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Urbanization, Disasters, and Tourism Development: Evidence from RCEP Countries

Wanshan Wu [1], Qingyi Su [2], Chunding Li [3,*], Cheng Yan [1,4,*] and Giray Gozgor [5]

1 School of Economics, Zhejiang University of Technology, Hangzhou 310023, China; wuwanshan@zju.edu.cn
2 Institute of World Economics and Politics, CASS, Beijing 100732, China; suqy@cass.org.cn
3 College of Economics and Management, China Agricultural University, Beijing 100083, China
4 Business School, University of Essex, Colchester, CO4 3SQ, UK
5 Faculty of Political Sciences, Istanbul Medeniyet University, 34720 Istanbul, Turkey; giray.gozgor@medeniyet.edu.tr
* Correspondence: lichd@cau.edu.cn (C.L.); Cheng.Yan.1@cass.city.ac.uk (C.Y.)

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Abstract: This study analyzes urbanization, disasters, and their impact on tourism development for RCEP (Regional Comprehensive Economic Partnership) countries. We use ADF (Augmented Dickey-Fuller) and PP (Phillips-Perron) tests, causality tests, quantile regression, and fixed-effect panel models on data from 1995-2018. Empirical results show that urbanization does not help tourism development in the low quantiles but does help in the high quantiles. Disaster-preventive measures and post-disaster reconstruction help the development of tourism. However, in developed countries, disasters are not conducive to the development of tourism. Urbanization is the Granger cause of tourism and carbon emissions. The increase in temperature, rainfall, and carbon emissions caused by urbanization do not contribute to the development of tourism. Based on this, we have proposed a series of urbanization development and disaster defense measures to promote the sustainable development of tourism in RCEP countries.

Keywords: urbanization; disasters; tourism; RCEP

1. Introduction

Today, 55.3% of the world's population and most of their capital assets are concentrated in cities [1]. Urbanization has promoted the development of tourism through consumption effects and investment effects. Meanwhile, urbanization has also led to changes in consumer preferences and improvements in consumption structure, promoting the pattern of tourism consumption, and expanding the scale of tourism consumption. As the per capita tourism expenditure of urban residents far exceeds that of rural residents, urbanization is considered to promote the development of tourism greatly. On the other hand, urban population agglomeration has also exacerbated urban issues such as environmental pollution and traffic congestion, which further promote citizens' demand for tourism and leisure and investment in tourism infrastructure. Besides, urban economy has driven the consumption of energy and natural resources, which caused increasing carbon emissions and acid rain, and rising sea levels. The resulting climate change has led to a growth in the frequency of disasters.

Tourism, as an essential industry in many countries, is extremely vulnerable to disasters. As some researchers argue, tourism is a weather and climate sensitive industry [2]. In the past decades, the world's tourism industry has experienced many crises and disasters. This includes both human-made events, such as terrorist attacks, political instability, and industrial accidents, and natural events, such as biological, climate, geophysical, hydrological, and meteorological disasters. Tourism turns out to be difficult to recover as quickly as other industries in the face of disasters because the

image damage to tourism destinations caused by a crisis or disaster usually takes years or more to recover. In addition, most tourism-based businesses are made up of small and medium-sized enterprises (SMEs), and they often lack the ability and resources to rebound quickly. Such disasters usually cause tourists to change their tourism destinations, thus posing a considerable challenge to the recovery of the tourism industry. Urbanization has exacerbated the impact of disasters on tourism. With 65% of the world's urban population concentrated in coastal areas, these coastal cities are more vulnerable to disasters such as tsunamis, marine pollution, floods, and landslides, which can cause huge damage to the image of destination's image, tourism infrastructure, and the destinations themselves. The sea-level rise caused by climate change, coastal floods, and the increase in the intensity and frequency of climate events will further increase the risk of disaster exposure in coastal cities. The direct and indirect losses caused by a crisis or disaster not only affect the tourism industry itself but may also have a lasting impact on the economic recovery of coastal cities or countries that rely heavily on the tourism industry.

Various disasters have imposed severe threats to the sustainable development of tourism. From 1995 to 2018, 15,949 disasters have occurred worldwide, killing 2.73 million people, affecting more than 5.16 billion people, and causing economic damage of up to $2.96 trillion USD (see Figure 1). Among them, 582,000 people were killed by disasters in RCEP countries, with a total loss of $1.1 trillion USD (Table 1). These disasters include not only natural disasters such as biological, climatological, geophysical, hydrological, and meteorological, but also technical disasters such as industrial and transport accidents, as well as complex disasters such as famine. Many developing countries, especially those in Asia, have been affected by more and more disasters. It is becoming increasingly urgent to develop disaster risk reduction policies.

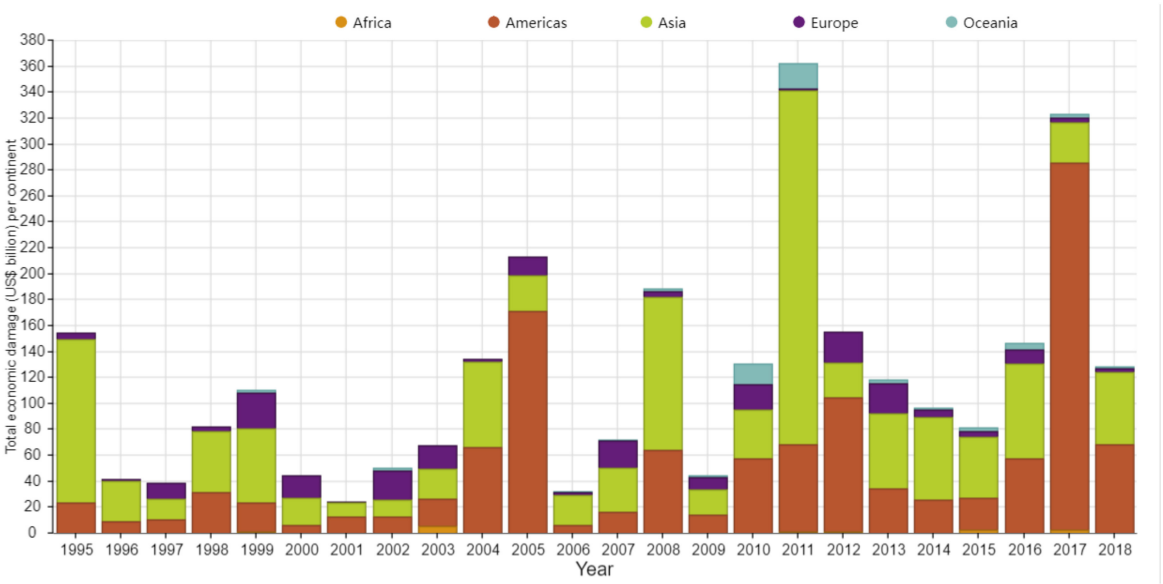

Figure 1. Economic damage caused by disasters on several continents worldwide (1995–2018).

Table 1. Disasters in RCEP countries in typical years 1995–2018.

	Occurrence	Total Deaths	Total Affected	Total Damage (1000 USD)
1995	86	11541	147,622,580	109,367,740
2005	170	5696	77,653,726	13,954,427
2015	123	3186	11,256,581	33,815,869
2018	77	7083	17,862,908	37,257,217
Total	3264	582079	2,667,236,855	1,107,018,410

As the World Tourism Organization's report [1] states, rapid urbanization, fast economic development, and the rise of the middle class have promoted the growth of tourism. This has contributed to the reorientation of tourism in the national economy [3,4]. On the other hand, environmental problems such as disasters caused by urbanization, cultural relics destruction, and excessive use of resources caused by excessive tourism have made the development of tourism unsustainable. To achieve sustainable development in tourism, the impact of tourism on each stakeholder must be considered in order to minimize the negative impacts, especially with regard to the importance of citizen collaboration [5,6]. Given the increasing impact of urbanization and the resulting disasters' effects on tourism, the investigation of urbanization and disasters together and their impact on the tourism industry will help policymakers formulate related policies such as pre-disaster prevention, post-disaster reconstruction, and ensuring the interests of tourism stakeholders, which are also of great practical significance. Moreover, they are the main research goals of this paper.

The contribution of this study is a quantitative examination of the causal relationship between urbanization and the disasters caused by urbanization and the development of tourism in RCEP countries. Different disaster indicators are selected to examine the differences in the impact of these variables on the development of tourism for robustness testing. Besides, we also investigate the developed countries and developing countries to test the robustness of the model. We used quantile regression to examine the effect of different independent variable levels on the dependent variable.

Because of the increasingly important role played by RCEP in the global economy, especially once India joins, the organization will account for about half of the world's population and 39% of world gross national product (GDP) [7,8]. This paper focuses on RCEP countries by examining urbanization, disasters, and their impact on tourism development in order to provide insights on how the tourism industry in these economies' can better respond to disasters and achieve more sustainable development.

2. Literature Review

Some studies have analyzed the factors that drive the growth in the frequency of disasters and their increasing impact on tourism. With the advancement of urbanization and the expansion of residential areas, humans' excessive extraction of natural resources such as land, minerals, and oceans, and a sharp rise in energy consumption have led to a significant increase in soil erosion and greenhouse gas emissions, and disasters have become more frequent. The acceleration of the globalization of the tourism industry has led to rising global disaster risks faced by tourism companies on a large scale [9,10]. Numerous studies suggest that disasters have a significant impact on tourism [11,12]. Ritchie et al. [13] analyze the reasons for the negative impact of the disaster on the tourism industry and believes that most tourism operators are composed of small businesses and lack the resources and capabilities to rebound in the face of disasters quickly. Disaster events usually lead to the transfer of tourists from affected destinations to neighboring countries or regions, which poses a considerable challenge to the post-disaster recovery of the tourism industry.

Facing disasters, the tourism industry should actively participate in disaster risk reduction management. First, Seraphin [14] proposed the need to consider disasters when planning and developing tourism products in destinations where hurricanes and disasters are frequent. Because tourism is the main economic sector in many countries, it is even the only source of income. Disasters such as hurricanes and floods are the main risks facing the development of tourism in coastal areas. This puts increasing pressure on tourism managers and planners who need to develop tourism responses to crises and disasters to protect tourism and economic development [15,16]. Second, the mobility of tourists makes it more difficult for them to obtain timely warning information such as weather and disasters [17]. The language barriers faced by tourists, the lack of contact with local communities when traveling in unfamiliar environments, and the holiday mood may hinder their ability to absorb disaster warning information, which increases the impact of the disaster on the tourism industry. Besides, the tourism industry has a strong dependence on infrastructures such as airports and roads. If disasters

cause infrastructure disruptions, this will not only erode the image of tourist destinations but may also have a long-term negative impact on the tourism industry [18].

Some studies have explored disaster recovery strategies for tourist destinations from the perspectives of communication, media, marketing strategies and destination images and reputations. [19,20] proposed that disaster information transmission and hotline communication with the public, stakeholders, and the tourism market are important aspects of tourism crisis management. Elbanna et al. [21] argues that, although the media is irreplaceable in providing accurate and timely disaster information, some sensational news can sometimes have a devastating effect on the tourism industry. Therefore, media surveillance is also an important part of the crisis recovery plan, helping tourist destinations offset negative publicity to repair damaged image and reputation quickly [22]. Jin et al. [10] pointed out that post-disaster and crisis marketing can help restore confidence in destinations and is also the key to assisting tourism destinations in post-disaster recovery. In addition, taking prompt action to prevent loss of reputation can also help with disaster recovery.

Without disaster management, small changes can have systemic effects. Filimonau et al. [23] believe that the negative effect of large-scale disasters such as earthquakes on inbound tourism demand depends on the magnitude of the disaster and the magnitude of the ripple effect. The ripple effect will cause the crisis to spread outward, and the interdependence between different systems will seriously affect the related systems. Therefore, effective and well-designed crisis management strategies to prevent the ripple effects from affecting the tourism industry and even the overall economy are issues that must be considered by the tourism industry. Disaster management is also complicated, depending on the scale of the crisis, and sometimes it takes much time to return to the pre-disaster state. In some cases, due to damage to infrastructure and limited tourism resources, it may not even be possible to achieve full recovery [24].

However, in terms of response to the disaster, most countries still face the problem of insufficient preparation. Irazábal [18] and others argue that, despite persistent uncertainties and disaster risks, the Asian tourism industry still lacks a formal crisis management plan. Antony et al. [25] believe that, compared with similar organizations in other countries, the United States Tourism Organization has made better preparations for disaster prevention and response. [26] believe that, in order to deal with disasters and post-disaster reconstruction, tourism weather insurance is particularly important for coastal areas with frequent hurricanes. Noy et al. [27] believe that tax cuts are an effective way for post-disaster reconstruction. Generally, scholars believed that effective crisis and disaster management includes four Rs, namely: reduction, readiness, response, and recovery. We need to plan before disasters or crises to reduce risks, prepare with early warning systems, respond to disasters or crises, and restore and rebuild after the crisis or disaster [17].

Some scholars have empirically studied the impact of disasters on tourism. The authors [28–31] used time series and other methods to examine income, prices, exchange rates, fuel prices, inflation, and cultural proximity factors affecting tourism demand. Huang et al. [32] studied the impact of the 1999 earthquake in Taiwan and found that the recovery period for the number of inbound tourists exceeded 11 months.

Nevertheless, other scholars believe that the impact of the crisis on tourism demand is not as great as expected. Song et al. [33] used the ADLM-ECM (Autoregressive Distributed Lag Model- Error Correction Model) model to predict the demand for hotel rooms in Hong Kong from the Asian financial crisis. It is believed that the strong demand from mainland Chinese tourists has caused Hong Kong tourist hotels to be less affected by the financial crisis than other destinations. Wang [34] also believes that despite the outbreak of severe acute respiratory syndrome (SARS), the number of inbound tourists has fallen the most. However, the impact of the Asian financial crisis has been relatively small.

Other studies even suggest that frequent disasters even represent rare opportunities for the tourism industry. Giddy et al. [35] point out that adventure tourism is the fastest growing sub-sector in the entire tourism industry. Ensuring an excellent natural environment is of considerable significance to promoting the development of adventure and adventure tourism. Seraphin [14] believes that areas

with frequent natural disasters (such as the Caribbean) have the opportunity to reshape themselves by developing new products and services, such as chasing hurricanes and thunderstorms, and can also attract more tourists by establishing a new image. This translates natural disaster risks into development opportunities for tourist destinations.

Based on the existing research, very few studies have investigated the joint impact of urbanization and disasters on the tourism industry, especially the research on RCEP as a sample. This paper attempts to fill this gap in order to analyze the impact of urbanization and disasters on the RCEP as a whole, as well as the difference between developed and developing countries, in order to provide insights for urbanization development, disaster defense, and sustainable tourism development in RCEP countries.

3. Data and Methodology

3.1. Samples, Variables, and Statistical Descriptions

Our sample includes 15 RCEP countries, namely Australia, Brunei, Cambodia, China, Indonesia, Japan, Laos, Malaysia, Myanmar, New Zealand, the Philippines, Singapore, South Korea, Thailand, and Vietnam. As tourism data are only available beginning in 1995, our sample period is from 1995 to 2018. Among them, the tourism industry data comes from the World Travel and Tourism Council. Variables such as urbanization, GDP per capita, inflation rate, exchange rate, and trade-to-GDP ratio are mainly derived from the World Bank's World Development Indicators database. The variables are explained as follows: Tourism is expressed as the percentage share of total employment. Temperature (TEMP) is expressed as the average temperature in August. Occurrence (OCCU), total affected (AFF), total damage (DAM), total deaths (DEATH) of a disaster indicate the frequency of the disaster and the damage caused. Total CO_2 emissions are from fossil-fuels and cement production in thousand metric tons. Per capita (PGDP) is the GDP per capita in constant 2010 US dollars. Inflation (INF) is the annual consumer prices. Exchange (EXCH) is the official exchange rate of LCU per US dollar. Trade (TRD) is the share of trade in GDP. Urbanization (URB) is the urban population share of the total population.

Disaster data comes from the Emergency Events Database. The disaster types mainly include natural disasters such as biological, climatological, geophysical, hydrological, and meteorological, as well as technical disasters such as industrial and transport accidents, and complex disasters such as famine. These disasters can cause human death, injury, homeless, huge economic losses, and damage to human capital and infrastructure that the tourism industry of RCEP countries rely on for sustainable development. The occurrence, total affect, and total damage of the disasters in this paper are obtained by summing up all types of disasters during the sample period.

The carbon emissions data in this paper is the total of carbon emissions from fossil fuels and cement production in RCEP countries. The data comes from the ESS-DIVE (Environmental Systems Science Data Infrastructure for a Virtual Ecosystem) database funded by the US Department of Energy. Table 2 shows descriptive statistics of the main variables in empirical research. The sample interval for all variables is 1995–2018. The dependent variable is represented by the share of tourism in total employment. On average, the proportion of RCEP countries is 4.75%. Cambodia's tourism industry accounts for the highest proportion of total employment, 14.63% in 2018. The average number of disasters per year in all 15 countries is 10.38. The average urbanization rate in RCEP countries is 57.27% (Table 2).

Table 2. Descriptive statistics of the main variables.

	Mean	Median	Max	Min	S.D.	Skew	Kurtosis	Obs.
TOUR	4.75	4.29	14.63	0.71	2.97	1.08	3.74	360
TEMP	23.63	25.83	28.49	4.58	5.72	-2.09	6.64	360
OCCU	10.38	5.00	97.00	0.00	15.96	3.07	13.22	308
AFF	11.79	12.12	19.42	0.00	3.80	-0.47	3.06	277
DAM	12.65	13.08	19.17	0.69	2.93	-0.67	3.90	223
DEATH	5.07	5.00	12.03	0.00	2.02	0.23	3.57	263

Table 2. *Cont.*

	Mean	Median	Max	Min	S.D.	Skew	Kurtosis	Obs.
CO_2	10.05	10.36	14.86	4.55	2.24	-0.17	2.57	360
PGDP	8.71	8.61	10.97	5.49	1.63	-0.09	1.60	360
INF	5.13	2.76	125.27	-2.31	10.62	6.77	63.17	358
EXCH	2625.54	37.85	22602.05	0.97	5025.13	2.14	6.91	360
TRD	101.36	77.77	437.33	0.17	84.16	2.02	7.19	351
URB	57.27	51.86	100	17.31	26.04	0.07	1.56	360

3.2. Methodology

To investigate urbanization, disasters, and their impact on tourism development, we first use panel data to analyze the magnitude of impact effects and use different disaster data to test the robustness of the model. Then, we use quantile regression to examine the differences in the impact of tourism development at different levels on disasters. Finally, we use a semi-parametric model to study the impact of tourism development and growth on different disaster levels.

We first use the following basic model:

$$Tour_{it} = \alpha + \beta Urb_{it} + \gamma Dis_{it} + \sum \eta_i x_{it} + \varepsilon_{it} \quad (1)$$

In the formula, *Tour* is represented by the tourism share in total employment, *Urb* represents urbanization, and *Dis* represents disasters. We measure disasters by variables such as Occurrence (Occu), Affected (Aff), Damage (Dam), or Death. X is the control variable, mainly including climate change expressed by temperature (Temp) or rain, GDP per capita (PGDP), the exchange rate (EXCH), and the proportion of trade to GDP (TRD). β and γ indicate the impact of disasters and climate change, respectively. η and ε are the covariate vectors and error terms, respectively.

The above parameter panel regression model is a basic model to examine the impact of urbanization and disasters on tourism development. From Table 2, we can see that there are significant differences in the tourism development change in RCEP countries, from 0.71 to 14.63. In order to examine the differences in tourism development at different levels affected by urbanization and disasters, we introduced a quantile panel regression model. First, we examine the following linear model:

$$Tour_{it} = \beta Urb_{it} + \gamma Dis_{it} + \eta_i x_{it} + \varepsilon_{it} \quad (2)$$

The quantile linear model can be expressed as

$$Tour_{it}(\mu) = \beta Urb_{it}(\varepsilon_{it}) + \gamma Dis_{it}(\varepsilon_{it}) + \eta_i x_{it}(\varepsilon_{it}) \quad (3)$$

$Tour_{it}(\mu)$ is the conditional distribution given μ. We assume that ε_{it} is a uniform distribution conditional on Urb_{it}, Dis_{it} and x_{it}.

4. Empirical Results

Before empirical analysis, we need to conduct a unit root test on the time series to analyze its stationarity. To this end, we use ADF (Augmented Dickey-Fuller) and PP (Phillips-Perro) for the panel unit root test. The level test results in Table 3 show that, whether it is the ADF or PP test, the null hypothesis that there is a unit root cannot be rejected at a significance level of 5%, which means that all time series variables are non-stationary. Therefore, we will examine the smoothness of the data in the case of first-order differences. The empirical results show that, for the first order difference of all variables, the null hypothesis of unit root is rejected at a significance level of 5%. Based on this result, we believe that all variables have the same obedience to first-order simple integers. Based on this, we can examine the long-term causality between the variables in equation (1).

Table 3. ADF and PP test results.

	Level				First Difference			
	ADF		PP		ADF		PP	
Variable	Statistic	Prob	Statistic	Prob	Statistic	Prob	Statistic	Prob
TOUR	21.035	0.887	17.047	0.972	311.674	0.000	320.122	0.000
TEMP	7.896	1.000	6.250	1.000	402.219	0.000	423.654	0.000
OCCU	35.828	0.095	55.912	0.060	322.178	0.000	329.673	0.000
AFF	24.447	0.550	27.565	0.380	296.326	0.000	307.658	0.000
DAM	36.059	0.054	35.031	0.068	259.910	0.000	216.296	0.000
DEATH	23.790	0.588	31.363	0.215	299.027	0.000	280.174	0.000
CO_2	5.019	1.000	2.811	1.000	169.211	0.000	213.477	0.000
PGDP	5.962	1.000	4.542	1.000	81.491	0.000	107.593	0.000
EXCH	15.275	0.988	12.094	0.999	176.023	0.000	182.683	0.000
TRD	14.240	0.993	15.483	0.987	280.900	0.000	286.753	0.000
URB	4.433	1.000	0.732	1.000	41.047	0.053	48.435	0.010

Based on the stationarity between the above variables, we analyzed the short-term causality between the main variables. We use a different causality testing framework to study short-term relationships between variables. These empirical results are shown in Table 4. At a significance level of 5%, we find that there is a one-way causal relationship between per capita GDP and tourism development, that is, an increase in per capita GDP helps to promote tourism, but the opposite is not true. Similarly, at a significance level of 10%, there is also a Granger causality between urbanization and tourism development. Besides, urbanization is also the Granger cause of increased carbon emissions, as the per capita energy consumption of urban populations is much larger than that of rural populations. Urbanization has led to a substantial increase in carbon emissions, which will cause damage to tourism infrastructure and other factors and does not help the development of tourism. However, the long-term relationship between these variables needs further empirical research later.

Table 4. Causality test results among main variables.

Null Hypothesis:	Obs	F-Statistic	Prob.
OCCU does not Cause TOUR	303	0.05674	0.8119
TOUR does not Cause OCCU		0.02305	0.8794
CO_2 does not Cause TOUR	359	2.10811	0.1474
TOUR does not Cause CO_2		2.49281	0.1153
PGDP does not Cause TOUR	359	4.23478	0.0403
TOUR does not Cause PGDP		0.01593	0.8996
EXCH does not Cause TOUR	359	0.02394	0.8771
TOUR does not Cause EXCH		0.26375	0.6079
TRD does not Cause TOUR	345	0.00049	0.9824
TOUR does not Cause TRD		0.70358	0.4022
URB does not Cause TOUR	359	3.57482	0.0595
TOUR does not Cause URB		0.3187	0.5727
URB does not Cause OCCU	303	1.05384	0.3055
OCCU does not Cause URB		0.30498	0.5812
URB does not Cause CO_2	359	3.13383	0.0775
CO_2 does not Cause URB		0.36463	0.5463
URB does not Cause PGDP	359	0.05453	0.8155
PGDP does not Cause URB		0.04024	0.8411
URB does not Cause EXCH	359	1.6027	0.2063
EXCH does not Cause URB		0.02169	0.883
URB does not Cause TRD	345	0.80871	0.3691
TRD does not Cause URB		0.67078	0.4133

In order to further examine the long-term relationship between variables, we add a large number of control variables to the model and perform panel regression analysis. Table 5 reports the results of fixed-effect calculations using panel data sets from 15 RCEP countries to examine the determinants of tourism development.

In columns (I)-(IV) of Table 5, we assume that urbanization increases carbon emissions, which increase disasters and affect tourism development. The research results show that carbon emissions and exchange rate appreciation do not contribute to the development of tourism, but per capita GDP and trade do, as we expected. However, the impact of urbanization on tourism is positive and statistically significant, which may be different from the expected result. In fact, in addition to the positive effects of consumption and investment, the impact of urbanization on tourism also has significant adverse effects. First of all, the development of urbanization will destroy some natural landscapes, especially in some developing countries that have rebuilt ancient buildings and museums for economic development, which seriously affects the humanistic landscape. Second, urbanization leads to an increase in per capita carbon emissions, the resulting greenhouse effect, and acid rain, which directly lead to increased storms and coastal cities' exposure to climate disasters. Besides, urbanization in some countries has led to the disappearance of mangroves that are essential for flood control and to the destruction of forests, which directly leads to frequent disasters and severe damage to natural landscapes.

The impact of the disaster on the development of the tourism industry is positive, and all of them can pass the 1% significance test, which is contrary to some common sense. This is because frequent disasters have led some countries to pay attention to pre-disaster prevention, such as constructing flood prevention facilities and planting trees. It also continuously improves its response capabilities through disasters, which is helpful for post-disaster reconstruction.

In columns (V)-(VIII) of Table 5, we use temperature instead of CO_2 to analyze that urbanization may affect tourism by changing the climate. The research results show that temperature and the appreciation of the exchange rate are not conducive to the development of tourism, and per capita GDP and trade are still conducive to the development of tourism. The impact of urbanization on tourism is negative at the 1% significance test. In the impact of disasters on tourism, the coefficients that can pass the significance test are all positive. This is similar to the conclusions in columns (I)-(IV).

Further, in columns (IX)-(XII), we use rain instead of temperature to examine the impact of urbanization on the development of tourism. The results show that the parameter coefficients that can pass the significance test are similar to those in columns (I)-(VIII).

In order to further distinguish between developed and developing countries in RCEP, the impact of disasters on tourism development is different (Table 6). We divided the entire sample into two groups, with Australia, Japan, and New Zealand as the developed country group, and the remaining 12 countries as the developing country group. Given the length of the paper, we use affected to replace all the variables that affect the tourism industry. The calculation results are shown in Table 6. The results show that, compared with developed and developing countries, the sample of developing countries is consistent with the overall sample. That is, disasters are positively related to the development of tourism. However, in developed countries, the opposite is true. Disasters are not conducive to the development of tourism. This is because there are more developing countries in the sample. On the other hand, it is also because of the significant economic aggregates of developed countries.

To further estimate the long-term impact of different levels of independent variables on tourism, we use panel quantile regression analysis. Quantile regression provides information on how the dependent variable is affected by the 10th to 90th quantile variables. Table 7 lists the results of these panel quantile regressions. The empirical results show that the per capita income level plays an essential role in promoting tourism development at low quantiles, but there is a negative correlation between the two at high quantiles. This research conclusion is very interesting and contrary to our common sense. This is related to the consumption structure. With the increase of per capita income, although the absolute number of residents' demand for tourism will increase, the rate of growth will decrease compared with the demand for finance and entertainment.

Table 5. Impact of urbanization, disasters, and other factors on the development of tourism.

	(I)	(II)	(III)	(IV)	(V)	(VI)	(VII)	(VIII)	(IX)	(X)	(XI)	(XII)
URB	−0.063 *** (0.013)	−0.032 * (0.018)	−0.1 *** (0.019)	−0.067 *** (0.016)	−0.14 *** (0.018)	−0.105 *** (0.021)	−0.102 *** (0.024)	−0.092 *** (0.019)	−0.076 *** (0.016)	−0.052(0.008) (0.019)	−0.102 *** (0.021)	−0.085 *** (0.017)
CO_2	−0.864 *** (0.126)	−0.772 *** (0.113)	−0.677 *** (0.122)	−0.5 *** (0.119)					−0.859 *** (0.126)	−0.846 *** (0.115)	−0.683 *** (0.124)	−0.627 *** (0.125)
TEMP					-0.202 *** (0.031)	-0.18 *** (0.035)	-0.104 *** (0.039)	-0.08 ** (0.041)				
RAIN									-0.002 (0.001)	-0.004 *** (0.001)	−0.001 (0.002)	−0.004 *** (0.001)
PGDP	1.732 *** (0.176)	1.164 *** (0.197)	1.645 *** (0.257)	1.199 *** (0.182)	1.789 *** (0.188)	1.328 *** (0.229)	1.294 *** (0.282)	1.05 *** (0.215)	1.87 *** (0.2)	1.447 *** (0.218)	1.678 *** (0.275)	1.512 *** (0.21)
EXCH	−0.082 ** (0)	−0.099 *** (0)	−0.127 *** (0)	−0.113 *** (0)	−0.0945 *** (0)	−0.099 *** (0)	−0.118 *** (0)	−0.111 *** (0)	−0.086 *** (0)	−0.104 *** (0)	−0.128*** (0)	−0.119 *** (0)
TRD	0.025 *** (0.003)	0.021 *** (0.003)	0.021 *** (0.005)	0.022 *** (0.003)	0.028 *** (0.004)	0.029 *** (0.004)	0.026 *** (0.005)	0.025 *** (0.004)	0.026 *** (0.003)	0.023 *** (0.003)	0.021*** (0.005)	0.025 *** (0.004)
OCCU	0.074 *** (0.015)				-0.011 (0.01)				0.069 *** (0.016)			
AFF		0.298 *** (0.06)				0.112 ** (0.051)				0.315 *** (0.059)		
DAM			0.198 *** (0.075)				0.011 (0.07)				0.198*** (0.075)	
DEATH				0.38 *** (0.104)				0.159 * (0.087)				0.465 *** (0.106)
R^2	0.235	0.254	0.216	0.228	0.226	0.203	0.134	0.186	0.24	0.276	0.217	0.252

Table 6. Differences in influencing factors of tourism in RCEP developed and developing countries.

Variables	Developed Countries			Developing Countries		
AFF	−0.103 ***	−0.055 *	−0.09 ***	0.309 ***	0.074	0.33 ***
	(0.036)	(0.029)	(0.034)	(0.068)	(0.062)	(0.069)
PGDP	1.814 ***	1.429 ***	1.551 ***	1.599 ***	1.414 ***	1.768 ***
	(0.284)	(0.101)	(0.276)	(0.243)	(0.286)	(0.272)
EXCH	−0.001	−0.002 ***	−0.002 **	−0.001 ***	−0.001 ***	−0.001 ***
	(0.001)	(0.000)	(0.001)	(0.000)	(0.000)	(0.000)
TRD	0.054 ***	0.058 ***	0.063 ***	0.008 *	0.019 ***	0.01 **
	(0.018)	(0.01)	(0.017)	(0.004)	(0.006)	(0.005)
URB	−0.062 ***	−0.116 ***	−0.089 ***	−0.049 **	−0.108 ***	−0.055 **
	(0.012)	(0.008)	(0.014)	(0.023)	(0.027)	(0.023)
CO_2	−0.949 ***		−0.54 **	−0.884 ***		−0.96 ***
	(0.263)		(0.275)	(0.123)		(0.135)
TEMP		−0.167 ***			−0.131 ***	
		(0.022)			(0.044)	
RAIN			−0.002 ***			−0.003
			(0.001)			(0.002)
R^2	0.883	0.929	0.901	0.242	0.090	0.249

Table 7. Quantile regression of factors affecting tourism development.

	Quantiles				
	0.1	0.3	0.5	0.7	0.9
AFF	0.1067 **	0.1098 ***	0.1230 **	0.1951 ***	0.0918 *
	(0.011)	(0.003)	(0.042)	(0.000)	(0.065)
CO_2	−0.0110	−0.1866 ***	−0.4901 ***	−1.1121 ***	−1.1281 ***
	(0.867)	(0.004)	(0.000)	(0.000)	(0.000)
PGDP	1.7302 ***	1.3426 ***	0.9887 **	−0.8011 *	−3.2480 ***
	(0.000)	(0.000)	(0.022)	(0.080)	(0.000)
EXCH	−0.0000	−0.0000	−0.0000	−0.0001 ***	−0.0003 ***
	(0.551)	(0.119)	(0.121)	(0.000)	(0.000)
TRD	0.0166 ***	0.0194 ***	0.0150 ***	0.0098 **	0.0149 ***
	(0.000)	(0.000)	(0.001)	(0.049)	(0.001)
URB	−0.1181 ***	−0.0849 ***	−0.0382 **	0.0640 ***	0.1723***
	(0.000)	(0.000)	(0.093)	(0.005)	(0.000)
_CONS	−8.5978 ***	−4.4457 ***	0.8950	18.8569 ***	37.2692 ***
	(0.000)	(0.004)	(0.799)	(0.000)	(0.000)

p-values in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

In addition, trade has also actively promoted the development of tourism, and the coefficients for all quantiles have statistical significance at a significance level of 5%. Carbon emissions are not conducive to the development of tourism. Except that they fail the significance test at the 10th quantile, they can pass the 1% significance test at other quantiles. The higher the intensity of carbon emissions, the more unfavorable the development of tourism is. The impact of urbanization on tourism is negative at low quantiles, but positive at 70th and 90th quantiles, which is different from the overall sample test results. This shows that, in high-level urbanized countries, urbanization is conducive to the development of tourism because the more developed the economy, the higher the degree of urbanization. These countries attach more importance to the development and protection of tourism resources such as museums and strengthen the construction of tourism infrastructure in order to promote the development of tourism. The promotion of the exchange rate is not conducive to the development of tourism, but it can only pass the 1% significance test at high quantiles (Table 7).

5. Conclusions and Policy Implications

With the continuous urbanization, the disasters caused by climate change continue to rise, which in turn impose a serious threat to the tourists and infrastructure on which the tourism industry depends.

However, few studies combine urbanization and disasters in examining their impact on tourism. This paper seeks to fill that gap and provides new insights for decision makers on disaster mitigation and post-disaster reconstruction policies. This paper considers 15 countries in RCEP and first used ADF and PP to test the stability of variables. Second, we used the Granger causality test to examine the causal relationship between the main variables. Then, the paper used panel data to analyze the impact of urbanization, disasters quantitatively, and other factors on the development of tourism and divided the sample countries into developed and developing countries to examine the differences in impact efects. Finally, we used quantile regression to examine the differences in the effects of independent variables in different quantiles on tourism development.

The research in this paper shows that, from the overall sample, urbanization does not help the development of tourism, which is consistent with the conclusion of [36]. This is related to the increase in energy consumption, pollution, and carbon emissions caused by urbanization. However, from the quantile regression results, high quantile urbanization helps the development of tourism because, with urbanization, countries pay more attention to the investment in museums and tourism infrastructure and also to disaster prevention. All these are conducive to the development of tourism. From the Granger causality test, urbanization is also the Granger reason for the development of tourism. Carbon emissions are not conducive to the development of tourism.

Furthermore, the higher the quantile of carbon emissions, the more unfavorable the development of tourism is. Rising temperatures and rainfall are also not conducive to the development of tourism, both of which are also major consequences of urbanization. Urbanization has led to global warming, increased rainfall and acid rain, and natural disasters such as floods and mudslides are a major threat to the development of tourism. Urbanization is also the Granger cause of increased carbon emissions. The increase in per capita GDP helps the development of tourism, which is consistent with most studies [37]. However, the increase in per capita income in high quantiles does not help the development of tourism, which is related to the decline in the proportion of tourism relative to finance and entertainment. Trade is also conducive to the development of tourism. Disasters are negatively related to the development of tourism in developed countries. However, disasters are conducive to the development of tourism in developing countries. This may be related to the pre-disaster warning caused by the frequent occurrence of disasters, reconstruction after the disaster, and the active restoration of reputation damage caused by disasters in various countries, which will help the reconstruction of the tourism industry. In addition, developing countries prioritize economic development. Therefore, their active post-disaster reconstruction in order to quickly recover from a severely damaged economy should also be an important driving force to promote the development of tourism. Given that China is representative of developing countries around the world, this conclusion applies not only to RCEP countries but also to developing countries around the world. The appreciation of the currency of tourist destinations is not conducive to the development of the tourism industry because it leads to rising costs for tourists [38].

Based on the above research results, our policy recommendations for sustainable development of tourism industry in RCEP countries go as follows. First, because of the damage and adverse effects of urbanization on tourism, steadily promote urbanization and strengthen social governance to prevent the destruction of tourism infrastructures such as monuments, cultural relics, forest resources and natural landscapes due to disorderly urbanization and avoid excessive tourism caused by Venice Syndrome [39]. Second, because urbanization leads to increased carbon emissions, we should reduce the proportion of urban coal burning, vigorously promote the use of clean energy, and reduce energy consumption through technological improvements to effectively reduce the impact on greenhouse gas emissions and acid rain. Besides, due to the potential adverse effects of carbon emissions and rising temperatures on tourism in RCEP countries, making disaster risk management a priority for urban development; actively constructing urban disaster identification, assessment, and monitoring mechanisms; and disaster preparedness, response, and recovery measures are necessary conditions for achieving sustainable tourism development. For example, disaster prevention and mitigation

measures should be formulated in advance, and defense measures such as mangroves should be planted to reduce the impact of the tsunami and floods on the economy and tourism, and tourists should be alerted in time through internet facilities such as mobile apps to reduce the number of casualties and property damage. The tourism industry should actively develop tourism and economic reconstruction after a disaster. Furthermore, positive reports from the media will not only help monitor post-disaster reconstruction, but also help to restore the reputation of tourist destinations and make a positive contribution to the post-disaster recovery of the tourism industry. Last but not least, in order to promote the development of sustainable tourism, tourist cities need to implement better spatial planning for the tourism industry, analyze the carrying capacity of residential areas for disasters, and focus on the needs of the most vulnerable groups. Given the availability of data, we will strengthen the research on the environmental carrying capacity of cities in the face of overtourism in the future research and the practice of sustainable tourism development.

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