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## Article

# Impacts of regional trade agreements on international tourism demand: Empirical in Vietnam

Cogent Economics & Finance

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*Suggested Citation:* Pham Uyen; Quy Trinh; Hoa Le; Uyen Vo (2023) : Impacts of regional trade agreements on international tourism demand: Empirical in Vietnam, Cogent Economics & Finance, ISSN 2332-2039, Taylor & Francis, Abingdon, Vol. 11, Iss. 2, pp. 1-12, <https://doi.org/10.1080/23322039.2023.2250230>

This Version is available at:

<https://hdl.handle.net/10419/304190>

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To cite this article: Uyen Pham, Quy Trinh, Hoa Le & Uyen Vo (2023) Impacts of regional trade agreements on international tourism demand: Empirical in Vietnam, Cogent Economics & Finance, 11:2, 2250230, DOI: [10.1080/23322039.2023.2250230](https://doi.org/10.1080/23322039.2023.2250230)

To link to this article: <https://doi.org/10.1080/23322039.2023.2250230>



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Published online: 24 Aug 2023.



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Received: 27 May 2023  
Accepted: 13 August 2023

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Reviewing editor:  
Robert Read, Economics, University  
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## GENERAL & APPLIED ECONOMICS | RESEARCH ARTICLE

# Impacts of regional trade agreements on international tourism demand: Empirical in Vietnam

Uyen Pham<sup>1,2\*</sup>, Quy Trinh<sup>3,4</sup>, Hoa Le<sup>1,2</sup> and Uyen Vo<sup>1,2</sup>

**Abstract:** This paper sheds some light on the impact of regional trade agreements (RTAs) on international tourism demand in Vietnam. They are using gravity model with data from 29 countries with the highest number of tourists to Vietnam from 2007–2019. The empirical findings indicate a relevant degree of heterogeneity in the results. While the the free trade agreement enhances the international tourism demand in Vietnam, ASEAN community it. These results emphasize the importance of solid integration in promoting Vietnam's tourism flows.

**Subjects:** Economics and Development; International Trade (incl; Economics of Tourism;

**Keywords:** international tourism demand; RTAs; FTAs; ASEAN; gravity model

## 1. Introduction

The tourism industry plays a vital role in the economic development of every country (Fourie et al., 2020; Ghalia et al., 2019; Mushtaq & Abdullah, 2020), especially in developing countries, including Vietnam. In Vietnam, the tourism industry also contributes significantly to Vietnam's GDP. The ratio of the direct contribution of Vietnam's tourism industry to Vietnam's GDP (%) in the period 2015–2019 is relatively high, specifically: in 2015 (6.3%); 2016 (6.9%); 2017 (7.9%); in 2018 (8.3%), in 2019 (9.2%) and this rate increased steadily over the years from 2015 to 2019 (Vietnam National Administration of Tourism, 2020). In addition, in 2015–2019, the number of international tourists entering Vietnam was high, from 7.9 million arrivals in 2015 to 18 million arrivals in 2019 (2.3 times higher than in 2015). The growth rate of international tourist arrivals in this period averaged 22.7%/year, with this growth rate of Vietnam ranked among the highest in the world (Vietnam Tourism Annual Report, 2019).

By participating in RTAs, countries can improve their economic integration in the age of globalization. Participation in RTAs helps countries to grow their economies through many aspects: international trade (Díaz-Mora et al., 2023; Lin & Lin, 2023), investment (Dong et al., 2023), income inequality (Mon & Kakinaka, 2020), tourism (Khalid et al., 2022; Saayman et al., 2016). Not shifting from the trend mentioned above, Vietnam actively participates in regional trade agreements. According to the World Tourism Organization (2022), Vietnam is a signatory to 15 free trade agreements and one regional community (the ASEAN community). These RTAs comprise non-trade provisions related to tourism that significantly impact Vietnam's tourism sector. For instance, when China and ASEAN signed the ASEAN-China Free Trade Agreement (CAFTA) in 2010, they committed to collaborating economically in various sectors, including tourism. As a result, in addition to primary essential trade and investment agreements, CAFTA includes measures for



specific economic cooperation in the tourism sector. Following the signing of the CAFTA, more international tourists began visiting Vietnam; they increased from 558,719 visitors in 2007 to 1,416,804 visitors in 2011, with over 154% coming from China.

We took it aiming to give an in-depth look at the effects of different RTAs, including free trade agreements (FTAs) and ASEAN, on the international tourism demand in Vietnam, 29 origin countries spanning 2007– 2019.

studies mainly studied the factors affecting international tourism demand, considering the factors: income, relative price level, and transportation costs affecting tourism demand (Ghalia et al., 2019; Lim, 1997, 1999; Mushtaq & Abdullah, 2020). In recent periods, studies on international tourism demand under the influence of the international trade economy in general and trade agreements, in particular, are gradually gaining attention (see, eg., Khalid et al., 2022, Rosselló Nadal & Santana Gallego, 2022; Saayman et al., ; Ulucak et al., 2020). According to (Khalid et al., 2022), there are only three direct studies on the impact of regional trade agreements on international tourism up to now, including Chang and Lai (2011) and Saayman et al. (2016). Furthermore, these studies all assess the impact of trade agreements on international tourism demand at a cross-country level. Meanwhile, no studies have the impact of a country's participation in a trade agreement on that country's tourism demand. To fill this research gap, we evaluate the effect of a general regional trade agreement that Vietnam has signed on Vietnam's international tourism demand. In addition, we of the free trade agreement and the ASEAN region on Vietnam's international tourism demand. To the best of our knowledge, this is the first country-level study to use a gravity framework for such an integrated analysis. The gravity framework, proposed by Tinbergen (1962), integrates economic mass and geographic distance as major contributing factors for bilateral tourist flows and allows for the separation between origin- and destination-country fixed effects.

Overall, various RTA forms either strengthen or weaken international tourism depending on the degree of economic integration. While free trade agreements increase demand for international visitors in Vietnam, the ASEAN community reduces it.

Our research extends to several pieces of recent literature discussions. Firstly, our study extends to the body of knowledge on how RTAs and international tourism demand are related. Even though it is commonly known that there is a close association between RTAs and international tourism, there is no comprehensive investigation on the relationship between participation in RTAs and international tourism at a country level. Secondly, we further the ongoing discussion on tourism in the economic integration framework. We discover that, in addition to free trade agreements, the ASEAN community affects international tourism demand affects international tourism demand in addition to free trade agreements.

The rest of this article is organized as follows. The second section discusses the literature review between RTAs and international tourism and examines the empirical literature relating to RTAs and tourism. The third part discusses the research methodology and data used in the paper. The fourth section presents the results, and the last part presents the conclusions and policy implications.

## 2. Literature review

Regional trade agreements (RTAs) have a huge role in promoting international tourism flows. A country's deeper integration into the global economy will not only promote the flow of goods and services, but also have a knock-on effect on the flow of international tourists (Khalid et al., 2022; Saayman et al., 2016). Increased international trade agreements can encourage leisure travel, and business travel, and greater awareness and interest in the destination country. Economic development is when the infrastructure for communication and transportation is improved, which expands the variety of goods available to meet the needs of tourists (Khan et al., 2005)

Over the past few decades, the study of the RTAs-tourism demand nexus has attracted much attention in the literature. The researchers used several methods to investigate the relationship between RTAs and tourism demand. Mixed results are drawn from this field of research using various datasets, approaches, and variable types.

The first strand of research confirmed that RTAs have a strong positive impact on tourism demand, especially at cross country level (Culiuc, 2014; De Vita, 2014; Gil-Pareja et al., 2007; Groizard & Santana-Gallego, 2018; Harb & Bassil, 2020; McKay & Tekleselassie, 2018; Song, 2010). Gil-Pareja et al. (2007) examined the impact of a free trade agreement on tourism demand for G7 countries (Canada, France, Germany, Italy, Japan, UK and USA). Their study concluded that both countries in the pair are members of a free trade agreement strongly associated with tourism demand. Llorca-Vivero (2008) corroborated this result. Their findings indicate that increased business travel as a result of close trade relations between nations. Using a large cross-country dataset, Fourie et al. (2020) indicate that being a signatory to a common regional trade agreement has a beneficial impact on international tourism, which suggests that the strength of the trade cooperation between countries promotes bilateral tourism. Similarly, Song (2010) studied the relationship between a regional trade agreement and tourism demand in 196 countries. This study discovered that RTAs enhance tourism arrival, with a more significant impact with year effect than with controlling origin fixed effect and destination fixed effect. These findings are in line with Culiuc (2014), who shows that RTAs positively effect on tourism with both country-fixed effect and year-fixed effect in 204 countries. When compared to intra-OECD, RTAs have a larger impact level when the full sample is taken into account. Fourie and Santana-Gallego (2013) divided the sample into OECD and African locations to examine the parallels and discrepancies between tourist arrivals to developed nations and the continent of Africa. According to this study, regional trade agreements have a more favorable effect on travel demand in African destinations than in OCED destinations. Additionally, Rosselló et al. (2020) found that a trade agreement between country pairs during specific years, is positively affect international tourism flow using a global dataset. In the long run, De Vita (2014) shows that joint membership in a regional free trade agreement has a positive effect on international tourism flows using data from a panel of 27 OECD and non-OECD countries for the period 1980–2011 and employing a system generalized methods of moments (SYS-GMM) estimation. Recently, in order to assess if regional trade agreements (RTAs) weaken the connection between dyadic hostility levels and tourist flows, Okafor et al. (2022) uses a gravity approach to look into the impact of dyadic hostility levels on bilateral tourism flows. The findings also suggest that RTA membership helps in reducing the detrimental impact of both low and high levels of dyadic hostility on international tourism flows.

On the contrary, the second strand of research suggested that some types of RTAs have reduced international tourist attraction (Culiuc, 2014; Deluna et al., 2014). To begin with, using a first-differences specification for estimating the gravity equation, Culiuc (2014) find out that member of regional trade agreements have a significant negative impact on tourism demand. In addition, Deluna et al. (2014) investigated the determinants of international tourism demand for the Philippines from 2001 to 2012, this study shows that the number of visitors is decreased because the destination country and the country of origin share ASEAN membership. This may indicate a similarity in the tourist attractions among ASEAN countries.

Previous studies in the field of international tourism demand mainly consider RTA as a control variable in the research model (eg., Fourie et al., 2020; Harb & Bassil, 2020b; Rosselló et al., 2020). The effects of trade agreements or regional trade agreements on tourism have received scant in-depth research (Khalid et al., 2022). To the best of our knowledge, there are three in-depth studies on the effects of forms of economic cooperation on tourism.

To begin with, Chang and Lai (2011) used a sample of 36 nations from the 2000 to 2005 to examine the impact of three RTAs (ASEAN, EU, and NAFTA) on bilateral international tourist arrivals. They discovered that whereas the EU and NAFTA have a detrimental influence on

international visitor arrivals, ASEAN has a positive impact. In addition, Additionally, Saayman et al. (2016) looked into the effects of several significant international and regional trade and economic cooperation agreements on inter-national tourism flows for a panel of 58 countries between 1995 and 2010 (including NAFTA, EU, EMU, MENA, and BRIC). The research suggests that regional trade agreements (RTAs) are more effective than global trade agreements for promoting tourism flows. Furthermore, Khalid et al., (2022) examine the impact of regional trade agreements (RTAs) on bilateral tourism flows, including preferential and free trade agreements, customs unions, and common markets. Using a panel gravity data set from 1995 to 2015 that includes 13,589 country pairs, 163 destination countries, and 171 source countries. The findings indicate that all types of RTAs have a favorable and considerable impact on bilateral tourism flows.

### 3. Methodology

Previous studies on the factors affecting international tourism demand mainly used the demand model without using the gravity model (see eg., Lim, 1997, 1999; Song & Li, 2008). However, until recently, the gravity model has been widely used to find out the factors affecting tourism demand (Culiuc, 2014; Ghalia et al., 2019; Ridzuan et al., 2019; Ulucak et al., 2020).

Based on the study of Rosselló Nadal and Santana Gallego (2022) on the gravity model in the study of international tourism demand, the research model evaluates the impact of the Regional Trade Agreement on international tourism demand of Vietnam as follows:

$$\ln TA_{odt} = \beta_0 + \beta_1 \ln PGDP_{it} + \beta_2 \ln PGDP_{VN} + \beta_3 \ln POP_{it} + \beta_4 \ln POP_{VN} + \beta_5 \ln RP + \beta_6 \ln DIST + \beta_7 \text{ Visa dummy} + \beta_8 \text{ RTA dummy} + \lambda_t + u_{it}$$

Where:  $\ln$  is the natural logarithm value;  $TA_{odt}$  is the number of tourists from the country of origin to Vietnam in year  $t$ ;  $pGDP_{it}$  is the GDP per capita in year  $t$  of the country of origin;  $PGDP_{VN}$  is Vietnam's GDP per capita in year  $t$ ;  $POP_{it}$  is the population of the country of origin in year  $t$ ;  $POP_{VN}$  is the population of Vietnam in year  $t$ ;  $RP$  is the relative price index between the country of origin and Vietnam in year  $t$ ;  $DIST$  is the geographical distance between the capital of the destination country and Vietnam;  $\text{Visa dummy}$  is a dummy variable representing Vietnam's visa exemption with the country of origin in year  $t$ , if Vietnam is exempted from visa with the country of origin in year  $t$ , it will receive the value 1, otherwise it will receive the value 0;  $\text{RTAs dummy}$  is a dummy variable representing participation in a regional trade agreement if Vietnam and the country of origin join a regional trade agreement, the value is 1, otherwise, the value is 0;  $\lambda_t$  is the fixed time effect.

Use a common methodology to measure the impact of regional trade agreements on international tourism demand. However, different types of regional trade agreements (RTAs) affect the amount of international tourism differently. For a deeper understanding, we have used different types of RTAs instead of using a common proxy for regional trade agreements (RTAs), detailed below:

$$\ln TA_{odt} = \beta_0 + \beta_1 \ln PGDP_{it} + \beta_2 \ln PGDP_{VN} + \beta_3 \ln POP_{it} + \beta_4 \ln POP_{VN} + \beta_5 \ln RP + \beta_6 \ln DIST + \beta_7 \text{ Visa dummy} + \beta_8 \text{ ASEAN dummy} + \beta_9 \text{ FTA dummy} + \lambda_t + u_{it} \quad (2)$$

Where:  $\text{ASEAN dummy}$ , when Vietnam and the country of origin join the ASEAN agreement, the value is 1; otherwise, the value is 0;  $\text{FTA dummy}$  variable, when Vietnam and the country of origin join the FTA agreement, the value is 1, otherwise, the value is 0.

The RTA dummy in Equation (1) and FTA & ASEAN dummy in Equation (2) are our major variables of interest. Previous research indicates that participation in an RTA boosts trade volume among the signatory countries (Díaz-Mora et al., 2023; Lin & Lin, 2023). Given that international tourism is a form of trade in services and that trade in commodities shares many similarities with it (Culiuc, 2014). We anticipate that different RTAs will improve the flow of international tourism among the

participating countries. This is so because participation in various RTAs is linked to better economic relations among member countries, which in turn encourages cross-border travel.

We also account for various additional factors that affect tourism flows, such as those frequently taken into account by gravity models. The population and GDP per capita are also essential factors in determining international tourist flows (Rosselló Nadal & Santana Gallego, 2022; Song et al., 2023). Countries with larger populations tend to demand and provide tourism services than people in less populous countries. Similarly to this, wealthy countries are more likely than those with lower incomes to demand and provide more tourism services (Khalid et al., 2022; Okafor et al., 2022). Following the literature, the populations of the origin and destination countries are used as control variables to illustrate how country size affects the fundamental connection between various forms of RTAs and international tourism flows. Relative price is included in the research model as one of the main factors affecting international tourism flows (Fourie et al., 2020; Khalid et al., 2022; Lim, 1997, 1999; Rosselló Nadal & Santana Gallego, 2022) because it's a way of figuring out whether pricing in the destination country is competitive with those in the origin country. Additionally, other factors like distance and visa are important factors when estimating the flow of international tourists (Rosselló Nadal & Santana Gallego, 2022). These factors have the potential to either reduce or boost the transaction costs for international tourism services.

Ordinary least squares (OLS) with country and year-specific effects, also known as fixed effects-OLS (FE-OLS), are used to estimate the gravity equation (Khalid et al., 2022; Saayman et al., 2016; Ulucak et al., 2020). In equations (1), and (2), we use the least squares method (OLS) and control for time effect and country effect (FE-OLS). However, the FE-OLS method cannot handle the problem of heteroscedasticity; therefore we use Poisson pseudo-maximum likelihoods (PPML) method to check the certainty of parameter estimates; PPML will yield reliable parameter estimates in the presence of variance and bias problems in sample selection (Saayman et al., 2016).

#### 4. Data

The data set was compiled from the following sources: Tourism arrivals by country of residence from the World Tourism Organization specific data set; GDP per capita, Population, CPI from World Bank (2022) World Development Indicators data set; Distance measurement from Centre d'Etudes Prospectives et d'Informations Internationale (CEPII) data set (Conte et al., 2022); Dummy variable (i.e., visa dummy, FTA dummy, ASEAN, TRA dummy) from WTO.

This empirical study uses panel data of 29 countries' tourists to Vietnam (accounting for 95% of tourists to Vietnam) during 2007–2019 (13 years), so the number of observations using is:  $29 \times 13 = 377$  observations. Table 1 shows the details of the descriptive statistics of the variables in this study.

In this study, we use two types of regional trade agreements that Vietnam is a signatory to: ASEAN and free trade agreements (FTAs). Table 2 below also shows details of regional trade agreements that Vietnam and the country of origin have joined and signed into force, details below:

#### 5. Main findings and discussion

We also estimate the gravity model using random effects and then conduct the Hausman test to see if fixed effects are the appropriate specification. The null hypothesis of the Hausman test is that the random effects are uncorrelated with the explanatory variables. We reject the null hypothesis in favor of fixed effects using the fundamental model specification (equations (1) and (2), respectively) ( $\chi^2(2) = 19.3$ ,  $p = 0.05$ ;  $\chi^2(2) = 33.21$ ,  $p < 0.00$ ). Additionally, there is no multicollinearity for either equation when looking for it ( $VIF < 5$ ).

Table 3 shows the estimated parameters of models (1) and (2) using the FE-OLS estimation method. In column 4 of Table 3, the dummy variable RTAs has a positive effect on the number of tourists to Vietnam and is statistically significant at the 1% level. In particular, the estimated coefficient of the dummy RTAs dummy variable is 0.502, indicating that the country of origin that



**Table 1. Descriptive statistics of variables in a model**

<b>Variable</b>	<b>Observations</b>	<b>Mean</b>	<b>Standard Deviation</b>	<b>Min</b>	<b>Max</b>
Tourist arrival	372	11.601	1.336.001	8.676.587	1.557.448
GDP per capita of Vietnam	377	1.003.571	1.217.975	6.448.098	1.154.164
GDP per capita of origin	377	7.762.045	.1919015	7.468.347	8.086.585
Population of origin	377	1.723.989	143.068	1.525.625	210.581
Population of Vietnam	377	1.832.376	.0383805	1.826.309	1.838.466
Relative Price index	344	-1.139.159	.9318204	-493.435	3.203.188
Distance	377	8.354.389	1.003.861	5.972.256	9.532.225
Visa dummy	377	.5411141	.498969	0	1
FTA dummy	377	.1564987	.3638103	0	1
ASEAN	377	.2413793	.4284884	0	1
RTAs dummy	377	.397878	.4901104	0	1

(Source: Author's compilation, 2022)



Table 2. List of regional trade agreements signed by Vietnam and the country of origin

No	Country	FTA	Into force	Other FTAs	Into force	ASEAN	Into force
1	Australia	U-NZ FTA	2010	CPTPP	2019		
2	Belgium	EVFTA	2020				
3	Cambodia	N.a	N.a			ASEAN	2007
4	Canada	CPTPP	2019				
5	China	ACFTA		RCEP	2013		
6	Denmark	EVFTA	2020				
7	Finland	EVFTA	2020				
8	France	EVFTA	2020				
9	Germany	EVFTA	2020				
10	Hongkong	AHKFTA	2017				
11	Indonesia	N.a	N.a				
12	Italy	EVFTA	2020				
13	Japan	CPTPP	2019	AJFTA	2008		
14	Korea	AKFTA	2009				
15	Laos	N.a	N.a			RTA ASEAN	2007
16	Malaysia	N.a	N.a			RTA ASEAN	2007
17	NZ	U-NZ FTA	2010	CPTPP	2019		
18	Netherlands	EVFTA	2020				
19	Norway	N.a	N.a				
20	Philippine	N.a	N.a			RTA ASEAN	2007
21	Russia	N.a	N.a				
22	Singapore	CPTPP	2019				

(Continued)

Table 2. (Continued)

No	Country	FTA	Into force	Other FTAs	Into force	ASEAN	Into force
23	Spain						
24	Sweden	EVFTA	2020				
25	Switzerland	EVFTA	2020				
26	Taiwan	N.a	N.a				
27	Thailand	N.a	N.a			RTA ASEAN	2007
28	US, UK	N.a	N.a				

(Source: Synthesis of the author group from WTO, <https://www.wto.org>).  
(Notes: N.a: not applicable).

**Table 3. FE-OLS results**

VARIABLES	(1)	(2)	(3)	(4)
lnPGDPit	0.471*** (0.0730)	0.444*** (0.0762)	0.474*** (0.0919)	0.572*** (0.0926)
lnPGDPVN	3.529 (19.41)	3.267 (19.40)	1.500 (19.64)	3.095 (20.07)
lnPOPit	0.635*** (0.0361)	0.632*** (0.0362)	0.665*** (0.0341)	0.667*** (0.0311)
lnPOPVN	−10.97 (97.98)	−9.478 (97.91)	0.427 (99.08)	−8.599 (101.2)
lnRP	−0.122** (0.0614)	−0.126** (0.0615)	−0.120* (0.0666)	−0.106 (0.0660)
lnDIST	−0.866*** (0.0818)	−0.929*** (0.0960)	−1.119*** (0.165)	−0.812*** (0.149)
Visa dummy	0.0327 (0.103)	0.0670 (0.106)	0.0416 (0.0989)	−0.0855 (0.102)
ASEAN dummy	—	−0.267 (0.215)	−0.683*** (0.261)	—
FTA dummy	0.756*** (0.131)	0.684*** (0.143)	—	—
RTAs dummy	—	—	—	0.502*** (0.170)
Constant	176.4 −1,644	152.1 −1,643	−14.75 −1,663	134.4 −1,699
Observations	339	339	339	339
R-squared	0.655	0.656	0.632	0.633
Year dummy	YES	YES	YES	YES

Notes: Robust standard errors in parentheses. \*\*\* $p < 0.01$ , \*\* $p < 0.05$ , \* $p < 0.1$ .

has membership in the same RTAs as Vietnam will have about 65% more international tourists to Vietnam compared to countries of origin not participating in RTAs with Vietnam. In columns (1),(2), (3) in Table 3, RTAs are also divided into FTAs and ASEAN. Comparing with the level of magnitude, we find that FTAs will have a higher impact than ASEAN. Meanwhile, ASEAN has a negative impact on the number of tourists to Vietnam. Specifically, in the model (2), the ASEAN dummy has a negative impact and is statistically significant at the 1% level. This means that if the ASEAN dummy is the only factor taken into account, Vietnam and the country of origin belonging to ASEAN will result in a 97% decrease in international tourism relative to non-ASEAN countries. In column 2 of Table 3, when assessing the impact of ASEAN and FTAs, the ASEAN dummy variable is not statistically significant. When assessing the impact of joining FTAs on Vietnam's international tourism demand, in columns (1) and (2) of Table 3, we both find that FTAs have a positive impact on international tourism demand of Vietnam and is statistically significant at the 1% level. When the country of origin and Vietnam have signed a free trade agreement, the number of international tourists in Vietnam will be about 98–129% higher than that of the countries of origin not participating in the FTAs with Vietnam. The estimated results of other determinants of international tourist arrivals acting as control variables in our analysis are mainly in agreement with the

**Table 4. Robustness check by using the PPML method**

VARIABLES	(1)	(2)	(3)	(4)
lnPGDPit	0.0420*** (0.00755)	0.0412*** (0.00807)	0.0393*** (0.00734)	0.0493*** (0.00775)
lnPGDPVN	−0.0218 (0.383)	0.0143 (0.378)	0.0123 (0.377)	−0.00464 (0.385)
lnPOPit	0.0568*** (0.00280)	0.0539*** (0.00265)	0.0537*** (0.00272)	0.0568*** (0.00248)
lnPOPVN	0.777 −1.925	0.538 −1.904	0.554 −1.902	0.649 −1.936
lnRP	−0.00818 (0.00504)	−0.00821 (0.00513)	−0.00855* (0.00499)	−0.00683 (0.00522)
lnDIST	−0.0937*** (0.0129)	−0.0744*** (0.00998)	−0.0788*** (0.0143)	−0.0706*** (0.0125)
Visa dummy	0.00442 (0.00839)	0.00287 (0.00923)	0.00547 (0.00810)	−0.00638 (0.00858)
ASEAN dummy	−0.0513** (0.0204)		−0.0189 (0.0241)	
FTA dummy		0.0566*** (0.0102)	0.0513*** (0.0131)	
RTA dummy				0.0384*** (0.0144)
Constant	−12.24 (32.30)	−8.264 (31.96)	−8.483 (31.92)	−10.31 (32.48)
Observations	339	339	339	339
R-squared	0.628	0.646	0.648	0.627

Notes: Robust standard errors in parentheses. \*\*\* $p < 0.01$ , \*\* $p < 0.05$ , \* $p < 0.1$ .

expectations and with the gravity model theory. The results in column (2) of Table 3 also show that GDP per capita, population of the country of origin have a positive effect and are statistically significant at the 1% level. When increasing GDP per capita and the population of the country of origin by 1%, the number of international tourists to Vietnam will increase by 0.444% and 0.632%, respectively. In contrast, two factors of the relative price index between country of origin and Vietnam, geographical distance have a negative impact on the international tourism demand of Vietnam. When increasing relative prices and geographical distance respectively by 1%, the number of international tourists in Vietnam decreased by 0.126% and 0.929%, respectively.

When testing the phenomenon of heteroscedasticity for both equations using Wald test, our results reject the null hypothesis that the phenomenon does not exist, with this test result of equations (1) and (2), respectively:  $\chi^2(29) = 3238.15$ ,  $\text{Prob} > \chi^2 = 0.0000$ ;  $\chi^2(28) = 2150.38$ ,  $\text{Prob} > \chi^2 = 0.0000$ . As mentioned in the section “Method”, the FE-OLS estimation method cannot handle the problem of heteroscedasticity. To solve this problem, we use Poisson pseudo-maximum likelihoods (PPML) method to check the certainty of parameter estimates; PPML will yield reliable parameter estimates. Table 4 shows the results of models (1) and (2) by applying the PPML method. In general, the results in Table 4 are similar to the results in Table 3 in terms of

impact dimension and level of statistical significance. However, there is a difference in the level of impact of the variable in the model; the difference in the level of influence is relatively significant. Specifically, the magnitude of the variable RTA dummy in the method is only 0.0384, while the magnitude of this variable in the FE-OLS estimation result is 0.502; the difference is 0.4636. The magnitude of the variable FTA in column (2) of Table 4 is 0.0566, while the magnitude of this variable in the FE-OLS estimate is 0.756, and the degree of difference is approximately 0.7. The magnitude of the ASEAN variable in column 2 of Table 4 is  $-0.0513$ , while the impact of this variable in the FE-OLS estimate is  $-0.683$ , and the degree of difference is approximately 0.63. According to the results in Table 4, the magnitude of the impact of the FTA is larger than the impact of ASEAN on the number of international tourists to Vietnam. This finding aligns with previous studies (Khalid et al., 2022; Saayman et al., 2016). These FTAs include non-trade provisions relating to tourism that have a significant impact on the tourism industry in Vietnam. For example, when they signed the ASEAN-Korea Free Trade Agreement (AKFTA) in 2007, Korea and ASEAN committed to economic cooperation in several sectors, including tourism and travel-related services. After AKFTA was signed, international tourist inflows to Vietnam increased from 475,538 visitors in 2007 to 4,290,802 in 2019. Later, the FTA was improved to expand service access and strengthen member economic cooperation.

## 6. Conclusions and policy implications

In the context of the world economy following the trend of globalization, with a record number of signed trade agreements. This article explores the impact of RTAs between a country of origin and a developing country like Vietnam on international tourism demand. We have provided a comprehensive assessment of the impact of RTAs in general and the different types of RTAs including single market FTAs on 29 countries of origin between 2007–2019. Our research results have shown that RTAs signed between countries of origin and Vietnam, in general, have a positive and significant impact on Vietnam's international tourism demand. Meanwhile, joining the ASEAN community has the opposite effect on Vietnam's international tourism demand. In addition, this study also shows that the signing of FTAs between the country of origin and Vietnam has the most positive and strong impact on Vietnam's international tourism demand. Furthermore, our results once again confirm that the benefits of economic integration and trade liberalization do not increase the flow of goods and services but also help to attract international tourists. Our results provide insights for researchers as well as policymakers and highlight the need to consider including some RTA measures when modeling factors affecting international tourism demand. Therefore, in order to promote the attraction of international tourists to Vietnam, it is necessary to consider the impact of regional trade agreements. As a result, a more comprehensive strategy for making policies that take into account all of the appropriate stakeholders is required.

### Funding

This research is funded by Vietnam National University HoChiMinh City (VNU HCM) under grant number [B2021-34-03].

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### Disclosure statement

No potential conflict of interest was reported by the author(s).

### Citation information

Cite this article as: Impacts of regional trade agreements on international tourism demand: Empirical in Vietnam, Uyen Pham, Quy Trinh, Hoa Le & Uyen Vo, *Cogent Economics & Finance* (2023), 11: 2250230.

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