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Institutional quality, political risk and tourism☆

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ABSTRACT

This paper applies the gravity model to investigate the impacts of institutional quality coupled with political risks, distance, and socio-economic factors on tourist flow. We find that institutional quality and absence of conflict are driving factors in fostering tourism flows for both source and destination countries. Our findings suggest that institutional reform can help boost the economies of countries with low-quality institutions. While institutional change is a positive development in its own right, our results suggest that it can also have important additional economic benefits for countries that are highly dependent on tourism.

1. Introduction

The tourism industry is one of the key drivers of economic growth and development, that contributed US$7.6 trillion to the global economy (10.2% of the global GDP) and generated 292 million jobs (1 in 10 jobs on the planet) in 2016 (*Travel and Tourism Economic Impact*, 2017). The significant contribution of the tourism industry and many economies' increased dependency on its revenues warrant a detailed analysis of the underlying factors and trends that drive this industry. Most studies focus on economic determinants of tourism (e.g. national income, relative price, and travel cost) (Crouch, 1994; Gray, 1970; Kim, Saha, Vertinsky, & Park, 2018; Kim & Song, 2001; Lim, 1999; Socher, 1986). Another stream of literature focuses on inbound tourism, considering the impact of specific destination factors, such as heritage sites (Su & Lin, 2014), travel risk (Fischhoff, De Bruin, Perrin, & Downs, 2004), and technology and infrastructure (Zhang & Jensen, 2007).

In our study, we are motivated to incorporate the role of quality of governance and political risks to explain the demand of tourist inflow in a number of ways. First, from a demand side perspective, poor institutional quality, including internal and external conflicts, confers a negative international image of a country. Some empirical studies document that conflict adversely determines the perception of the international tourists (Pizam & Mansfeld, 2006). In addition, tourists tend to avoid poor governance areas and prefer areas that are otherwise less attractive for tourism, but which have better governance (Araña & León, 2008). Eilat and Einav (2004) document that the political risk of a destination country is a crucial consideration in tourism. Thus, poor governance quality coupled with higher political risk is detrimental to

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the growth of the tourism industry. Prior literature also argues that political risk and poor governance adversely affect the supply side of the industry (Hyndman, 2015; Saha & Yap, 2014). The prevalence of political turbulence can cause a significant number of service providers and operators in the tourism sector to suspend business activities. Prior studies document that military involvement in politics hinders the growth of tourism industry due to the absence of peace and security (Hyndman, 2015; Khalid, Okafor, & Aziz, 2019; Saha & Yap, 2014). In addition, religious conservatives in the political paradigm potentially hinder the growth of the tourism industry.

These studies are generally more expedient for researchers to undertake due to the ready availability of data. There is also a growing literature exploring the more complex and nebulous dimension of political impacts on tourism, including nations' territorial integrity, security, political stability, peacefulness, and institutions, all of which play an important role in influencing tourist inflows (Ballia, Shahzad, & Salah Uddin, 2018; Cothran & Cothran, 1998; Demir & Gozgor, 2018; Edgell, DelMastro Allen, Smitch, & Swanson, 2013; Goeldner & Ritchie, 2003; Kim et al., 2018). The threat of terrorism, domestic violence or outright civil conflict, have an especially negative effect on tourist inflows (Fratianni & Kang, 2006; Hall & O'Sullivan, 1996; Neumayer, 2004; Thompson, 2011; Yap & Saha, 2013). In contrast, the evidence on the effect of institutional quality, and corruption in particular, is mixed. While some find evidence of a negative effect of corruption (Poprawe, 2015; Yap & Saha, 2013), others argue that corruption may in fact facilitate rather than hinder business activity (Huntington, 1968; Leff, 1964).

This study re-examines the effect of institutional quality and political risk on tourism in the context of the gravity model, which has become a standard tool for analyzing trade flows (Head & Mayer, 2014). It has also been applied to flows of capital and labor. In its most basic form, it explains bilateral trade flows with the economic sizes of the two countries and the distance between them. It is often augmented to account for the nature of the relationship between countries, such as contiguity, common language or colonial legacy, and the presence of preferential relations. As trade relationships are inherently bilateral, the gravity model is a superior tool for analyzing the determinants of trade flows than models based on total trade flows.

We contribute to the tourism literature in a number of ways. First, our study is comprehnesive in covering a large data set for 134 countries of origin and 31 destination countries. Second, we assess the relative roles economic determinants of tourist flows, geography, political risk, and institutional quality on the tourist flows. Third, our findings are robust over basic and augmented gravity models, including the Hausman-Taylor (Hausman & Taylor, 1981) and Poisson Pseudo-Maximum Likelihood approaches. Finally, our findings demonstrate that institutional quality, conflict, and government stability are important determinants to explain the tourist flows from 134 countries of origin to 31 destination countries.

The rest of the paper is organized as follows. The next section briefly discusses the existing literature. Section 3 presents the data. Section 4 describes the model specifications and the econometric methodology. The results are presented in Section 5, while the conclusions are presented in Section 6.

2. Literature review

Institutions include formal and informal norms that determine how people behave to one another (North, 1990). Good institutions are conducive to economic growth and development, because they foster trust and cooperation, encourage investment, and deter free riding and rent seeking. Bad institutions tend to translate into economic stagnation, graft, and political instability. There is plentiful evidence that institutional quality is one of the main determinants (if not the main factor) of differences in economic development across countries (Acemoglu, Johnson, & Robinson, 2001, 2002; Hall & Jones, 1999).

Whether institutional quality should have any significant impact on the economies of tourism-dependent countries is less obvious. Tourists, especially those travelling to less-developed countries, typically only visit specific areas, stay for relatively short periods of time, and engage only in relatively simple economic exchanges with the local population and business sector. Moreover, countries that treat their own citizens rather poorly with respect to institutional quality and political rights can nevertheless successfully shield tourists from the adverse effects of poor institutions and ensure their access to all modern conveniences. The small yet lively tourism industry in North Korea, one of the most repressive countries in the world, is a prime example of such an approach: tourists who abide by basic preannounced rules are granted material comforts and free from repression. It is therefore an open question whether tourism-dependent countries lose much by not improving institutional quality.

The small but growing literature exploring aspects of the nexus between tourism and institutional quality can be classified into two major strands. The first strand argues that domestic institutional quality is a crucial determinant in attracting international tourist inflow, which eventually promotes economic growth. Empirical investigations document that institutional quality in potential destination countries is an important determinant of inbound tourism (Aas, Ladkin, & Fletcher, 2005; Dacin, Goodstein, & Scott, 2002; Goeldner & Ritchie, 2003). Enders, Sandler, and Parise (1992) studied the impact of terrorism on tourism in Spain and other Western countries, suggesting that three to nine months could often pass before tourist arrivals decreased drastically, although this reflects the intrinsic lag effect due to travel agency packages, particularly prior to the era of online booking (i.e. prior to the 2000s, people may have already booked and paid for holidays in countries that subsequently experienced increased violence, so that arrivals start falling only after a delay reflecting a falloff in advanced bookings immediately following terrorist incidents). Hall and O'Sullivan (1996, p. 117) argue that tourist visitation is profoundly affected by 'perceptions of political instability and violence'. Violent protests, social unrest, civil war, tourist actions, the perceived violations of human rights or perceived threats to these activities can all serve to the cause tourists to alter their behavior. Besides the institutional factors, branding destination image (Shams, 2016a), and the capacity of host stakeholders (Shams, 2016b, 2016c, 2017) are also important determinants that tourists consider.

The second strand of literature argues that high institutional quality can actually be detrimental to tourist inflow. For instance, the effects of corruption on tourism are manifold, and are not necessarily only negative (Dutt & Traça, 2010). For instance, corruption may facilitate business activity, thus increasing the speed or 'velocity' of money, and hence the speed of business transactions. In this respect, corruption may sometimes have positive side-effects for tourists, who make arrangements or enjoy products that might not have been possible without the payment of bribes or tips; such tourism is generally associated with illicit and criminal activities (e.g. gambling and prostitution).

A large volume of studies investigated the most appropriate econometric specification for analyzing tourism (Eilat & Einav, 2004; Etzo, Massidda, & Piras, 2014; Massidda & Etzo, 2012; Song & Li, 2008; Song, Witt, & Li, 2009; Um & Crompton, 1990; Witt & Witt, 1995; Wong, 1997a, 1997b; Wong, Song, & Chon, 2006). Although there was a tendency to neglect the gravity model in recent literature, it is coming back into use for modelling tourism flows, particularly in circumstances where there is a need to include and evaluate the role of structural factors. A few recent studies applied the gravity model in explaining tourist flows (e.g., Gallego et al.,2016; Khadaroo & Seetanah, 2008; Yang & Wong, 2012; and Eryiğit, Kotil, & Eryiğit, 2010). For instance, Santana Gallego et al., (2016) documented that the bilateral tourist flows enhance trade between countries. Khadaroo and Seetanah (2008) applied the gravity model to investigate the role of transport infrastructure in attracting tourists. Yang and Wong (2012) assessed the impact of cultural distance on inbound tourist flows to China. The study found that social axioms are a barrier to international travel. Eryiğit et al. (2010) documented that distance negatively affects tourist inflow to Turkey. The study also highlighted that tourism climate index plays an important role in explaining the tourist flow between Turkey and other countries. However, these studies overlooked the role of institutional and political risk in their gravity frameworks. Keum (2010) explores the validity of the gravity equation to explain the patterns of international tourism flows, while Archibald, LaCorbinière, and Moore (2008) employ a dynamic gravity model to measure the competitiveness of Caribbean tourism markets. Gravity models have been used to investigate the impact of mega-events (i.e. cultural and sports undertakings) on tourist inflows into the host-country/region (Fourie & Santana-Gallego, 2011). Fourie and Santana-Gallego (2013) studied determinants that drive inbound tourism arrivals in Africa from outside, and from elsewhere within Africa. They find that factors affecting African-inbound and African-internal tourism are quite similar to those affecting global tourist flows, such as income, distance, and land area. Gil-Pareja, Llorca-Vivero, and Martinez-Serrano (2007a, 2007b) report that common language, as well as the presence of embassies and consulates, are important factors attracting tourist arrivals from G7 countries.

3. Data

In order to measure the impact of institutional quality and political risk on tourism, we use data from 131 tourist origin countries[1] and the top 34 destination[2] countries over the period 2005–2014 (Table 1). We select our sample countries based on the availability of the data. Our dependent variable is tourist arrivals (LNTR) obtained from the UN World Tourism Organization (UNWTO, 2015) dataset. UNWTO (2015) defines a 'tourist' as an 'overnight visitor', whereas 'visitor' refers to a broader concept, which includes both tourists and same-day visitors (e.g. cruise passengers). UNWTO takes great care to reconcile differences in national data collection on tourism to publish an annual summary of all tourism flows among countries. A set of macroeconomic indicators is drawn from the World Development Indicators published by the World Bank (2014). The gravity variables are provided by the Centre d'Etudes Prospectives et d'Informations Internationales (CEPII, 2014), including bilateral distance, and dummies for common culture and common borders.

To measure institutional quality, this study relies on the International Country Risk Guide (ICRG, 2018) country risk composite score. The ICRG provides detailed monthly data for 140 developed, emerging, and frontier markets since December 2003 (Hoti, McAleer, & Shareef, 2005). The ICRG database contains 22 variables explaining three components of country risk—economic, financial and political—whereby 12 variables represent the political component, and 5 each represent the economic and financial components. The scores range from 0 to 12, with higher scores representing lower risks (and thus a more favorable institutional environment). As we are primarily interested in the effect of political risk and institutional quality on tourism flows, we use the following political-risk indexes:

(1) Government stability (GS); (2) Military in politics (MP); (3) Socio-economic conditions (SC); (4) Religion in politics (RP); (5) Investment profile (IP); (6) Law & order (LO); (7) Internal conflict (IC); (8) Ethnic tensions (ET); (9) External conflict (EC); (10) Democratic accountability (DA); (11) Corruption (CC); (12) Bureaucracy quality (BQ).

Principal components analysis (PCA) is used, followed by varimax rotation to resolve the problem with high correlations between some of these indexes. On standard eigenvalue-based criteria, whereby we choose principal components with eigenvalues > 1, we retain three components which, between them, explain almost 71% of total variance. Table 2 lists the principal components, whilst Fig. 1 shows the relative component loadings.[3]

The first component, which we call 'institutional quality', is correlated with socio-economic conditions, bureaucracy quality (with factor-loading > 0.4), investment profile, corruption, law and order (> 0.3), and military-in-politics. The second component represents cultural conflict, as it is highly correlated with religious tensions, ethnic tensions, internal and external conflicts/tensions. The last component represents public accountability, and government stability with a negative value. Hence, we can say that the higher values indicate a greater degree of government stability, but a lower degree of democratic accountability. We allocate the values of these three indexes to the destinations and origins of tourist flows.

4. Methodology

This section is based on the pioneering work of three previous studies: Santos Silva and Tenreyro (2006), Serlenga and Shin (2007), and Culiuc (2014). Given the nature of our data, we apply the gravity model in explaining the role of institutional quality on tourist inflow, following Morley, Rosselló, and Santana-Gallego (2014) and Culiuc (2014). Gravity model assumes that the bilateral relationship between two countries can be modelled as a multiplicative function of the economic masses of the two economies (i.e. in terms of incomes, expenditures, or endowments), the inverse of economic distance (trade costs, investment costs, or migration costs), and some constant, akin to the eponymous Law of Gravity postulated by Isaac Newton:

$$T_{odt} = K.\ \frac{M_{ot.}M_{dt}}{D_{od}} \quad (1)$$

where $M_{ot.}$and M_{dt} are the *mass* (economic size) variables of the origin and destination, respectively, and $\boldsymbol{D_{od}}$ denotes the distance between the origin and destination.

Besides the main variables of gravity (mass variables), most studies include additional dummy variables to consider the social, geographical and political factors such as common language or border etc.

After taking logs, the gravity model of tourism takes the following form (Culiuc, 2014, p. 10):

$$ln\,T_{odt} = B_1\,ln\,P_{ot} + B_2\,ln\,P_{dt} + B_3\,ln\,D_{od} + B_A X_{odt} + \eta_t + \varepsilon_{odt} = 1 \ldots T \quad (2)$$

[1] Albania, Algeria, Angola, Argentina, Armenia, Australia, Austria, Azerbaijan, Bahamas, Bahrain, Bangladesh, Belarus, Belgium, Bolivia, Botswana, Brazil, Brunei Darussalam, Bulgaria, Burkina Faso, Cameroon, Cameroon, Canada, Chile, China,P.R.: Mainland, China,P.R.:Hong Kong, Colombia, Congo Republic, Costa Rica, Kenya, Cote d'Ivoire, Croatia, Cuba, Cyprus, Czech Republic, Dominican Republic, Ecuador, Egypt, El Salvador, Ghana, Greece, Guatemala, Guinea, Guinea-Bissau, Guyana, Haiti, Honduras, Hungary, Iceland, India, Indonesia, Iran, I.R. Of, Iraq, Ireland, Israel, Italy, Jamaica, Japan, Jordan, Kazakhstan, Kuwait, Latvia, Lebanon, Liberia, Libya, Lithuania, Luxembourg, Madagascar, Malawi, Malaysia, Malta, Mexico, Moldova, Mongolia, Morocco, Mozambique, Myanmar, Nigeria, Norway, Oman, Pakistan, Panama, Papua New Guinea, Paraguay, Peru, Philippines, Poland, Portugal, Qatar, Romania, Russia, Saudi Arabia, Senegal, Sierra Leone, Singapore, Slovak Republic, Slovenia, Somalia, South Africa, Spain, Sri Lanka, Sudan, Suriname, Sweden, Switzerland, Syrian Arab Republic, Tanzania, Thailand, Togo, Trinidad and Tobago, Tunisia, Turkey, Uganda, Ukraine, United Arab Emirates, United Kingdom, United States, Uruguay, Venezuela, Zimbabwe.

[2] Angola, Malawi, Armenia, Malaysia, Bahamas, The Mexico, Botswana, Papua New Guinea, Brazil, Peru, Canada, Philippines, Cyprus, Portugal, Dominican Republic, South Africa, Ethiopia, Spain, France, Sri Lanka, Guinea, Suriname, Indonesia, Thailand, Ireland, Trinidad and Tobago, Israel, Ukraine, Jamaica, United States, Zambia.

[3] The descriptive statistics for the political risk variables are presented in Appendix 1, while the remaining variables in the analysis are summarized in Appendix 2. The scoring coefficients are given in Appendix 3.

Table 1
Variable, definition and source.

Variable	Label	Measure	Source	Study
Tourist arrivals	LNTR	Log of tourist arrivals to destination-country from the origin-country.	WTO	Kim et al. (2018)
Gravity variables				
Gross domestic product per capita of destination	LGDPCD	Log of gross domestic product per capita of the destination-country.	WDI	Crescimanno, Galati, and Yahiaoui (2013)
Gross domestic product per capita of origin	LGDPCO	Log of gross domestic product per capita of the origin-country.	WDI	Crescimanno et al. (2013)
Geographic variables				
Distance between countries in pair	LDIST	Log of the distance between countries in the pair as a proxy of transport costs.	CEPII	Fourie and Santana-Gallego (2013)
Common border	COMBR	Dummy variable: both countries in the pair share a common land border.		Timothy (1995).
Social variables				
Common language	COMLN	Dummy variable: both countries in the pair have the same language.	CEPII	Gil-Pareja et al. (2007a)
Common legal origins	COMLEGO	Binary variable that takes value one if the two countries in a country-pair have the same legal origins.	CEPII	Gil-Pareja et al. (2007a)
Population size of destination-country	LPOPD	Population size for destination-country.	WDI	Kim et al. (2018)
Population size of origin-country	LPOPO	Population size for origin-country.	WDI	
Common colonizer	COMCOL	Common colonizer between origin source of the tourist and host-country.	CEPII	
Political variables				
Institutional quality	PC1	The first component, called the institutional quality.		Kim et al. (2018).
Conflict culture	PC2	The second component, called conflict culture.	ICRG	
Public accountability and government stability	PC3	The third component, representing public accountability and government stability.	ICRG	

Table 2
Principal components (eigenvectors).

Component	Eigenvalue	Difference	Proportion	Cumulative
Comp1	5.7194	4.1166	0.4766	0.4766
Comp2	1.60277	0.4642	0.1336	0.6102
Comp3	1.1385	0.21655	0.0949	0.7051
Comp4	0.922017	0.324344	0.0768	0.7819
Comp5	0.597673	0.158717	0.0498	0.8317
Comp6	0.438956	0.0365617	0.0366	0.8683
Comp7	0.402394	0.0577924	0.0335	0.9018
Comp8	0.344602	0.0903113	0.0287	0.9305
Comp9	0.254290	0.0224054	0.0212	0.9517
Comp10	0.231885	0.0290877	0.0193	0.9710
Comp11	0.202797	0.0581637	0.0169	0.9879
Comp12	0.144634		0.0121	1.0000

where PY_{ot} and PY_{dt} are the populations of the origin-country and destination-country, respectively, and are used as measures of the economic size of the two countries. Gravity models of trade flow usually measure country mass by using GDP. We use population, since our dependent variable is tourism flow (number of visitors) rather than the monetary value of tourist services. As before, D_{od} is the distance between the two countries. $X_{odt}$is a $1 \times k$ vector of other factors, and η_t is a set of T year dummies capturing common time effects.

However, the specification in Eq. (2) suffers from omitted-variables bias, as mentioned by Anderson and van Wincoop (2003), because it captures only the characteristics of origin and destination, without taking into account the reasons (i.e. the 'attractiveness') motivating the flows that occur from o to d, as compared to flows going from o to other destinations. As bilateral flows are based on multilateral parameters,

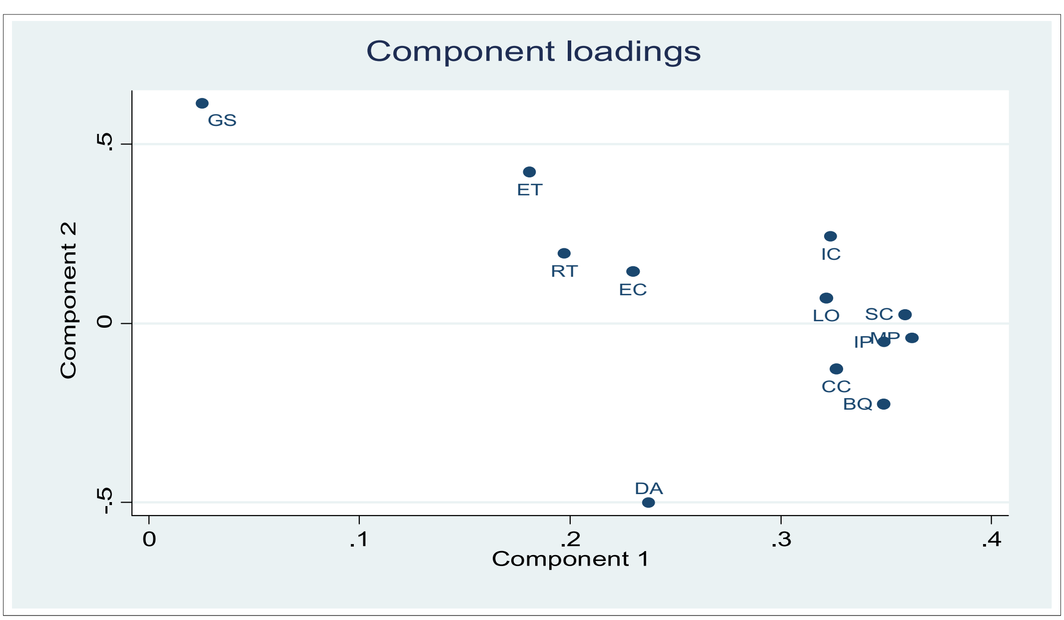

Fig. 1. Component loadings.

one way of dealing with the problem of multilateral parameters is to introduce dummies for origin countries and for destination countries, whereby the specification then becomes:

$$ln\, T_{odt} = B_1\, ln\, P_{ot} + B_2\, ln\, P_{dt} + B_3\, ln\, D_{od} + B_A X_{odt} + \omega_o + \delta_d + \eta_t + \varepsilon_{odt} \quad (3)$$

where ω_o and δ_d are origin and destination dummy variables, respectively.

The inclusion of country of origin/destination dummy variables implies that we are not able to estimate the coefficients of time-invariant country variables, such as geographical ones (e.g. the surface area of a country) in the gravity equation. This problem can be addressed by using a fixed-effects approach where the unit of observation is the country-pair. When we introduce country-pair dummies, φ_{od}, the regression becomes:

$$lnT_{odt} = B_1\, ln\, P_{ot} + B_2\, ln\, P_{dt} + \mathrm{B}_3\, ln\, D_{od} + B_A X_{odt} + \varepsilon_{odt} + \eta_t + \varphi_{od} \quad (4)$$

Egger (2002, 2005) and Culiuc (2014) suggest using the Hausman and Taylor (1981) model (HTM), which allows estimating coefficients on time-invariant variables by imposing assumptions on the endogeneity/exogeneity of each variable. The HTM estimator has advantages over the fixed- and random-effects models, since it depends on instrumental variables used for between and within the variation of the strictly exogenous variables (Egger, 2002, 2005). On the other hand, one of the disadvantages of the HTM estimator is the problem of how one defines the endogeneity and exogeneity of variables. We treat GDP per capita and population as endogenous. According to HTM, we can divide the explanatory variables into four categories: time-varying ($X_{it}{}^1$); uncorrelated with individual effects α_i and time-varying ($X_{it}{}^2$) correlated with α_i; time-invariant ($Z_i{}^1$) uncorrelated with α_i, $i = o, d$; and time-invariant ($Z_i{}^2$) correlated with α_i, as follows (Rault, Sova, & Sova, 2007):

$$T_{odt} = \beta_0 + \beta_1 X_{it}^1 + \beta_2 X_{it}^2 + Z_i^1 \gamma_1 + Z_i^2 \gamma_2 + \alpha_i + \theta_t + \eta_{odt} \quad (5)$$

where $\beta_1$and β_2 are the coefficients for time-varying variables, γ_1 and $\gamma_2$are the vectors of coefficients for time-invariant ones, θ_t is the time-specific effect common to all units (applied to correct the impact of all the individual invariant determinants), α_i represents the individual effects that account for the effects of all possible time-invariant factors, and η_{odt} is a zero mean idiosyncratic random disturbance uncorrelated within cross-sectional units.

A particular problem is posed in the case of zero tourist flows. Santos Silva and Tenreyro (2006) discuss how the logarithmic transformation of the model is beset by difficulties in dealing with zero-trade flows. They suggest an alternative way for estimating log-linearized regressions that comes from the direct estimation of the multiplicative form of the gravity equation, pointing out that this is the most natural procedure, without the need of any further information on the pattern of heteroskedasticity. The advantages of this model are that it deals with the zero-trade flows problem, providing unbiased estimates in the presence of heteroskedasticity, whereby all observations are weighted equally, and the mean is always positive. The disadvantage is that it may present limited-dependent variable bias when some observations are censored (Santos Silva & Tenreyro, 2006; Shepherd & Wilson, 2009; Siliverstovs & Schumacher, 2009; Westerlund & Wilhelmsson, 2009). Santos Silva and Tenreyro (2006) present the gravity equation in the exponential form:

$$T_{odt} = \exp(X_{odt}\beta) + \varepsilon_{od} \quad (6)$$

where T_{odt} represents the bilateral trade between the country of origin o and country of destination d, and X_{odt} is a vector of explanatory variables (some of which may be linear, some logarithmic, and some dummy variables).

Therefore, we can introduce the Poisson Pseudo-Maximum Likelihood estimator (PPML) estimator as defined by Santos Silva and Tenreyro (2006).

$$\beta^{\sim} = \arg\, min_b \sum_{i,j}^{n} \left[T_{odt} - exp\left(X_{odt}\, b \right) \right]^2$$

This is used to solve the following set of first-order conditions:

$$\sum_{o,d} [T_{odt} - \exp(X_{odt}\beta^{\sim})]X_{odt} = 0 \quad (7)$$

We thus compare the results of log-linear regressions (with fixed effects for individual countries or country-pairs), Hausman-Taylor, and Poisson models, in a gravity-equation setting with an extended set of political-risk ICRG controls.

5. Results and discussion

First, we estimate three alternative specifications of the gravity model: (a) in the first model, we consider the core variables of gravity model, e.g. distance between origin and destination countries, and population of both origin and destination countries; (b) in the second model, we add economic, geographical, social indicators; and (c) in the third model, we further extend the model to consider political-risk variables. The analysis is based on 134 origin and 31 destination countries during the period 2005–2014. Table 3 shows the descriptive statistics.

As can be seen from the first column in Table 4, the GDP, distance, and population of both countries strongly influence tourism flows. Distance is estimated with a negative coefficient, which indicates that an increase in distance reduces tourist flows. Our findings corroborate Fourie and Santana-Gallego's (2013) observation that distance is inversely associated with tourist flows, as it is associated with costs. As expected, the size of population and GDP per capita in both countries are positively correlated with tourism flows.

Next, we augment the basic gravity equation by adding variables capturing the nature and strength of ties between countries (third column in Table 4). Common border, currency, and language exert a positive influence on tourist inflow, while common colonizer is detrimental to it. Finally, we also add political-risk factors (third column). Higher values of the first two principal components (institutional quality and conflict) indicate better quality of institutions and lower risk. Our results suggest that better institutions and lower risk of conflict in both origin and destination country alike translate into higher tourist flow. Regarding the the third component, higher values are associated with lower degrees of democratic accountability: our results imply that low accountability exerts a negative effect on tourist flows. Our finding mirrors those of studies revealing strong evidence the tourist flow being responsive to political risks factors (Araña & León, 2008; Eilat & Einav, 2004; Hyndman, 2015; Khalid et al., 2019; Pizam & Mansfeld, 2006; Saha & Yap, 2014).

Table 5 presents the results after controlling for the origin and/or destination fixed effects. Geographical distance again has a negative impact on bilateral tourism flows. However, the significance of population and output per capita vanishes: given that these factors generally change little from year to year, their importance is picked up by the fixed effects. Adding fixed effects also reduces the significance of

Table 3
Descriptive statistics.

Variable	Obs	Mean	Std. Dev.	Min	Max
Tourist flow	19,926	8.2761	0.5754	7.4830	9.2315
Distance	19,926	8.8222	0.2073	8.6491	9.2250
GDP Origin	19,926	10.8931	0.2022	10.6550	11.2765
GDP destination	19,926	10.6525	0.0965	10.4795	10.7821
Population Destination	19,926	16.7676	0.4995	16.3224	17.7271
Population Origin	19,926	17.2082	0.8026	16.5050	18.7571
Rule of law	19,926	0.0528	0.3678	0.2691	0.7587
Conflicts	19,926	0.4047	0	0.4047	0.4047

Table 4
Basic and augmented gravity models.

Variables	(Traditional gravity) logtourism	(Extended gravity) logtourism	(Extended gravity with political risk) logtourism
LDIST	−0.923***	−0.969***	−0.546***
	(0.0392)	(0.0369)	(0.0182)
LPOPD	0.842***	0.727***	0.812***
	(0.0129)	(0.0137)	(0.0088)
LPOPO	0.505***	0.517***	0.718***
	(0.0137)	(0.0221)	(0.0141)
LGDPCD		0.211***	0.0218*
		(0.0174)	(0.0120)
LGDPCO		0.0524***	0.00775**
		(0.0125)	(0.0075)
COMBR		1.278***	1.601***
		(0.159)	(0.127)
COMLN		0.818***	0.497***
		(0.0750)	(0.0154)
COMCOL		−0.644***	−0.0463**
		(0.0965)	(0.0792)
COMLEGO		0.0982**	0.401***
		(0.0685)	(0.050)
COMCUR		3.187***	0.236**
		(0.149)	(0.0992)
DPC1			0.443***
			(0.0108)
DPC2			0.226***
			(0.0158)
DPC3			−0.188***
			(0.0223)
OPC1			0.569***
			(0.0123)
OPC2			0.199***
			(0.0178)
OPC3			−0.226***
			(0.0150)
Constant	−4.147***	−3.353***	−5.314***
	(0.410)	(0.470)	(0.353)
Observations	19,926	19,926	19,926
R–squared	0.439	0.570	0.798

Note: Robust standard errors in parentheses*** $p < .01$, ** $p < .05$, * $p < .1$
No time- or country-fixed effects included.
Dependent variable is Tourist arrivals (LNTR). Control variables: GDP per capita of the destination (LGDPCD); GDP per capita of the origin (LGDPCO); Population of destination (LPOPD) Population of origin (LPOPO); Distance (LDIST); Common border (COMBR); Common language (COMLN); Common legal origins (COMLEGO); Common colonizer (COMCOL); Institutional quality (DPC1 and OPC1 for destination and origin), Conflict culture (DPC2 and OPC2); and Public accountability and Government stability (DPC3 and OPC3).

institutional variables, which is unsurprising, as institutions, although not time-invariant, also tend to change little from year to year. The coefficients of institutional quality index are positive and significant in promoting tourism, whereas the significance of the remaining two principal components disappears. Common border, common language, and common legal origins again encourage tourism flows among countries.

Finally, we add controls for time and country-pair effects jointly so as to capture time-invariant factors, such as distance and common border, as well as slowly changing factors such as trust and social linkages (Papaioannou, 2009). We now also use the overall index of ICRG variables, calculated as the sum of the 12 indicators for origin and destination (PCO and PCD), in addition to the three principal components, as shown in Table 6, whereby institutional quality is only important for destination countries. Interestingly, economic and demographic factors influence both origin and destination countries similarly. These results highlight the stark fact that the success of a tourism destinations in attracting tourists is in a great part determined by the degree of its success in removing political risks and improving the quality of governance, institutions, and other relevant public bodies

Table 5
Estimation results of the gravity equation origin and destinations effects.

Variables	(or/de fixed effects) logtourism	(de fixed effects) logtourism	(or fixed effects) logtourism
LDIST	−1.414***	−1.413***	−1.421***
	(0.0287)	(0.0303)	(0.024)
LPOPD	−0.0784	−0.315	0.837***
	(0.9380)	(1.0570)	(0.0060)
LPOPO	0.4210	0.769***	0.6251
	(0.5350)	(0.0117)	(0.5680)
LGDPCD	0.3230	0.320	0.0228**
	(0.2810)	(0.345)	(0.0109)
LGDPCO	0.3510	−0.00414	0.6020*
	(0.3380)	(0.0083)	(0.3660)
COMBR	1.4180***	1.4401***	1.5602***
	(0.1270)	(0.1271)	(0.1261)
COMLN	0.8341***	0.6401***	0.6131***
	(0.0560)	(0.0522)	(0.0533)
COMCOL	0.1720**	−0.1650**	0.3561***
	(0.0771)	(0.0804)	(0.0754)
COMCUR	−0.1890*	−0.3260***	−0.1360
	(0.1050)	(0.115)	(0.102)
COMLEGO	0.237***	0.331***	0.282***
	(0.0394)	(0.0411)	(0.0422)
DPC1	0.1181**	0.0861*	0.4571***
	(0.0742)	(0.0973)	(0.0095)
DPC2	0.1021*	0.1270	0.1670***
	(0.106)	(0.115)	(0.0143)
DPC3	0.00964	0.0422	−0.113***
	(0.0414)	(0.0479)	(0.0199)
OPC1	0.0200*	0.539***	0.0425
	(0.0947)	(0.0100)	(0.106)
OPC2	−0.0300	0.170***	−0.00482
	(0.0912)	(0.0162)	(0.0985)
OPC3	0.0248	−0.201***	0.0343
	(0.0456)	(0.0153)	(0.0492)
Constant	3.759	6.893	−13.49
	(16.79)	(14.85)	(10.69)
Time effects	yes	yes	Yes
Destination effects	yes	yes	No
Origin effects	yes	no	Yes
Observations	19,926	19,926	19,926
R-squared	0.860	0.801	0.820

Note: Robust standard errors in parentheses*** $p < .01$, ** $p < .05$, * $p < .1$.
Dependent variable is Tourist arrivals (LNTR). Control variables: GDP per capita of the destination (LGDPCD); GDP per capita of the origin (LGDPCO); Population of destination (LPOPD) Population of origin (LPOPO); Distance (LDIST); Common border (COMBR); Common language (COMLN); Common legal origins (COMLEGO); Common colonizer (COMCOL); Institutional quality (DPC1 and OPC1 for destination and origin), Conflict culture (DPC2 and OPC2); and Public accountability and Government stability (DPC3 and OPC3).

and services.

The results obtained with the Hausman-Taylor Model are shown in Table 7. In the first regression we use all *three* political-risk variables for origin and destination, then we add the principal components individually.

We can see that higher values of the first component (institutional quality) for destination is positive and significant at the 1% level: countries with better institutions attract more tourists. The remaining institutional variables are not significant, except the conflict index in origin-countries (the second principal component): greater numbers of tourists originate from countries that enjoy low levels of religious tension and conflict. In all specifications, tourism increases when any two countries have the same colonial background or share a common border, common language, or common currency.

Economic factors (income) are more important for origin-countries than for destination-countries: the coefficient of GDP per capita for origin-countries is considerably higher than that for GDP per capita of destination-countries. This is understandable: more affluent individuals usually have more disposable income, thus they are better able to spend

Table 6
Estimation results of the gravity equation with country-pair effects.

Variables	(1)	(2)	(3)
	Logtourism	Logtourism	Logtourism
LPOPD	1.1581***	0.7632***	1.1405***
	(0.310)	(0.315)	(0.302)
LPOPO	0.3981*	0.3151**	0.4142*
	(0.230)	(0.232)	(0.2302)
LGDPCD	0.4021***	0.339*	0.3381**
	(0.132)	(0.139)	(0.137)
LGDPCO	0.915***	0.8151***	0.9365***
	(0.1181)	(0.1210)	(0.1192)
DPC1		0.1511***	
		(0.0317)	
DPC2		0.0496*	
		(0.0378)	
DPC3		−0.0435***	
		(0.0121)	
OPC1		0.00713	
		(0.0337)	
OPC2		−0.0555	
		(0.0342)	
OPC3		−0.0013	
		(0.0146)	
PCD			0.6171***
			(0.301)
PCO			−0.369
			(0.358)
Time effects	Yes	Yes	Yes
Country-pair effects	Yes	Yes	Yes
Constant	−5.061***	−4.89***	−3.15***
	(2.407)	(1.644)	(1.055)
Observations	19,926	19,926	19,926
R-squared	0.971	0.962	0.971

Note: Robust standard errors in parentheses: *** p < .01, ** p < .05, * p < .1.
Dependent variable is Tourist arrivals (LNTR). Control variables: GDP per capita of the destination (LGDPCD); GDP per capita of the origin (LGDPCO); Population of destination (LPOPD) Population of origin (LPOPO); Distance (LDIST); Common border (COMBR); Common language (COMLN); Common legal origins (COMLEGO); Common colonizer (COMCOL); Institutional quality (DPC1 and OPC1 for destination and origin), Conflict culture (DPC2 and OPC2); and Public accountability and Government stability (DPC3 and OPC3).

Table 7
Hausman-Taylor model.

VARIABLES	(1)	(2)	(3)	(4)
	logtourism	logtourism	logtourism	logtourism
LPOPD	1.4101***	1.023***	1.431***	1.232***
	(0.0532)	(0.0327)	(0.0213)	(0.0250)
LPOPO	1.0360***	1.0350***	1.1571***	1.0321***
	(0.0695)	(0.0700)	(0.0613)	(0.0613)
LGDPCD	0.3271***	0.3361***	0.4103***	0.4184***
	(0.0753)	(0.0758)	(0.0724)	(0.0734)
LGDPCO	1.096***	1.1481***	1.0408***	1.0303***
	(0.0905)	(0.0871)	(0.0840)	(0.0457)
DPC1	0.1131***	0.0492***		
	(0.0311)	(0.0154)		
DPC2	0.0140		0.00211*	
	(0.0295)		(0.0278)	
DPC3	−0.01721			0.00458
	(0.0133)			(0.0112)
OPC1	−0.0357	−0.0497*		
	(0.0301)	(0.0256)		
OPC2	0.0333**		0.0312***	
	(0.0208)		(0.0240)	
OPC3	−0.00711			0.00569
	(0.0141)			(0.0126)
LDIST	0.129	0.134	0.220	0.193
	(0.209)	(0.212)	(0.209)	(0.210)
COMLN	0.776**	0.878**	0.909**	0.968***
	(0.357)	(0.364)	(0.362)	(0.365)
COMCUR	2.513***	3.215***	3.814***	3.812***
	(0.661)	(0.414)	(0.688)	(0.6541)
COMBR	3.237***	3.310***	3.5310***	3.5132***
	(0.582)	(0.597)	(0.591)	(0.597)
COMLEGO	0.102	0.0988	−0.0181	0.00422
	(0.225)	(0.231)	(0.227)	(0.230)
COMCOL	1.008***	1.031***	1.141***	1.148***
	(0.258)	(0.265)	(0.261)	(0.263)
Constant	−46.92***	−48.19***	−48.65***	−49.22***
	(3.198)	(3.168)	(3.136)	(3.180)
Observations	19,926	19,926	19,926	19,926
Number of paired	1973	1973	1973	1973
Sargen test	0.19	0.13	0.09	0.08

Note: Robust standard errors in parentheses*** p < .01, ** p < .05, * p < .1.
Dependent variable is Tourist arrivals (LNTR). Control variables: GDP per capita of the destination (LGDPCD); GDP per capita of the origin (LGDPCO); Population of destination (LPOPD) Population of origin (LPOPO); Distance (LDIST); Common border (COMBR); Common language (COMLN); Common legal origins (COMLEGO); Common colonizer (COMCOL); Institutional quality (DPC1 and OPC1 for destination and origin), Conflict culture (DPC2 and OPC2); and Public accountability and Government stability (DPC3 and OPC3).

a greater amount of money on travel. In the HTM specifications, we find that distance has no significant influence on tourism flows.

Finally, we also estimate our model by applying the Poisson estimator with clustered standard errors, since the coefficients from OLS regressions can be questionable in the presence of heteroscedasticity. Our estimation also allows clusters within country-pairs to address the issues of over-dispersion associated with Poisson distributions as well as serial correlation. Table 8 shows that the PPML estimation results are similar to the pooled OLS results. GDP per person and population size continue to have significant positive impacts on tourism flows, although the coefficients in each case become smaller. Common language and common border are important determinants of tourism in all five regressions. Our findings confirm those of Gil-Pareja et al. (2007a, 2007b), who reported that common language, as well as the presence of embassies and consulates, are important factors attracting tourist arrivals from G7 countries. In addition, the results show that better institutional quality and the lack of conflict both encourage tourism flows.

6. Conclusions

This paper examined the roles played by institutional quality and political risk as determinants of tourism flows using the gravity model estimated with OLS, Hausman-Taylor, and PPML technique. To this effect, we use principal component analysis to generate three institutional-quality indexes, corresponding to institutional quality, conflict, and government stability. All three estimation techniques indicate that institutional quality is an important determinant of tourist flows. This is especially the case for institutional quality and risk of conflict. The estimated effects are stronger for the destinations of tourist flows than for the countries of origin.

Our empirical investigation yields several interesting findings. First, lower levels of political risk in the destination countries contribute to increase tourism flows. Second, higher quality of institutions is a driving factor promoting tourist inflows in destination countries. Third, gravity factors like population size, GDP per capita, distance, common border, and languages play important roles in explaining the tourist flows.

Tourism receipts can form a considerable proportion of national GDP, especially in developing countries (Faber & Cecile, 2019). Our findings thus show that reducing political risk and improving institutional quality can translate into significant economic gains for the destination countries by helping increase the size of the tourism sector. Importantly, these gains are additional to the other benefits that improvements in the quality of institutions and lower political risk bring

Table 8
Results of count model (Poisson Model).

Variables	(1)	(2)	(3)	(4)	(5)
	Tourism flows	Tourism flows	Tourism flows	Tourism flows	Tourism flows
LDIST	−1.1130***	−0.8150***	−0.8101***	−1.1230***	−1.1240***
	(0.117)	(0.1022)	(0.108)	(0.1201)	(0.1160)
LPOPD	0.7301***	0.6160***	0.60101***	0.8124***	0.6105***
	(0.0335)	(0.0323)	(0.0328)	(0.0295)	(0.0325)
LPOPO	0.574***	0.605***	0.584***	0.662***	0.551***
	(0.0265)	(0.0385)	(0.0367)	(0.0328)	(0.0287)
LGDPCD	−0.0396	−0.00141	−0.118***	0.120***	−0.0256
	(0.0242)	(0.0375)	(0.0293)	(0.0381)	(0.0258)
LGDPCO	0.0445***	0.0247	0.0174	0.0663***	0.0525***
	(0.0150)	(0.0201)	(0.0202)	(0.0155)	(0.0156)
COMBR	1.1130***	1.3861***	1.4701***	1.0161***	1.0610***
	(0.3141)	(0.2471)	(0.2741)	(0.2891)	(0.2591)
COMLN	0.4910***	−0.4130**	−0.362**	0.3791***	0.4320***
	(0.0736)	(0.1471)	(0.1450)	(0.1067)	(0.1146)
COMCOL	−0.0488	1.237***	1.016***	0.415***	0.297
	(0.155)	(0.208)	(0.185)	(0.158)	(0.193)
COMLEGO	−0.0352	0.0931	0.148	−0.180	−0.103
	(0.134)	(0.131)	(0.130)	(0.148)	(0.142)
COMCUR	1.398***	0.469**	0.253	1.410***	1.396***
	(0.142)	(0.206)	(0.200)	(0.145)	(0.162)
DPC1		0.228***	0.291***		
		(0.0349)	(0.0293)		
DPC2		0.240***		0.418***	
		(0.0613)		(0.0530)	
DPC3		−0.0385			−0.0261
		(0.0807)			(0.0734)
OPC1		0.391***	0.426***		
		(0.0346)	(0.0331)		
OPC2		0.113***		0.340***	
		(0.0378)		(0.0347)	
OPC3		−0.0409			−0.242***
		(0.0534)			(0.0521)
Constant	−6.88***	−5.46***	−3.08***	−4.99***	−3.52***
	(1.245)	(1.317)	(1.042)	(1.402)	(1.302)
Observations	19,926	19,926	19,926	19,926	19,926
R-squared	0.465	0.552	0.527	0.514	0.450

Note: Robust standard errors in parentheses*** $p < .01$, ** $p < .05$, * $p < .1$.
Dependent variable is Tourist arrivals (LNTR). Control variables: GDP per capita of the destination (LGDPCD); GDP per capita of the origin (LGDPCO); Population of destination (LPOPD) Population of origin (LPOPO); Distance (LDIST); Common border (COMBR); Common language (COMLN); Common legal origins (COMLEGO); Common colonizer (COMCOL); Institutional quality (DPC1 and OPC1 for destination and origin), Conflict culture (DPC2 and OPC2); and Public accountability and Government stability (DPC3 and OPC3).

about for the residents of less-developed countries.

Our results support a number of specific policy recommendations. First, our paper identifies an additional channel through which improvements in institutional quality and political risk benefit economic development. Therefore, governments in countries that are (or have potential to be) dependant on tourism should strive to put in place sound institutions and a stable political environment. Such reforms will enable them to reap further gains from tourism industry. Second, our findings confirm that common language and common currency significantly raise tourist flows. Hence, governments should aim to support communication technologies, promote video marketing, encourage the teaching of major international languages, and maintain stable and predictable exchange rates. These measures should help attract more tourists from other countries. Finally, reducing political risk can be achieved by improving bilateral diplomatic relationships, safety, and security. The developing countries' governments should therefore prioritize these areas. In this, our results are in line with the argument of Cothran and Cothran (1998) who suggest that reductions in political risk can play an important role in promoting tourism sector.

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Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.tmp.2019.100576.

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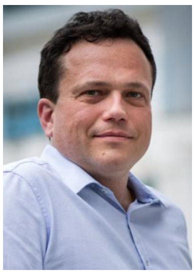

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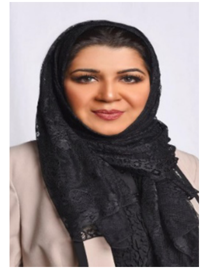

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