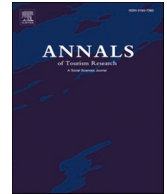




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## Tourism and gender equality: An Asian perspective

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## ABSTRACT

This study analyzed the impact of tourism on gender equality based on data from 36 Asian countries over the period 2006–2018, using a system generalized method of moments estimation approach. The results demonstrate that tourism has a significant positive impact on gender equality. This impact was found to be greatest and most statistically significant in east and southeast Asian countries, followed by west and central Asian countries, and finally south Asian countries. The effects of control variables with respect to the economy, education, and employment on gender equality varied significantly across three subsamples. This study could inspire further multidisciplinary research in the field of tourism and gender equality, in turn promoting the richness of this critical tourism sub-field.

## Introduction

Gender equality is one of the 17 Sustainable Development Goals (SDGs) proposed at the United Nations Sustainable Development Summit on September 25, 2015, and has long been one of the common goals of all humankind. As a significant global economic and cultural phenomenon, tourism exerts a substantial impact on all aspects of the economy, society and environment. As argued by Boluk, Cavaliere, and Higgins-Desbiolles (2017), tourism could contribute to realizing the 17 SDGs. There is no doubt that gender equality can also benefit from tourism. Hence, extensive literature has been published on tourism and gender equality, such as Wilkinson and Pratiwi (1995), Ferguson (2011), Figueroa-Domecq, Pritchard, Segovia-Pérez, Morgan, and Villacé-Molinero (2015), Alarcón and Cole (2019) and Alrwajfah, Almeida-García, and Cortés-Macías (2020). These studies focus mainly on changes in women's income, employment and education in the development of tourism, and have confirmed the rising status of women in the community as a result of this industry. These studies have, however, mostly been case-based micro studies, and we have not found whether tourism at the regional level, such as the national level, is conducive to gender equality. To fill this gap, we take Asian countries as examples and use a dynamic panel model to explore the impact of tourism on gender equality. Specifically, for this purpose, we employ an advanced econometric approach, namely the system generalized method of moments (SGMM) estimation method.

As the world's most populous continent, Asia is also home to countries with varying levels of social and economic development. The gender gap in different countries within Asia varies widely, making the promotion of gender equality in Asian countries of great significance for the realization of global sustainable development. Asia contains developed countries such as Japan, South Korea and Israel, a large number of developing countries such as India and China, and some countries with a very high GDP per capita, such as the west Asian countries of Saudi Arabia and Oman. However, according to *The Global Gender Gap Report*, of the 47 countries in Asia, developed countries such as South Korea and Japan rank low on the gender equality index and affluent middle eastern countries such

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as Saudi Arabia and Oman rank even lower, while developing countries such as the Philippines and Sri Lanka rank as the top two, with the Philippines habitually ranking in the top ten worldwide. Furthermore, Yemen and Pakistan rank last in the world. It seems a strange phenomenon that economic growth cannot explain gender equality in Asian countries. According to the *Global Report on Women in Tourism (Second Edition)* (UNWTO, 2019), relative to the broader economy, tourism is a leader in promoting global gender equality. This report indicates that tourism is leading the world in empowering women to advance their status. Taking this into account, we thus explore the role of tourism in the process of gender equality in Asian countries.

In contrast to prior studies, the current research uses the econometric method (i.e. the SGMM model) to quantitatively discuss the impact of tourism on regional gender equality based on panel data. The contribution of this study is threefold. First, regarding the methodology, existing research relies mainly on fieldwork, with the need remaining for a new method in the field of tourism and gender. Accordingly, we administer the SGMM method to fill this gap. The SGMM estimation method is a representative dynamic panel model. Its estimation results are more robust than conventional regression models such as ordinary least squares (OLS) and fixed effect methods (Ahmad & Khan, 2019; Hakimi & Inglesi-Lotz, 2020). Second, regarding datasets, our data come from reliable official statistics or research reports. The data cover various countries and span a certain period, thus helping to reflect common problems. Although gender equality has been mentioned in numerous previous analyses, it has typically only been reflected qualitatively in terms of the economy, employment, or notions of empowerment. Gender equality in the current study is measured by the gender equality index published in *The Global Gender Gap Report* since 2006. This report quantifies the annual gender equality degree of major countries in the world. The gender equality index gives us an intuitive and quantitative understanding of gender equality. Third, this study is embedded in the paradigm of economics, thus breaking away from the inherent limitations of the sociological lens in the field of tourism and gender. It is hoped that the findings of this study may inspire further multidisciplinary research in this important tourism sub-field.

We structure this study as follows. Section 0 presents the theoretical framework and the two hypotheses we attempt to examine. Section 0 introduces the methods for this study and details the data collection. Section 0 reports the results and Section 0 presents the discussion. The last section concludes and highlights future improvements.

## Theoretical framework

Gender has always been a critical frontier issue in the sociological study of tourism (Cohen & Cohen, 2019). For example, Wilkinson and Pratiwi (1995) have long recognized the performance of gender relations in employment, income, family structure and function in rural tourism destinations. Similarly, Ferguson (2011) and Font, Garay, and Jones (2016) confirmed that tourism could, in theory, contribute to gender equality and women's empowerment. Cole (2018) asserted that, via the tourism industry, women's status is undergoing a slow and slight positive change, and that women can and should reasonably use tourism to enhance their status. Rinaldi and Salerno (2019) also asserted that tourism offers incredible opportunities for gender equality, and that the tourism sector has become an essential contributor to helping women create new jobs.

In promoting gender equality, extensive attention has been paid to the role of tourism in increasing women's income and employment. For example, Nyaruwata and Nyaruwata (2013) evidenced that tourism is a significant source of jobs for women. Duffy, Kline, Mowatt, and Chancellor (2015) indicated that women, to some extent, have gained economic and social independence through employment in the tourism industry. Boonabaana (2014) also found that in Uganda's Parish, women prefer to seek job opportunities in tourism. Once women start working in and earning through tourism, the dominant patriarchal culture slowly comes to be challenged. Moreover, in the emerging homestay industry, women's earnings and the proportion of female bosses are rising (Acharya & Halpenny, 2013; Farmaki, 2019). Nassani, Aldakhil, Abro, Islam, and Zaman (2019) recently substantiated tourism-induced women's empowerment in European countries. In addition to economic poverty reduction, tourism also provides a possible path for women to escape the poverty of knowledge and rights (Xu et al., 2018).

As reported in *The Global Gender Gap Report 2018*, there is still a significant gender gap in Asia. For instance, in Japan, Korea and India, women spend, on average, much more time on unpaid activities, relative to men. Also, in some Muslim countries such as Syria, Lebanon, Saudi Arabia, Yemen, and Pakistan, women do not have the same access to managerial positions as men. The gap in terms of being equally likely to attain administrative positions is 90% or more between women and men in these countries. Given this situation, various tourism sectors are making efforts to reduce the gender gap in Asian countries. For example, Peak DMC India, a private tourism sector, strives to foster an utterly equal gender culture within the enterprise by eliminating sexual misconduct and harassment and increasing the number of female leaders.

Gender equality is already an essential indicator of sustainable tourism, and the move-up of women is conducive to improving tourism sustainability (Alarcón & Cole, 2019; Boley, Ayscue, Maruyama, & Woosnam, 2017). In light of this, Romo, Gabriel, and Soares (2019) have suggested that equal opportunity for men and women be a crucial focus of corporate social responsibility. In the recruitment and promotion of human resources, the tourism industry should reduce gender bias.

To date, existing research findings demonstrate that there is a unidirectional relationship running from tourism to gender equality. Tourism fills the gender gap by increasing women's income, promoting women's employment, giving women more leadership positions, and improving women's education. However, regardless of tourism promoting gender equality in various micro cases, the impact of tourism on gender equality remains unclear at the broader regional level, such as the national one. Moreover, some scholars have cautioned that the challenges inherent in the process of gender equalization in global public policy are repeated and, to some extent, exacerbated in tourism (Ferguson & Alarcón, 2015).

Over the past decades, tourism in Asian countries has experienced rapid growth. A considerable number of Asian countries have seen an average annual growth rate of inbound tourists of more than 10% over the past decade, such as Thailand, Georgia, Cambodia,

Japan, Sri Lanka, Qatar, and Bangladesh. This provides excellent possibilities for narrowing the Asian gender gap. Consequently, we propose the primary hypothesis of this study:

**Hypothesis 1.** Tourism significantly contributes to gender equality in Asia.

Although the status of women has been improved through the development of tourism, various studies have found that there still exist many obstacles to the realization of gender equality in tourism. Duffy et al. (2015), for example, concluded that as women gain economic and social independence, new gender roles and status changes will lead to conflicts between women's actual needs and family relationships, which in turn limits women's further involvement in tourism. Kattara (2005) argued that gender discrimination and lack of work relationships, mentor support and network access prevent women from reaching the top management positions. Nomnga (2017) also revealed that female entrepreneurs still face many challenges, such as low education levels and gender discrimination. Particularly in Islamic societies, women still face discrimination in tourism employment, which discrimination is largely due to social and cultural factors and discourages women from participating in tourism (Alrwajfah et al., 2020; Masadeh, Al-Ababneh, Al-Sabi, & Allah, 2018; Uduji, Okolo-Obasi, & Asongu, 2020;). Likewise, Alsawafi (2016) argued that conservative Islamic social traditions and customs will prevent female students from working in the tourism sector after university. Nyaruwata and Nyaruwata (2013) reported that women more likely face gender discrimination in gaining administrative positions. In addition, plagued by gender stereotypes, it has been found many tourists prefer male tour guides (Banerjee & Chua, 2020).

Furthermore, Carvalho, Costa, and Torres (2019) and Carvalho, Costa, Lykke, and Torres (2019) found that even executive female managers in the tourism industry are often subject to subtle discrimination such as the perception that women should be more family-oriented and less capable than men. This has been confirmed by Masadeh et al. (2018). Therefore, it can be argued that the leading cause of gender inequality in tourism lies not only in the disparity between men and women's income and employment, but also in key social and cultural factors. Gil Arroyo, Barbieri, Sotomayor, and Knollenberg (2019) asserted that while tourism contributes to the psychological, social, political and economic empowerment of women, the traditional culture of the community still prevents women from gaining all the benefits of tourism. Consequently, tourism should strive towards a social, political, and cultural impact to narrow the gender gap (Scheyvens & Hughes, 2019; Tucker & Boonabaana, 2012).

Because of these constraints, gender inequality in tourism remains widespread. For instance, Figueroa-Domecq, Palomo, Flecha-Barrio, and Segovia-Pérez (2019) pointed out that in some of the most important high-tech tourism firms, the proportion of women on the board of directors is still deficient, limiting women's participation in decision-making. Phommavong and Sörensson (2014) reported the inequality between men and women in the division of tourism, reducing the possibility of women benefiting from poverty alleviation tourism initiatives. Rinaldi and Salerno (2019) suggested that women will be confronted with all kinds of gender discrimination in the labor market, especially in emerging countries. Another novel viewpoint holds that gender inequality in tourism does not lie in gender itself, but people themselves; that is, the differences in people's abilities lead to and even exacerbate gender inequality, so attention should be paid to the management of women themselves (Litwin, Ngan, & Atembe, 2019; Santero-Sanchez, Segovia-Pérez, Castro-Nuñez, Figueroa-Domecq, & Talón-Ballesterro, 2015; Trupp & Sunanta, 2017). In this context, Kimbu, Ngoasong, Adeola, and Afenyo-Agbe (2019) asserted that collaborative networks help improve the efficiency of human capital management for female entrepreneurs in tourism.

The current literature review simultaneously contends that gender equality is affected not only by the economy, employment and education but also by the traditional regional culture. In Asian countries, the adverse influence of traditional culture on gender equality is still entrenched, such as the Confucian culture in East Asia (Sung & Pascall, 2014) and the Islamic culture in Southeast Asia and West Asia (Fulu & Miedema, 2016). Notably, beyond the context of Asia, several studies suggest that tourism may also lead to a decline in women's power. As examples of this argument, Lenao and Basupi (2016) argued that ecotourism may exert a potential disempowerment effect on Botswana's rural women, while Scheyvens (2000) found that ecotourism has the potential to disadvantage and marginalize local women. Therefore, it may be said that the effect of tourism on gender equality has significant regional characteristics. Given this background, and considering the social and cultural differences across different regions, we propose the second hypothesis of this study:

**Hypothesis 2.** The impacts of tourism on gender equality vary significantly across different Asian regions.

Despite the existing extensive studies, against the current background of feminism and gender awareness, the study of gender in tourism is still marginal to tourism research as a whole (Figueroa-Domecq et al., 2015). Moreover, we find that case studies appear to be the primary method for tourism and gender studies. As pointed out by Pritchard (2007), sociological analysis has always been emphasized in this tourism sub-field. Cohen and Cohen (2019) also believed that gender seems to be exclusive to the sociological study of tourism. In terms of specific research methods, social surveys dominate. However, the execution of this method depends largely on the samples, location, time, and even the investigators themselves. Also, it is challenging to obtain longitudinal data through fieldwork. As such, in undertaking research based on a particular case and with limited time, the conclusions drawn may inevitably incur some doubt. We have found only a few sporadic case investigations, but no systematic studies on a large scale such as multi-country studies. In addition, current research on gender in tourism lacks a multidimensional perspective, being grounded in sociology, with other disciplines rarely involved (Figueroa-Domecq et al., 2015). As a result, this field is in a state of stagnation, and it is not easy to contribute new knowledge to it. The current study attempts to fill this gap by exploring the impact of country-level tourism on gender equality from an economics perspective, aiming to obtain new and noteworthy findings.

**Methods and data collection**

We use a novel dynamic panel model to test the aforementioned two hypotheses. In a dynamic panel model, the lag of the dependent variable is introduced as an independent variable, so that the model has the capacity of dynamic interpretation. Generally, the dependent variable has a specific time-inertia feature. Dependent variables at different periods are not independent of each other; that is, the current dependent variable depends on its previous situation to some extent (Blundell & Bond, 1998; Bond, 2002). For example, gender equality, as a cultural phenomenon, is persistent. Theoretically, the state of gender equality in the previous period will affect the state of gender equality in the next period. This can be well detected using the dynamic panel model.

Since panel data contains many time-dimensional data, more information can be used to analyze the problem’s dynamic relationship under study. In the establishment of a dynamic panel data model, the lag of the dependent variable is often related to the individual effects of random errors, thus causing endogeneity problems in the estimation model (Arellano and Bond, 1991). To overcome this shortcoming, Arellano and Bond (1991) proposed a GMM estimation method for deriving the corresponding moment conditions using instrumental variables. Moreover, the GMM model actually summarizes many commonly used estimation methods such as ordinary least squares (OLS), two-stage least squares, and the maximum likelihood, all of which are individual cases of the GMM (Hakimi & Inglesi-Lotz, 2020).

This study applies an augmented GMM method, namely the SGMM model, to estimate the impact of tourism on gender equality. Compared with the traditional difference GMM, SGMM effectively solves the problem of “weak instrumental variables” and overcomes the potential errors and inaccuracies caused by difference GMM, thus making the estimation results more accurate (Ahmad & Khan, 2019).

The SGMM method can correct unobserved individual heterogeneity problems, omitted variable bias, measurement error, and potential endogeneity problems, which are often involved in traditional methods such as OLS and fixed-effect methods. Therefore, the SGMM estimation results are relatively robust. In an SGMM model, the Sargan test is generally used to identify the endogeneity problems. We perform the Sargan test to examine whether these instrumental variables are exogenous and use residual to regress these instrumental variables. The Sargan test’s p-value is usually as large as possible. If it exceeds 0.1, in principle, this indicates that the null hypothesis that instrumental variables are valid is accepted (Baum, Schaffer, & Stillman, 2002). We establish the following SGMM model

$$GENDER_{i,t} = \beta_0 + \beta_1 GENDER_{i,t-1} + \beta_2 LNT_{i,t} + \varepsilon_{i,t}, \tag{1}$$

where *GENDER* is the dependent variable and denotes gender equality. *T* is the independent variable and denotes the level of tourism development. Following previous studies, we determine international tourism to represent the level of tourism development which is measured as the number of arrivals (Paramati, Alam, & Chen, 2017; Roudi, Arasli, & Akadiri, 2019; Wang & Wang, 2018).  $\varepsilon_{i,t}$  is the residual term. Subscripts *i* and *t* represent different countries and years, respectively. Here we use the gender equality index to represent gender equality. This index, reported in *The Global Gender Gap Report* released annually by the World Economic Forum, examines “the gap between men and women in four fundamental categories: economic participation and opportunity, educational attainment, political empowerment, and health and survival” and adequately reflects the level of gender equality.

To control the impact of other regional factors on gender equality, we introduce other variables concerning the economy, education and employment as the control variables of the model. These specific control variables are identified because, as reviewed above, tourism has changed the gender gap in terms of three aspects: economy, education, and employment (e.g. Duffy et al., 2015; Rinaldi & Salerno, 2019; Wilkinson & Pratiwi, 1995). More importantly, these three elements themselves play a significant role in promoting gender equality. For example, Damjanovic and Selvaretnam (2020) argued that as a result of the increase in physical capital and human capital caused by economic development, women’s productive capacity has relatively improved, thus promoting gender equality. Similarly, through education, a fundamental human right and a way out of poverty, women can improve their working skills and knowledge, thereby enhancing their employment competitiveness (Channa, 2015). Moreover, employment enables women to gain a greater voice in the family and society (Ferragina, 2020). Thus we obtain the following SGMM model specifications:

$$GENDER_{i,t} = \beta_0 + \beta_1 GENDER_{i,t-1} + \beta_2 LNT_{i,t} + \beta_3 LNGDPpc_{i,t} + \varepsilon_{i,t} \tag{2}$$

$$GENDER_{i,t} = \beta_0 + \beta_1 GENDER_{i,t-1} + \beta_2 LNT_{i,t} + \beta_3 LNGDPpc_{i,t} + \beta_4 SAVEDU_{i,t} + \varepsilon_{i,t} \tag{3}$$

$$GENDER_{i,t} = \beta_0 + \beta_1 GENDER_{i,t-1} + \beta_2 LNT_{i,t} + \beta_3 LNGDPpc_{i,t} + \beta_4 SAVEDU_{i,t} + \beta_5 AGRFEM_{i,t} + \beta_6 INDFEM_{i,t} + \beta_7 SERFEM_{i,t} + \varepsilon_{i,t}, \tag{4}$$

In model specification (2), we introduce the economy to control the impact of economic growth on gender equality. Similar to Balli, Sigeze, Manga, Birdir, and Birdir (2019), Lee and Brahmashrene (2013), and Wang (2018), we use GDP per capita (GDPpc), measured in constant 2010 US dollars, to represent the economy. In model specification (3), we additionally introduce education to control the impact of the level of education on gender equality. We use adjusted savings education expenditure (SAVEDU) to measure the impact of education on gender equality. This control variable is measured as the percentage of government expenditure and percentage of gross national income (GNI).

In model specification (4), we add the proportions of female employment in all female employees in the entire economy in agriculture, industry, and services, as respectively denoted by AGRFEM, INDFEM and SERFEM, in order to control the impact of

employment on gender equality. In the International Labour Statistics database and World Bank database, female employment indicators include children in employment, labor force participation rate, unemployment, vulnerable employment, and employment in different industries. However, a significant limitation is that the time series data of these indicators, with the exception of employment in different industries are unavailable. So, in order to satisfy the economic assumptions as much as possible, we ultimately select AGRFEM, INDFEM and SERFEM. Due to the different magnitudes of the variables, we adopt a natural logarithm for GDP per capita and international tourism to avoid heteroscedasticity.

Table 1 presents the definition and data sources of the variables in our SGMM models. Data on gender equality (see Supplementary data) is derived from *The Global Gender Gap Report* that was first released in 2006. Therefore, the panel data in this study start from 2006. Data on other variables are obtained from the World Bank open data source (<http://data.worldbank.org/>). We use the linear interpolation method to supplement the missing data of individual years and collect annual data covering the period 2006–2018.

It should be noted that although we take Asian countries as a sample, limited data availability means that we exclude the following 11 countries: Laos, East Timor, North Korea, Bhutan, Syria, Palestine, Iraq, The United Arab Emirates, Afghanistan, Turkmenistan and Uzbekistan. Thus, our final selection comprises 36 countries. In addition, to explore the regional differences in the contribution of tourism to gender equality, we further divide these countries into three regions, namely the east and southeast Asia (including China, Korea, Mongolia, Japan, Vietnam, Cambodia, Thailand, Malaysia, Singapore, Indonesia, Philippines, and Brunei), south Asia (including Sri Lanka, Maldives, Pakistan, India, Bangladesh, and Nepal), and west and central Asia (including Iran, Turkey, Cyprus, Lebanon, Israel, Jordan, Kuwait, Saudi Arabia, Yemen, Oman, Qatar, Bahrain, Georgia, Armenia, Azerbaijan, Kyrgyzstan, Tajikistan, and Kazakhstan).

Asia is typically geographically divided into six regions: East Asia, South Asia, Southeast Asia, Central Asia, West Asia, and North Asia. North Asia refers to the Asian part of Russia. Given the lack of specific research data on North Asia, this region is excluded. The remaining five regions are merged into three because, first and foremost, the sample size of four east Asian countries and three central Asian countries with available data are too small to meet the minimum requirements for an SGMM estimation. This is because it is only in the case of large samples that the GMM estimators are progressively effective and that the parameters can be estimated (Blundell & Bond, 1999; Windmeijer, 2005). Second, Central Asia and West Asia are more influenced by the Islamic culture. East Asia and some parts of southeast Asia have many similarities in terms of their shared Confucian and Buddhist cultures. Moreover, East Asia and southeast Asia have become increasingly connected from the perspective of tourism and economic development. With regard to gender equality, we also find typical regional features. For example, in 2018, east and southeast Asian countries were relatively close to each other, with the exception of the Philippines, which scored higher. All of them are in the range of 0.65–0.7. Most countries in Western Asia and Central Asia, with the exception of individual countries such as Israel, scored below 0.65. Consequently, considering the modeling needs of this study as well as geographical and cultural proximity, we combine East Asia with Southeast Asia, and Central Asia with West Asia. This enables us to adequately discuss the similarities and differences in the impact of regional tourism on gender equality.

Table 2 displays the descriptive statistics for the 36 selected Asian countries and the level of correlation between all variables in our SGMM models. It can be noted that LNT and GENDER are significantly correlated at the level of 1%. In addition to this, all of the correlation coefficients are below 0.5, indicating a very weak level of correlation. Hence, we do not find the existence of multicollinearity in our models. We also present the descriptive statistics for the subsamples that can be found in the Supplementary data.

## Results

In this section, we first demonstrate the regression of models (1)–(4) for the whole sample (36 countries) to investigate the impact of tourism on gender equality. Considering the development differences within Asia, we then regress models (1)–(4) for the subsamples, namely the east and southeast Asia (12 countries), south Asia (6 countries) and west and central Asia (18 countries), to compare the regional differential impacts of tourism on gender equality.

### The aggregated analysis

Table 3 reports the results of the four models for the whole sample. The *p*-values of the Arellano–Bond test for the first-order

**Table 1**  
Variables' definition.

Variables		Definition	Data source
Gender	Dependent variable	Gender equality index	The Global Gender Gap Report (2006–2018)
LNT	Independent variable	International tourism, number of arrivals, taking natural logarithm for it	World Bank Open Data (2006–2018)
LNGDPpc	Control variable	GDP per capita (constant 2010 US\$), taking natural logarithm for it	World Bank Open Data (2006–2018)
SAVEDU	Control variable	Adjusted savings: education expenditure (% of GNI)	World Bank Open Data (2006–2018)
AGRFEM	Control variable	Employment in agriculture, female (% of female employment)	World Bank Open Data (2006–2018)
INDFEM	Control variable	Employment in industry, female (% of female employment)	World Bank Open Data (2006–2018)
SERFEM	Control variable	Employment in services, female (% of female employment)	World Bank Open Data (2006–2018)

**Table 2**

Descriptive statistics and correlation matrix (Observations = 468, 36 Asia countries over the period 2006–2018).

Variables	Mean	Median	Max	Min	S.D.	GENDER	LNT	LNGDPPC	SAVEDU	AGRFEM	INDFEM	SERFEM
GENDER	0.650	0.658	0.799	0.451	0.054	1.000						
LNT	14.854	14.891	17.922	11.556	1.487	0.072 ***	1.000					
LNGDPPC	8.661	8.564	10.974	5.725	1.353	0.023	0.253***	1.000				
SAVEDU	3.445	3.190	7.186	1.245	1.400	-0.071	0.147***	0.204***	1.000			
AGRFEM	27.059	27.499	83.820	0.026	24.529	-0.0816*	-0.265***	-0.461***	-0.345***	1.000		
INDFEM	13.241	12.030	31.903	1.029	6.983	0.0917**	0.349***	-0.179***	-0.166***	0.027	1.000	
SERFEM	59.700	56.934	98.669	10.751	25.687	0.053	0.158***	0.437***	0.374***	-0.462***	-0.298***	1.000

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

autocorrelation (i.e. AR(1)) are all significant at the level of 5%; the  $p$ -values of the Arellano and Bond test for the second-order autocorrelation (i.e. AR(2)) are all greater than 0.1. Therefore, there is no correlation between the residual sequences of the model, indicating that our model is valid. Meanwhile, all of the  $p$ -values of the Sargan test also exceed 0.1, implying that the model has passed the test of over-identifying restrictions and proving the validity of the instrumental variables. Columns 1–4 in Table 3 individually represent the estimation results of models (1–4). Without considering the control variables, the coefficient of LNT in the model specification (1) is 0.0154 with a significance at 1% level. This reveals that tourism plays a significant decisive role in promoting gender equality in Asia. A percentage increase in the logarithm of inbound tourist arrivals (approximately equivalent to a 2.75% increase in inbound tourist arrivals) will increase the gender equality index of Asian countries by 0.0154%. At the same time, we find that the estimated coefficient of the lag of GENDER is significantly positive at the 1% level, suggesting a dynamic persistence effect of gender equality.

After gradually introducing control variables, the results shown in Table 3 indicate that tourism still has a significant positive effect on reducing the gender gap, at a significant level of 1%. Moreover, for each model specification, the estimated coefficient of the lag of GENDER is significantly positive at the 1% level. In terms of control variables, we find that GDP per capita plays a significant role in promoting gender equality, being significant at the 1% level. Nevertheless, the estimated coefficients of GDP per capita in each model specification are very small, as low as 0.0072, 0.0071, and 0.0078, respectively. Regarding education, Table 3 shows that household expenditure has a positive effect on the reduction of the gender gap at the 10% significance level, with a minimal estimation coefficient. Regarding employment, the proportion of female employment in agriculture has a negative effect on gender equality at a significance level of 5%, with the exact opposite being seen for industry and services. Moreover, the proportion of female employment in industry has a much more significant impact on gender equality than that in services.

### The disaggregated analysis

Tables 4–6 exhibit the results of the four models for the east and southeast Asia (12 countries), south Asia (6 countries), and west and central Asia (18 countries), respectively. The results show that the AR (1) statistic is significant at the 5% level, and that the  $p$ -values of AR (2) are all greater than 0.1. The  $p$ -values of the Sargan test are also higher than 0.1, indicating that the null hypothesis of the instrumental variables being valid is supported. Therefore, the SGMM models may be seen as reliable.

The results in Table 4 demonstrate that, like the whole sample, tourism has a positive effect on gender equality at a significance level of 1% in the east and southeast Asian countries. A percentage increase in the logarithm of inbound tourist arrivals will increase the gender equality index by 0.0209%. The estimated coefficient of the lag of GENDER is significantly positive at the 1% level as well, implying a dynamic persistence effect of gender equality. After considering the control variables, the positive effect of tourism on gender equality also emerges as statistically significant at the 1% or 5% level. It is interesting to note that in east and southeast Asian countries, there is not a positive but, rather, a negative effect of GDP per capita on gender equality; however, this is not statistically significant. Regarding education, household expenditure can be seen positively to affect gender equality, with significance at the 5% (model specification 3) or 10% (model specification 4) level. The proportion of female employment in all industries has a negative impact on gender equality; however, this result is not statistically significant.

Regarding the south Asian countries, Table 5 indicates that, here, tourism also exerts an impact on gender equality. Responding to each percentage increase in the logarithm of inbound tourist arrivals, the gender equality index will increase by 0.0030%; that is, however, far lower than the impact on east and southeast Asian countries. Similarly, the coefficient of the lag of GENDER is significantly positive at the 1% level, implying a dynamic persistence effect of gender equality. Following the introduction of control variables, even though tourism still has a positive impact on gender equality, the statistical significance drops to the 5% (model specification 2) or 10% (model specifications 3 and 4) level. It is noteworthy that, here, the effects of the control variables on gender equality are not statistically significant.

Table 6 also reports that tourism has a positive impact on gender equality at the significance level of 1% in the west and central Asian countries. Responding to each percentage increase in the logarithm of inbound tourist arrivals, the gender equality index will increase by 0.0187%. Here, the coefficient of the lag of GENDER is significantly positive at the 1% level, suggesting a dynamic persistence effect of gender equality. Table 6 also clearly indicates the significant positive impact of tourism on gender equality after introducing the control variables. Similar to the east and southeast Asian countries, we find that GDP per capita has a significant negative effect on gender equality at the 5% level. In addition, we see the positive impact of the proportion of female employment in services on gender equality at a significance level of 5%. The statistics pertaining to the other variables do not emerge as statistically significant.

**Table 3**  
Results of SGMM for the Asian countries.

Variables	Specification (1)	Specification (2)	Specification (3)	Specification (4)
GENDER(-1)	0.4520*** (27.9474)	0.4269*** (11.6657)	0.4179*** (13.2926)	0.4257*** (12.6550)
LNT	0.0154*** (17.7361)	0.0128*** (9.8436)	0.0128*** (10.1139)	0.0212*** (6.2940)
LNGDPpc		0.0072*** (2.9076)	0.0071*** (3.7235)	0.0078*** (3.8173)
SAVEDU			0.0011* (1.2267)	0.0021 (1.0354)
AGRFEM				-1.6322** (-2.1146)
INDFEM				0.7804** (1.8955)
SERFEM				0.0783** (1.3123)
AR(1) (p-value)	0.0036	0.0001	0.0125	0.0326
AR(2) (p-value)	0.4761	0.6456	0.3722	0.5014
Sargan test (p-value)	0.2241	0.2053	0.2416	0.1611

Note: \*\*\*, \*\*, \* indicate statistical significance at 1%, 5% and 10% level, respectively. T values are in parenthesis.

## Discussion

Our results demonstrate that tourism is conducive to improving gender equality for both the subsamples and the sample as a whole. This finding remains robust when the control variables are gradually introduced, although the significance declines, thus supporting Hypothesis. According to *The Global Gender Gap Report*, gender equality depends on economic revenue, employment opportunity, educational attainment, and political empowerment. Tourism in Asia has a positive impact on these aspects. First, as far as employment and income are concerned, Kelkar (2005) argued that underemployment may be the leading cause of women's poverty, which in turn exacerbates inequality in gender relations. Fortunately, the relatively low threshold of knowledge and skills in tourism provides more opportunities for women to enter the tourism arena (e.g. Boonabaana, 2014; Farmaki, 2019; Nassani et al., 2019; Nyaruwata & Nyaruwata, 2013). Moreover, as reported by the UNWTO (2019), the tourism industry's low start-up costs have also enabled increasing numbers of women become tourism entrepreneurs. In some tourism industries such as homestay, growing numbers of women have come to be owners (Acharya & Halpenny, 2013; Farmaki, 2019). In addition, the majority of hosts in Asia's Airbnb sector are women (UNWTO, 2019). Concurrently, a large number of employment and entrepreneurship opportunities give women greater economic income. Therefore, it may be said that tourism in Asia significantly contributes to narrowing the gender pay gap and promoting gender equality.

Second, in the employment process, tourism provides more education and training opportunities to enable women to improve their service level and skills, thereby making it easier for women to enter the tourism industry, and stimulating women's employment and entrepreneurship in tourism. In Asian countries, the development of tourism also gives women more education and training. For example, in Muslim countries in west Asia, women are restricted by cultural traditions to traditional "female" fields of study, and their choice of "male" fields is often socially frowned upon. In this vein, tourism, which is considered a more "female" field, means more

**Table 4**  
Results of SGMM for the east and southeast Asian countries.

Variables	Specification (1)	Specification (2)	Specification (3)	Specification (4)
GENDER(-1)	0.3969*** (5.7434)	0.4560*** (5.6106)	0.1559** (0.8813)	0.1132* (0.4610)
LNT	0.0209*** (5.6802)	0.0180*** (4.0706)	0.0316*** (3.4040)	0.0317** (2.3252)
LNGDPpc		-0.0015 (-1.0428)	-0.0138* (-1.7936)	-0.0107 (-1.2349)
SAVEDU			0.0117** (8581)	0.0110* (1.3366)
AGRFEM				-8631 (-0.0992)
INDFEM				-8649 (-0.0994)
SERFEM				-8632 (-0.0992)
AR(1) (p-value)	0.0024	0.0001	0.0116	0.0227
AR(2) (p-value)	0.4523	0.5928	0.3047	0.4358
Sargan test (p-value)	0.2465	0.2665	0.3753	0.2647

Note: \*\*\*, \*\*, \* indicate statistical significance at 1%, 5% and 10% level, respectively. T values are in parenthesis.

educational opportunities for women, which in turn ensures that more women can be employed in the tourism sectors in these conservative societies (Alsawafi, 2016). Other supporting research has emerged from India and China. For example, Rinaldi and Salerno (2019) evidenced that for enabling women to enter tourism better, some women's organizations such as Mahila Mandals in India, provide rural women with substantial vocational training, which is however impossible to attain outside of tourism. In China, the development of rural tourism has led to a large number of women entering the industry. For a long time, women's status in extensive rural areas has been lower than that in urban areas. However, in the context of rural tourism, women's increasing role in tourism production makes it possible for women's status to rise. Hence, government and non-governmental training in tourism has significantly improved women's service and knowledge level, in turn playing a significant role in narrowing the Asian gender gap.

Third, in addition to economic, employment and education rights, the development of tourism gives women more political rights. Tourism also provides women with more opportunities to access leadership positions. According to UNWTO (2019), 23% of global tourism ministers are women, compared with only 20.7% of global ministers. In Asia, for example, the Philippines, Cambodia and Georgia have female ministers for tourism. This effectively bridges the gap between men and women in high-level political decision-making. Interestingly, these three countries also rank high in the gender equality index in Asia, especially the Philippines, which has long been in the top ten globally. This strongly suggests that tourism's excellent performance in terms of facilitating political empowerment contributes to the realization of gender equality in Asia. Taken together, through economic, employment, education, and political empowerment, tourism has significantly contributed to Asian gender equality.

Nevertheless, despite the significant impact of tourism on gender equality for the whole Asia sample, we find some regional differences. In contrast to the findings for the whole sample, the impact of tourism on gender equality is emerged as statistically less significant in the subsamples. Following a regional comparison, even though a positive impact was manifested in all regions, our results show that this impact is strongest and most statistically significant in the east and southeast Asian countries, followed by the west and central Asian countries, and finally south Asian countries. These findings confirm Hypothesis 2. As argued by Nassani et al. (2019) and Scheyvens and Hughes (2019), tourism first positively affects the economy and then gender equality. In order to be able to discuss the regional role of tourism in gender equality, we calculate the position of tourism in the economies of different regions by quantifying the ratio of international tourism revenue to the national GDP of the 36 selected Asian countries. Notably, this calculation is inappropriate from an economic point of view because tourism revenue and GDP are two different types of economic indicators. Concretely, one represents added value, and the other income. Nevertheless, this ratio can broadly reflect the importance of tourism in the national economy.

We then obtain the medians of the ratios of the three regions (there are many extrema in the calculation results. For example, the ratio of the Maldives was over 58%, while that of Bangladesh was less than 0.001%. Therefore, we use the median instead of the mean to reflect the regional tourism level). Interestingly, we find that the value for south Asian countries was the lowest, at 0.014. This indicates a relatively low effect of tourism on the economy in south Asia, in turn implying that tourism exerts the least moderate impact on gender equality in south Asian countries. At the same time, we obtained the highest value of 0.036 for the west and central Asia, and 0.033 for the east and southeast Asia; which is, however, inconsistent with our notion that tourism has the most significant impact on gender equality in the east and southeast Asian countries. The possible reason for this is that gender equality is more affected by culture than the economy in the west and central Asian countries. Our results also show that economic growth does not positively affect gender equality in the two regions. It is well known that the influence of the Islamic culture in the west and central Asian countries is deeply rooted, leading to a relatively large gender gap, as indicated by Alsawafi (2016) and Fulu and Miedema (2016). In East and Southeast Asia, the Confucian culture and Islamic culture predominate, which also limits the realization of gender equality. However, compared with the Confucian culture, the Islamic culture is undoubtedly more conservative in terms of gender.

In summary, the role of tourism in promoting gender equality may be seen as vital. Whether in terms of the promotion of economic,

**Table 5**  
Results of SGMM for the south Asian countries.

Variables	Specification (1)	Specification (2)	Specification (3)	Specification (4)
GENDER(-1)	0.7499*** (7.3929)	0.5073** (2.3014)	0.1125* (0.2426)	0.8956* (0.4861)
LNT	0.0030*** (3.2922)	0.0027** (0.4591)	0.0076* (0.0923)	0.0456* (0.2039)
LNGDPpc		0.0267 (1.3494)	0.0682 (1.2114)	0.1296 (0.6172)
SAVEDU			-0.0167 (-0.7811)	0.0242 (0.4711)
AGRFEM				-0.0357 (1.4021)
INDFEM				-0.1388 (-0.6844)
SERFEM				0.0417 (0.1521)
AR(1) (p-value)	0.0026	0.0002	0.0275	0.0499
AR(2) (p-value)	0.4666	0.5933	0.2533	0.3543
Sargan test (p-value)	0.2913	0.3071	0.3841	0.1908

Note: \*\*\*, \*\*, \* indicate statistical significance at 1%, 5% and 10% level, respectively. T values are in parenthesis.



**Table 6**  
Results of SGMM for the west and central Asian countries.

Variables	Specification (1)	Specification (2)	Specification (3)	Specification (4)
GENDER(-1)	0.1792*** (3.2731)	0.1114* (0.5934)	0.1350* (0.7980)	0.1220* (0.5232)
LNT	0.0187*** (8.7803)	0.0225*** (2.9720)	0.0193** (2.6639)	0.0237** (2.4848)
LNGDPpc		-0.0038** (-0.6254)	-0.0022** (-0.3154)	-0.0037** (-0.3172)
SAVEDU			0.0046 (1.4795)	0.0046 (1.2390)
AGRFEM				-0.0068 (-0.0475)
INDFEM				0.0044 (1.4470)
SERFEM				0.0008** (0.1874)
AR(1) (p-value)	0.0048	0.0002	0.0407	0.0365
AR(2) (p-value)	0.1849	0.1448	0.2797	0.1464
Sargan test (p-value)	0.2739	0.3022	0.3978	0.2239

Note: \*\*\*, \*\*, \* indicate statistical significance at 1%, 5% and 10% level, respectively. *T* values are in parenthesis.

political, or social and cultural status, the role of tourism is remarkable. Even in conservative Islamic societies, where women have very little power, with the development of inbound tourism, women have been liberated in various aspects. The gender gap has gradually narrowed. Therefore, it can be concluded that tourism, especially inbound tourism, plays a vital role in realizing the goal of gender equality. However, we should also be aware that the negative impact of traditional Asian social cultures on gender equality is still prominent, particularly in the west and central Asia and in some weak economies. The Islamic culture has influenced the rise of women's status and has had a significant negative impact on the realization of gender equality (Fulu & Miedema, 2016). East Asian countries are mainly influenced by the Confucian culture, where the patriarchal ideology is deeply rooted (Sung & Pascall, 2014). Conversely, the Philippines in southeast Asia has a mainstream Catholic religion and the highest gender equality index in Asia. Culture may, therefore, be more important than the economy in promoting gender equality.

Given this background, tourism, as a folk culture ambassador, as Tucker and Boonabaana (2012) and Scheyvens and Hughes (2019) argued, should also play a cultural role in generating a positive impact on the local society in addition to increasing women's income and employment opportunities, thereby promoting gender equality. In light of this, it is necessary to highlight the cultural attributes of tourism apart from economic characteristics. Consequently, in Asia, we suggest that the development of international tourist markets, especially Europe and North America, should be a way to import a relatively open gender culture and in turn contributes to gender equality. In short, we recommend the vigorous development of tourism to increase women's employment and economic income, increase women's access to education, and endow them with more political rights. Furthermore, we suggest that internal and external cultural exchanges in Asia be promoted through the further development of tourism. In this way, an advanced culture of gender equality can be popularized in all Asian tourist destinations and impacts the continent's traditional conservative gender culture.

For the whole sample in this study, almost all control variables concerning the economy, education, and employment significantly affect gender equality. This is easy to understand because the concept of gender equality itself includes these three aspects according to *The Global Gender Gap Report*. However, in terms of the specific findings in each region, the effect of the control variables is found to be markedly different from the statistical results for the whole sample. For instance, in the east and southeast Asia, there is no significant effect of GDP per capita on gender equality. More surprisingly, the regression coefficient of GDP per capita is negative, suggesting the adverse impact of the economy on gender equality. Furthermore, we found a significant negative impact of GDP per capita on gender equality in the west and central Asia. From this, it can be concluded that economic growth does not necessarily promote gender equality. A reasonable explanation for this phenomenon may be the distribution of wealth, especially the amount of wealth owned by women.

For both the subsamples and the sample as a whole, household education expenditure positively affects gender equality, and is statistically significant. For the whole sample, the proportion of female employment in industry and services plays a positive role in promoting gender equality, whilst the proportion of female employment in agriculture has the opposite effect. The higher the proportion of female agricultural employment, the more significant the gender gap. This is closely related to the process of socio-economic development. In an agrarian society, women's status is low, but in an industrial or service economy society, women's status improves. In particular, in the west and central Asian countries, we find a positive impact of the proportion of female employment in services on gender equality. This means that the service industry's development is changing the traditional social phenomenon of the deficient status of women in Islamic society. With regard to the subsamples, the coefficients of the control variables are no longer statistically significant, suggesting the limited explanatory power of each variable for regional gender equality. Our results show the centrifugation between economic development and gender equality as subject to traditional culture. The impact of the proportions of female employment in services is statistically significant in the west and central Asian countries, implying that, currently, there are more employment opportunities for women in the service sector.

## Conclusions

Extensive prior literature has investigated tourism and gender equality through a sociological lens. However, the lack of a multidimensional perspective has stagnated the knowledge contribution in this field of tourism. Under the current trend of feminism and gender awareness, urgent action on multidisciplinary research on tourism and gender equality is needed to strengthen this tourism sub-field (Figueroa-Domecq et al., 2015). This paper presents a first attempt at exploring the impact of tourism on gender equality by using a dynamic panel data analysis technique, namely the system generalized method of moments (SGMM) method. 36 Asian countries were selected and divided into three regions to conduct our research. The economic perspective applied distinguishes this article from previous studies.

Our research leads us to the following conclusions. In Asia, tourism has a significant positive impact on gender equality, which impact is also substantial in different regions. The control variables relating to the economy, education, and employment also significantly affect gender equality. At the same time, this impact varies across the east and southeast Asia, south Asia, and west and central Asia. In south Asian countries, the impact of these control variables on gender equality is not statistically significant. In the west and central Asia, the economy is found to have a significant negative impact on gender equality. In the east and southeast Asian countries, household education expenditure has a significant positive impact on gender equality. Conclusively, this study contributes to the tourism literature as follows: 1) The design of this study suggests unique directions for future research undertakings on tourism and gender equality. 2) The application of the SGMM method could fuel further economics research in the field of tourism and gender equality. 3) The framework of this study can be used to explore tourism and gender equality in various regions beyond Asia.

Regardless of the current findings, there are some improvements that could be applied to the research. In the selection of variables, due to the lack of data, we use the number of international tourist arrivals instead of tourism income to represent tourism. However, actually, the scale of domestic tourism in some countries such as China is much larger than that of international tourism. In addition, we do not distinguish male from female education expenditure. These aspects may somewhat lead to a bias in the results. Also, the ratio of female employment in different income groups, such as the ratio of women in high-income groups, may better reflect women's status. Future research should focus on collecting better data to deepen the implications of this study. Although we find that tourism significantly contributes to gender equality, this contribution is not made entirely through the channels of economy, education, or employment. The role of politics and culture may, perhaps, be more prominent. However, considering the availability of data, we could not consider political and cultural factors in the current model. If there were to be a gender-based quantification of politics, education, and culture in each country in the future, incorporating these indicators into our model may lead to more insightful findings. We also use the economic, educational, and employment variables as control variables to explore the impact of tourism and gender equality and do not quantify the relationship between tourism and these control variables. Future investigations could thus focus on the cointegration and bidirectional causality between tourism, economy, education, employment, and gender equality as well as culture. This is another involvement of the economic perspective.

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## Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.annals.2020.103067>.

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