth leads to unequal income distribution. Tourism has disappointingly increased income inequality against the background of the basic consensus of its promoting economic growth. This conclusion supports Incera and Fernández (2015), Alam and Paramati (2016) and Raza and Shah (2017) but contradicts Beheshti et al. (2017), Lv (2019) and Nguyen et al. (2020). Firstly, the possible reason for this conclusion is that compared with the broad economic industry, the income level of the tourism industry is relatively low, which obviously leads to an increase in income inequality. This also reflects tourism's ability to eradicate absolute poverty and its innate inadequacy to adjust income distribution. Secondly, the tourism industry is an employment-intensive industry that absorbs a large amount of labor. Therefore, even within the tourism industry, the difference in income distribution is very significant. On the whole, the tourism industry has a shallow threshold for employment; therefore, from grass-roots physical employees over skilled employees to top executives, the income gap is very large (Lee & O'Leary, 2008).

In summary, the tourism industry itself is an industry with very obvious income inequality. Hence, relying on tourism to develop the economy and eradicate poverty is feasible, but relying on the large-scale development of tourism to solve the growing global and regional income

Table 6
Sensitivity tests: main effects and moderating effects.

	Effect size and 95 % interval					Test of null (2-Tail)		Heterogeneity			
	Number of estimates	Obs.	Point estimates	Lower limit	Upper limit	Z-value	P-value	Q-value	df(Q)	p-value	I^2
Main effects											
Random	146	152998	0.031	0.011	0.050	3.126	0.002	2056.722	145	0.000	92.950
Moderating effects											
Moderator								Q_W	Q_B		I^2
GDPpc	58	43650	0.098	0.069	0.126	6.558	0.000	1762.767***	33.225***		96.766
	88	109348	0.012	−0.011	0.035	0.988	0.323	41.390			0.000
FDI	55	38870	0.056	0.025	0.087	3.540	0.000	408.657***	4.103		86.786
	91	114128	0.016	−0.007	0.039	1.339	0.180	1519.224***			94.076
TRO	63	43190	0.096	0.068	0.123	6.782	0.000	1687.348***	36.607***		96.6326
	83	109808	0.015	−0.008	0.038	1.310	0.190	42.833			0.000
Midpoint	85	113032	−0.009	−0.032	0.014	−0.749	0.454	268.791***	27.261***		68.770
	61	39956	0.090	0.061	0.118	6.113	0.000	1556.200***			96.144
Research period	121	140072	0.000	−0.018	0.019	0.031	0.975	136.798	60.971***		12.388
	25	12926	0.186	0.144	0.227	8.521	0.000	1489.084***			98.388
Sample size	30	10020	0.119	0.076	0.161	5.427	0.000	1177.056***	24.979***		97.536
	40	24795	0.044	0.008	0.079	2.421	0.015	372.870***			89.541
	76	118183	−0.005	−0.030	0.019	−0.429	0.668	306.056***			75.495
Destination type	51	45285	0.059	0.026	0.092	3.519	0.000	1520.390***	4.424*		96.711
	41	22353	0.013	−0.024	0.050	0.697	0.486	23.764			0.000
	54	85360	0.018	−0.013	0.049	1.121	0.262	503.291***			89.469
Data type	146	152998	0.031	0.011	0.050	3.126	0.002	2056.722***	0.000		92.950

Notes: Q_W represents the heterogeneity test statistics within a group; QB represents the heterogeneity test statistics between groups. *p < 0.1, **p < 0.05, ***p < 0.01.

gap requires systematic and careful consideration. In particular, the COVID-19 has led to an unexpected precipitous drop in tourism demand due to local and global travel restrictions, thereby endangering the employment and livelihood of a large number of tourism practitioners. This makes the income gap between the tourism industry, the world's largest employment body, and other industries and the income gap within the tourism industry more remarkable. As a result, income inequality will undoubtedly increase.

Second, economic growth and trade openness exert significant moderating effects on the relationship between tourism and inequality; however, FDI's moderating effects are not significant. Alam and Paramati (2016), Chi (2020) and Lv (2019) found the significant effects of economic growth on income inequality. Alam and Paramati (2016) and Chi (2020) concluded the significant effects of trade openness on income inequality as well. Similarly, Raza and Shah (2017) confirmed the significant effects of foreign direct investment on income inequality. However, the above studies did not examine these moderators' moderating effects on the relationship between tourism and income inequality. Therefore, our findings are difficult to compare with the above results.

The possible reason why economic growth moderates the relationship between tourism and income inequality is that economic growth is an important factor affecting regional tourism development level, thus affecting various influences of tourism. Generally, countries and regions with a high level of economic development have a relatively complete and fair distribution mechanism, so the increase in income inequality caused by tourism will be to some extent eliminated by the distribution mechanism formed by the general economy. However, countries and regions with low economic development levels may often rely more on tourism economic growth, thereby allowing or even promoting the existing distribution model caused by tourism. Therefore, economic growth has significant moderating effects. The possible reason for the moderating effects of trade openness lies in that tourism is a typical export-oriented economy. Similar to economic growth, the level of trade openness undoubtedly significantly affects tourism. Moreover, most studies included in the meta-analysis depend on the country-level data; hence, inbound tourism is the first choice for scholars to represent tourism. Notably, inbound tourism is undoubtedly very closely related to trade openness.

Third, our results confirm that sample characteristics also significantly moderate tourism's relationship with income inequality. The moderating effects of the midpoint demonstrate the typical temporal characteristics of tourism's influence on income inequality and confirm Hypothesis 5b. From a longitudinal perspective, the income gap had been shrinking for a long period before 2005 (Lin & Huang, 2012); however, since then, the income gap has been expanding (Darvas, 2019). Such time change significantly influences tourism's relationship with income inequality. Therefore, our results show that post-and-in-2005 midpoint has significant moderating effects. Similarly, the time-varying tourism and income inequality make the research period significantly impact their relationship. Accordingly, as our results show, a long research period has greater moderating effects than a short research period. This means the importance of a longer research period selection in the future study.

As indicated above, the sample size is the product of the number of cases and the research period. We have just explained why the research period will significantly moderate tourism's relationship with income inequality. The moderating effect of the number of cases may depend on the socio-economic characteristics of these cases. More cases mean more complex and comprehensive socio-economic characteristics, which will weaken tourism's influence on income inequality. On the contrary, fewer or single case means single socio-economic characteristics, thus highlighting the impact of tourism on income inequality. Therefore, our results show that the small sample size's moderating effects are the largest and most significant.

Prior studies have proved that the impact of tourism on income inequality varies significantly across different types of destinations. The current research confirms this result. The destination type significantly moderates tourism's relationship with income inequality. The destination's economic level, economic structure, income distribution mechanism, and tax policy all will affect tourism development and income inequality, thereby impacting the effects of tourism on income inequality. We also found that the positive moderating effects of developing countries are higher than those of developed countries. This implies that tourism exerts more effects on income inequality in developing countries. This conclusion is consistent with Chi (2020) and Fang et al. (2020). The possible reasons lie in that in developed countries, the level of social and economic development and the secondary distribution mechanism are more conducive to promoting income equality in the whole society. In contrast, in developing countries, the primary distribution plays a greater role and maintains the increasing impact of tourism on income inequality.

The moderating mechanism of the data type is similar to that of the sample size. In general, panel data means a larger sample size, while time-series data means a smaller sample size. Therefore, the data type significantly moderates the effects of tourism on income inequality as well. Besides, similar to the results of the sample size, the moderating effect of time-series data is greater than that of panel data. However, this result is not statistically significant due to the small samples.

5.2. Theoretical implications

The role of tourism in income distribution requires the continuous attention of academics and managers to enhance tourism's contribution to regional sustainability. Previous studies have paid more attention to the impact of tourism income on income inequality. Future research can focus more on other tourism elements such as employment and tourism's contribution to the economy. Besides, existing studies mainly used the Gini coefficient to measure income inequality. However, it is noteworthy that income inequality has multiple measurement indexes, such as the Theil index and the Atkinson index in practice. These indicators are slightly different from the Gini coefficient in measuring income inequality. Therefore, future studies could focus on the comparative analysis of the effects of tourism on these indices.

Generally speaking, the Gini coefficient is particularly sensitive to changes in the middle income level. However, the Theil index is sensitive to changes in upper and lower income levels. Therefore, using the Theil index in developed or developing countries may be more conducive to exploring the relationship between tourism and income inequality. The Atkinson index measures income inequality especially characterized by social welfare. It is not only more sensitive to the transfer of income between different strata but also closely related to the aversion to income inequality. Therefore, the Atkinson index is logically more rigorous than the Gini coefficient and Theil index and can measure the income inequality more comprehensively. It is strongly recommended to use the Atkinson index to quantify the impact of tourism on income inequality. In short, the introduction of different indices is more helpful to understand the role of tourism in income distribution.

Our results show that economic growth and trade openness significantly moderate the effects of tourism on inequality. Future studies should focus on the moderating effects of these two moderators and thus explore the influence mechanism of tourism on income inequality. Consequently, it is of great significance to introduce interaction terms like tourism*GDPpc and tourism*TRO into the empirical model. In addition, the impact of different levels of economic development and trade openness can also be focused on the non-linear impact of tourism on income inequality, such as the application of the Kuznets curve or the construction of threshold regression model (i.e. setting different thresholds for these two variables). In summary, building some advanced and complex models can help understand the mechanism of tourism's influence on income inequality in the future.

Another potential area for future studies is to take into account different sample characteristics. The sample characteristics highlighted

in the current study, including destination type, data type, midpoint, research period, and sample size, are worth more exploration in the future to comparatively analyze the effects of tourism on income inequality from the perspective of time and space. Concretely, it is interesting to investigate and compare the relationships between tourism and income inequality in various jurisdictions at the global, regional, or local scale. In particular, more attention should be paid to the impact of tourism on income inequality and how to establish a mechanism for tourism to reduce income inequality in developing countries and to learn useful experience from developed countries. Regarding the case selection, we encourage the comprehensive study of multiple cases and the in-depth investigation of a single case so as to examine the common characteristics and individual characteristics of tourism's impact on income inequality. Besides, the significant moderating effects of the midpoint and research period require us to further explore the time-varying characteristics of tourism's relationship with income inequality and the socio-economic conditions on which they depend.

5.3. Practical implications

This meta-analysis also has positive managerial implications for policymakers and tourism operators. Apart from its economic growth and poverty alleviation functions, tourism development will increase income inequality. This effect is more prominent in developing countries and regions. Therefore, policymakers need to formulate corresponding laws and regulations according to local social and economic development to appropriately regulate the primary distribution, especially the secondary distribution within tourism sectors. In addition to ensuring the economic growth function of tourism, the government should guide and play the positive role of tourism in income distribution, especially in tourism-dependent countries and regions.

For one thing, tourism operators should clearly understand the gap between tourism and other industries, continuously improve the competitiveness of the industry, and take the path of high-quality development, thereby improving the welfare benefits of the tourism industry. For another, apart from focusing on tourism income and employment, tourism operators should be aware of the income inequality within the tourism industry and pay active attention to the distribution mechanism of the broad economy. On this basis, Urgent action is needed to establish a scientific and relatively balanced income distribution mechanism within the tourism sectors and give more benefits to low-income groups. Furthermore, it is necessary to identify the fundamental reasons for income inequality within the tourism sectors and improve the working skills and employment competitiveness of low-income groups. By doing so, we could narrow the ability gap between low-income groups and high-income groups, thereby providing a realistic basis for reducing income inequality.

6. Concluding remarks

Using the meta-analytic approach, this study reconciles the mixed results of 162 individual estimates from 12 empirical studies to examine the relationship between tourism and income inequality. We also test the moderating effects of economic growth, FDI, trade openness, and sample characteristics. The meta-analysis results demonstrate that tourism is positively responsible for income inequality. Moreover, economic growth, trade openness and sample characteristics significantly moderate the impact of tourism on income inequality. Post-and-in-2005 midpoint positively moderates tourism's relationship with income inequality. A long research period and a small sample size exert greater moderating effects. Compared to developed countries, tourism has greater increasing effects on income inequality in developing countries. This article's findings can provide useful implications for scholars and practitioners interested in tourism and income inequality.

This study contributes to the existing body of knowledge in the following ways. First, the current study to date, for the first time, provides a meta-analytic estimate of the effects of tourism on income inequality. This paper quantifies the research on the different effects of tourism on income inequality and comes up with conclusive findings, thus contributing to comprehensively understanding the relationship between tourism and income inequality. Second, we empirically test various moderators affecting the relationship between tourism and income inequality, which may explain any inconsistent effects of tourism on income inequality. The article largely explains why the impact of tourism on income inequality varies significantly across different studies. Furthermore, this study highlights the theoretical and practical implications for further exploring the impact of tourism on income inequality from different perspectives and playing the role of tourism in reducing income inequality in the future.

Tourism's relationship with income inequality is a traditional but still very important issue attracting more scholars' attention. However, from the previous empirical studies, I only collected 12 studies and 162 effect sizes based on panel and time series data. It is necessary to continuously pay attention to this topic and include more sample studies in the future. Similarly, due to the literature inclusion criteria of the meta-analysis, I did not consider some other empirical studies like the micro case studies. A more comprehensive examination of tourism's impact on income inequality can be made by means of systematic reviews. Besides, the meta-analysis results of this article show that there is still significant heterogeneity between different studies, indicating that in addition to the moderating variables test in the current study, there are other possible moderators, such as education, population and economic structure, which are worth further exploration in the future. Finally, the data in this article were processed using the CMA software. Although it is dedicated to meta-analysis, the CMA is chargeable and its transparency is limited compared to other tools like R. Future research can focus on R software to provide analysis code to readers to increase the visibility of the work.

Acknowledgements

This work was supported by the National Natural Science Foundation of China under Grant 71764027 and Foundation of Guilin Tourism University under Grant KQ1904.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.jhtm.2021.07.009.

References

Alam, M. S., & Paramati, S. R. (2016). The impact of tourism on income inequality in developing economies: Does Kuznets curve hypothesis exist? *Annals of Tourism Research, 61*, 111–126.

Beheshti, M. B., Mohammadzadeh, P., & Ghasemloo, K. (2017). The impact of tourism development on income inequality in Iranian provinces. *Journal of Tourism Planning and Development, 6*(22), 8–29.

Berisha, E., Gupta, R., & Meszaros, J. (2020). The impact of macroeconomic factors on income inequality: Evidence from the BRICS. *Economic Modelling, 91*, 559–567.

Bilal, Chen, S., & Komal, B. (2018). Audit committee financial expertise and earnings quality: A meta-analysis. *Journal of Business Research, 84*, 253–270.

Biostat. Comprehensive meta analysis (CMA) 3.0. Available at: https://www.meta-analysis.com/pages/demo.php?cart=B5D55404567.

Blake, A. (2008). Tourism and income distribution in east africa. *International Journal of Tourism Research, 10*(6), 511–524.

Castro-Nuño, M., Molina-Toucedo, J. A., & Pablo-Romero, M. P. (2013). Tourism and GDP: A meta-analysis of panel data studies. *Journal of Travel Research, 52*(6), 745–758.

Chao, C. C., Laffargue, J. P., & Sgro, P. M. (2010). Foreign aid, wage inequality, and welfare for a small open economy with tourism. *Review of International Economics, 18*(3), 454–464.

Cheng, W., & Wu, Y. (2017). Understanding the Kuznets process—an empirical investigation of income inequality in China: 1978–2011. *Social Indicators Research, 134*(2), 631–650.

Chi, J. (2020). Revisiting the tourism-inequality nexus: Evidence from a panel of developed and developing economies. *Current Issues in Tourism*. https://doi.org/10.1080/13683500.2020.1743243.
Choi, C. (2006). Does foreign direct investment affect domestic income inequality? *Applied Economics Letters, 13*(12), 811–814.
Cole, S., & Morgan, N. (Eds.). (2010). *Tourism and inequality: Problems and prospects*. CABI.
Darvas, Z. (2019). Global interpersonal income inequality decline: The role of China and India. *World Development, 121*, 16–32.
Dogan, E., & Aslan, A. (2017). Exploring the relationship among CO_2 emissions, real GDP, energy consumption and tourism in the EU and candidate countries: Evidence from panel models robust to heterogeneity and cross-sectional dependence. *Renewable and Sustainable Energy Reviews, 77*, 239–245.
Dogan, E., Seker, F., & Bulbul, S. (2017). Investigating the impacts of energy consumption, real GDP, tourism and trade on CO_2 emissions by accounting for cross-sectional dependence: A panel study of OECD countries. *Current Issues in Tourism, 20*(16), 1701–1719.
Egger, M., Smith, G. D., Schneider, M., & Minder, C. (1997). Bias in meta-analysis detected by a simple, graphical test. *BMJ, 315*(7109), 629–634.
Fang, J., Gozgor, G., Paramati, S. R., & Wu, W. (2020). The impact of tourism growth on income inequality: Evidence from developing and developed economies. *Tourism Economics*. https://doi.org/10.1177/1354816620934908.
Fereidouni, H. G., & Al-mulali, U. (2014). The interaction between tourism and FDI in real estate in OECD countries. *Current Issues in Tourism, 17*(2), 105–113.
Gatti, P. (2013). Tourism, welfare and income distribution: The case of Croatia. *Tourism, 61*(1), 53–71.
Ghosh, S., & Mitra, S. K. Tourism and inequality: A relook on the Kuznets curve. Tourism Management, 83, 104255.
Gu, X., Li, G., Chang, X., & Guo, H. (2017). Casino tourism, economic inequality, and housing bubbles. *Tourism Management, 62*, 253–263.
Haddad, E. A., Porsse, A. A., & Rabahy, W. (2013). Domestic tourism and regional inequality in Brazil. *Tourism Economics, 19*(1), 173–186.
Hedges, L. V., & Vevea, J. L. (1998). Fixed-and random-effects models in meta-analysis. *Psychological Methods, 3*(4), 486–504.
Higgins, J. P. T., Thompson, S. G., Deeks, J. J., & Altman, D. G. (2003). Measuring inconsistency in meta-analyses. *British Medical Journal, 327*(7414), 557–560.
Incera, A. C., & Fernández, M. F. (2015). Tourism and income distribution: Evidence from a developed regional economy. *Tourism Management, 48*, 11–20.
Khan, A., Bibi, S., Lyu, J., Raza, A., Hayat, H., & Meo, M. S. (2020). Unraveling the nexuses of tourism, terrorism, and well-being: Evidence from Pakistan. *Journal of Hospitality & Tourism Research*. https://doi.org/10.1177/1096348020917742.
Kinyondo, A., & Pelizzo, R. (2015). Tourism, development and inequality: The case of Tanzania. *Poverty & Public Policy, 7*(1), 64–79.
Lee, S. (2009). Income inequality in tourism services-dependent counties. *Current Issues in Tourism, 12*(1), 33–45.
Lee, S., & O'Leary, J. T. (2008). Determinants of income inequality in US nonmetropolitan tourism-and recreation-dependent communities. *Journal of Travel Research, 46*(4), 456–468.
Li, H., Chen, J. L., Li, G., & Goh, C. (2016). Tourism and regional income inequality: Evidence from China. *Annals of Tourism Research, 58*, 81–99.
Light, R. J., & Pillemer, D. B. (1984). *Summing up: The science of reviewing research*. Cambridge, MA: Harvard University Press.
Li, Y., Gong, P., & Ke, J. (2021). Development opportunities, forest use transition, and farmers' income differentiation: The impacts of Giant panda reserves in China. *Ecological Economics, 180*, 106869.
Li, J., & Lian, C. (2010). An empirical study on relative income determination of tourism industries with social accounting matrix of Jiangsu Province, China in 2002. *Tourism and Hospitality Research, 10*(3), 219–233.
Lin, P. C., & Huang, H. C. (2012). Convergence in income inequality? Evidence from panel unit root tests with structural breaks. *Empirical Economics, 43*(1), 153–174.
Lipsey, M. W., & Wilson, D. B. (2001). *Practical meta-analysis*. Thousand Oaks: SAGE publications, Inc.
Llorca-Rodríguez, C. M., Casas-Jurado, A. C., & García-Fernández, R. M. (2016). The regional polarization of tourism's contribution to economic growth in Peru: Alternative solutions. *Tourism Economics, 22*(2), 397–415.
Lv, Z. (2019). Deepening or lessening? The effects of tourism on regional inequality. *Tourism Management, 72*, 23–26.
Ma, B., Cai, Z., Zheng, J., & Wen, Y. (2019). Conservation, ecotourism, poverty, and income inequality–A case study of nature reserves in Qinling, China. *World Development, 115*, 236–244.
Mahadevan, R., Amir, H., & Nugroho, A. (2017a). How pro-poor and income equitable are tourism taxation policies in a developing country? Evidence from a computable general equilibrium model. *Journal of Travel Research, 56*(3), 334–346.
Mahadevan, R., Amir, H., & Nugroho, A. (2017b). Regional impacts of tourism-led growth on poverty and income inequality: A dynamic general equilibrium analysis for Indonesia. *Tourism Economics, 23*(3), 614–631.
Mahadevan, R., & Suardi, S. (2019). Panel evidence on the impact of tourism growth on poverty, poverty gap and income inequality. *Current Issues in Tourism, 22*(3), 253–264.
Marcouiller, D. W., Kim, K. K., & Deller, S. C. (2004). Natural amenities, tourism and income distribution. *Annals of Tourism Research, 31*(4), 1031–1050.
Marcouiller, D. W., & Xia, X. (2008). Distribution of income from tourism-sensitive employment. *Tourism Economics, 14*(3), 545–565.
Nguyen, V. H., & Funck, C. (2019). Tourism's contribution to an equal income distribution: Perspectives from local enterprises. *Tourism Planning & Development, 16*(6), 637–656.
Nguyen, C. P., Schinckus, C., Su, T. D., & Chong, F. H. L. (2020). The influence of tourism on income inequality. *Journal of Travel Research*. https://doi.org/10.1177/0047287520954538.
Oviedo-García, M. A., González-Rodríguez, M. R., & Vega-Vázquez, M. (2019). Does sun-and-sea all-inclusive tourism contribute to poverty alleviation and/or income inequality reduction? The case of the Dominican republic. *Journal of Travel Research, 58*(6), 995–1013.
Pang, Q., & Zhang, M. (2020). Evolutionary game analysis of land income distribution in tourism development. *Tourism Economics*. https://doi.org/10.1177/1354816619898078.
Peterson, R. A., & Brown, S. P. (2005). On the use of beta coefficients in meta-analysis. *Journal of Applied Psychology, 90*(1), 175.
Petit, S. (2017). International trade in services and inequalities: Empirical evaluation and role of tourism services. *Tourism Economics, 23*(5), 1069–1075.
Piketty, T., & Saez, E. (2003). Income inequality in the United States, 1913–1998. *Quarterly Journal of Economics, 118*(1), 1–41.
Porto, N., & Espinola, N. (2019). Labor income inequalities and tourism development in Argentina: A regional approach. *Tourism Economics, 25*(8), 1265–1285.
Qin, D., Xu, H., & Chung, Y. (2019). Perceived impacts of the poverty alleviation tourism policy on the poor in China. *Journal of Hospitality and Tourism Management, 41*, 41–50.
Raza, S. A., & Shah, N. (2017). Tourism growth and income inequality: Does Kuznets Curve hypothesis exist in top tourist arrival countries. *Asia Pacific Journal of Tourism Research, 22*(8), 874–884.
Roschk, H., Loureiro, S. M. C., & Breitsohl, J. (2017). Calibrating 30 years of experimental research: A meta-analysis of the atmospheric effects of music, scent, and color. *Journal of Retailing, 93*(2), 228–240.
Rosenthal, R. (1979). The file drawer problem and tolerance for null results. *Psychological Bulletin, 86*(3), 638.
Rosenthal, R., & DiMatteo, M. R. (2001). Meta-analysis: Recent developments in quantitative methods for literature reviews. *Annual Review of Psychology, 52*, 59–82.
Roslan, A. H., & Noor, M. S. Z. (2008). Does income from tourism sources have an equalising effect on inequality among the poor? The case of langkawi island, Malaysia. *European Journal of Tourism Research, 1*(2).
Schmidt, F. L., & Hunter, J. E. (2014). *Methods of meta-analysis: Correcting error and bias in research findings* (3rd ed.). Thousand Oaks, CA: Sage.
Shahbaz, M., Solarin, S. A., Azam, M., & Tiwari, A. K. (2019). Tourism-induced income distribution in Malaysia: A practical experience of a truly asian economy. *Current Issues in Tourism*. https://doi.org/10.1080/13683500.2019.1697648.
Tosun, C., Timothy, D. J., & Öztürk, Y. (2003). Tourism growth, national development and regional inequality in Turkey. *Journal of Sustainable Tourism, 11*(2–3), 133–161.
Uzar, U., & Eyuboglu, K. (2019). Can tourism be a key sector in reducing income inequality? An empirical investigation for Turkey. *Asia Pacific Journal of Tourism Research, 24*(8), 822–838.
Wang, W., Lai, K. H., & Shou, Y. (2018). The impact of servitization on firm performance: A meta-analysis. *International Journal of Operations & Production Management, 38*(7), 1562–1588.
Yang, Y., Park, S., & Hu, X. (2018). Electronic word of mouth and hotel performance: A meta-analysis. *Tourism Management, 67*, 248–260.
Zeng, B., Ryan, C., Cui, X., & Chen, H. (2015). Tourism-generated income distribution in a poor rural community: A case study from shaanxi, China. *Journal of China Tourism Research, 11*(1), 85–104.
Zhang, X., Ding, P., & Bao, J. (2008). Income distribution, tourist commercialisation, and Hukou status: A socioeconomic analysis of tourism in xidi, China. *Current Issues in Tourism, 11*(6), 549–566.