

An Empiric on Geopolitical Risk and the Tourism-Economic Growth Nexus

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Structure

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Background and motivation

- Geopolitical risk (wide array of risks linked to wars and any other sort of conflict or tension between sovereign states that affect or threaten to affect international relations, Caldara and Iacovello, 2022) has long been recognised as a key factor influencing economic variables and financial markets (Balcilar *et al.*, 2018; Soybilgen *et al.*, 2019; Adra *et al.*, 2023)
- Few recent studies have also shown that geopolitical risk has a significant impact on inbound tourism (see, among others, Demir *et al.*, 2019; Tiwari *et al.*, 2019; Syed *et al.*, 2021).
- Yet, although since the pioneering contributions by Copeland (1991) and Lanza and Pigliaru (2000) a substantial strand of the literature has also identified a strong positive link between tourist arrivals or tourism development and economic growth (see Nunkoo *et al.*, 2020; Li *et al.*, 2018), no study to date has empirically investigated the moderating role of geopolitical risk on the inbound tourism - economic growth nexus.
- The gap is significant, and it is important to fill it given that, conceptually, geopolitical risk, by heightening the perception of harmful outcomes, making travel less attractive and lowering tourist confidence, may well dissipate any economic growth benefits expected to be accrued from inbound tourism.

Background and motivation

- Inbound tourism is highly risk-sensitive (Roehl and Fesenmaier, 1992) and would inevitably be reduced where geopolitical risk is, or is perceived to be, particularly high.
- Contrary to one interpretation of the etymology of the word 'travel' – from Old French 'travail', 'to overcome adversity' or 'to embark on an arduous journey' – as observed by Neumayer (2004), modern mass tourism is, by and large, put off by political conflict, war, potential acts of terrorism and the like, with tourists only willing to travel to foreign places in mass numbers if their journey and their stay are safe and shielded from events that threaten a joyous holiday experience.
- When geopolitical risks increase, they can have a mediating effect on tourism and economic growth through several mechanisms.

Background and motivation

- The bulk of literature on tourism and economic growth (see, for example, Pablo-Romero and Molina, 2013; Antonakakis et al., 2015; Destek and Aydin, 2022; Hailiang et al., 2023; Raihan, 2023; Wu et al., 2023)
- Some research on the relationship between geopolitical risk and tourism (for instance, Demir et al., 2019; Lee et al., 2021; Syed et al., 2021; Ghosh, 2022)
- Scant literature on the relationship among geopolitical risk, tourism and growth
- Absence of any studies focusing on the moderating effect of geopolitical risk on the relationship between inbound tourism and economic growth
- No empirical investigation on the specific moderating effect of geopolitical risk on the inbound tourism - economic growth nexus at single country or cross-country level

Methodology and data

- We use a dummy variable least squares panel data approach to estimate the moderating effect of geopolitical risk.
- Our analysis specifies a comprehensive panel data growth model for 24 countries over the 1995-2019 period.
- Our start date is dictated by data availability and the end date chosen to remove the inevitable influence of the COVID-19 outbreak and related travel restrictions and lockdowns, which had a heavy incidence on both the global tourism industry and countries' economic growth rates worldwide.

Empirical specification

$$GDPPG_{it} = \alpha_0 + \alpha_1 GPR_{it} + \alpha_2 TA_{it} + \sum_{j=1}^8 \alpha_j C_{it} + D_i + D_t + \varepsilon_{it}$$

- $GDPPG_{it}$ is the growth rate of real per capita GDP, for country i at time t .
- GPR_{it} is the geopolitical risk index (from Caldara and Iacoviello, 2022) which is constructed as the share of newspapers articles mentioning geopolitical tensions. The underlying algorithms include eight text category searches sub-divided into 'threats' and 'acts' sub-indexes. The index data measure the monthly variation of negative geopolitical occurrences and related risks. We calculate the annual geopolitical risk by taking the average GPR index across the twelve months in a year.
- TA_{it} is the number of tourist arrivals, in log form

Empirical specification

- Tourist arrivals are defined as non-resident visitors, same day or overnight visitors. As part of our robustness tests, we later re-estimate the regressions using tourism receipts as a percentage of GDP as a proxy for inbound tourism.
- C_{it} represents a set of control variables.
- D_i and D_t are the fixed-effects country and year dummy variables, accounting for unobserved country-specific and time-invariant effects on the dependent variable.
- In our estimations we employ robust, Windmeijer-corrected standard errors clustered at country level as a way to alleviate cross-country heterogeneity across the units of the panel.

Summary statistics

	No.	Mean	S.D.	Min	Max	Skewness	Kurtosis
GDPPG	375	2.6316	3.5695	-14.3506	16.2620	-0.5245	6.0536
TA	375	9.3242	1.3492	6.2823	11.9987	0.0838	2.3517
GPR	375	0.2284	0.4088	0.0052	3.9256	5.2987	41.1317
Investment	375	24.5749	6.3604	13.2479	44.5188	1.1223	4.1846
Gov. consumption	375	14.7060	4.3140	4.8508	30.0035	0.2618	2.5800
Population growth	375	1.0229	0.6971	-1.0509	4.4386	-0.0276	4.6731
Education	375	44.7830	13.1114	11.7200	72.0000	-0.2662	2.5877
Real interest rate	375	4.4726	6.0895	-27.4167	31.4923	-0.1975	8.4874
Trade openness	375	76.8539	78.2642	16.3901	442.6200	2.9591	11.4720
Financial dev.	375	97.5809	76.1640	11.4874	403.3796	1.5697	5.5477

Covariance matrix

	GDPPG	TA	GPR	Investment	Gov. consumption
GDPPG	1				
TA	0.0990*	1			
GPR	0.0301	0.3600***	1		
Investment	0.3890***	0.1970***	0.0212	1	
Gov. consumption	-0.2060***	0.0333	0.1910***	-0.1990***	1
Population growth	-0.0726	-0.2290***	-0.1790***	-0.0073	-0.2660***
Education	-0.0390	0.3120***	0.0499	0.1450***	0.4610***
Real interest rate	0.0309	-0.0450	-0.0334	-0.0900*	-0.0442
Trade openness	-0.0295	0.2360***	-0.1950***	-0.0356	-0.3320***
Financial dev.	0.0201	0.3600***	0.0106	0.2380***	-0.0100
	Population growth	Education	Real interest rate	Trade openness	Financial dev.
Population growth	1				
Education	-0.2430***	1			
Real interest rate	0.0270	-0.1300**	1		
Trade openness	0.0108	0.1590***	-0.0302	1	
Financial dev.	-0.2640***	0.4470***	-0.1440***	0.6460***	1

Note: * $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$.

Growth-tourist arrivals regressions to assess the impact of geopolitical risk				
	(1) All countries	(2) High GPR countries	(3) Low GPR countries	(4) Regression with interaction term
TA	1.8707** (0.7337)	2.3443 (2.2320)	2.4072** (1.0083)	2.1655** (0.8441)
GPR	-2.2637** (0.8119)			
GPR_Dummy				5.0541* (2.5175)
TA*GPR_Dummy				-0.5979** (0.2882)
Investment	0.1921*** (0.0532)	0.0319 (0.2221)	0.2339*** (0.0536)	0.1938*** (0.0572)
Government consumption	-0.1795 (0.1755)	-0.4495 (0.4967)	-0.1125 (0.2008)	-0.1695 (0.1849)
Population growth	-1.4650*** (0.4844)	-1.0901 (2.4555)	-1.5121*** (0.5331)	-1.4877*** (0.4856)
Education	-0.0537 (0.0336)	0.0688 (0.0645)	-0.0824* (0.0462)	-0.0402 (0.0346)
Real interest rate	0.0615 (0.0397)	0.0058 (0.0188)	0.0935* (0.0496)	0.0596 (0.0407)
Trade openness	0.0225** (0.0087)	0.0800* (0.0374)	0.0211* (0.0103)	0.0202** (0.0089)
Financial development	-0.0254*** (0.0060)	-0.0211 (0.0440)	-0.0232** (0.0083)	-0.0240*** (0.0055)
Year dummy	Yes	Yes	Yes	Yes
N	375	95	280	375
R ²	0.4104	0.6789	0.4228	0.4197

Note: The estimation method is by Dummy Variables Least Squares (DVLS) with robust standard errors clustered at country level (displayed in parentheses). To choose between fixed- and random-effects specifications the Hausman test is used in all regressions. *** denotes statistical significance at the 1% level, ** 5%, and * 10%.

Robustness estimations using the nonparametric covariance matrix estimator

	(1)	(2)
	High GPR countries	Low GPR countries
TA	2.3443 (1.7978)	2.4072** (1.1618)
Investment	0.0319 (0.1762)	0.2339*** (0.0407)
Government consumption	-0.4495 (0.5279)	-0.1125 (0.0907)
Population growth	-1.0901 (1.2029)	-1.5121*** (0.2140)
Education	0.0688** (0.0324)	-0.0824*** (0.0289)
Real interest rate	0.0058 (0.0080)	0.0935*** (0.0274)
Trade openness	0.0800* (0.0388)	0.0211*** (0.0059)
Financial development	-0.0211 (0.0267)	-0.0232*** (0.0061)
Year dummy	Yes	Yes
N	95	280
R ²	0.6789	0.4228

Note: In estimation we use Driscoll and Kraay's (1998) standard errors robust to spatial and temporal dependence. *** denotes statistical significance at the 1% level, ** 5%, and * 10%.

Robustness tests using SYS-GMM

	(1)	(2)
	High GPR countries	Low GPR countries
Lag GDPPG	-0.2944 (0.2570)	-0.4363 (0.3618)
TR	0.2891 (4.1178)	4.9539** (2.2816)
Investment	0.9815*** (0.1487)	0.3206 (0.2362)
Government consumption	-0.7288** (0.3135)	0.3675 (0.3954)
Population growth		-4.8672** (2.1910)
Education		-0.0238 (0.1059)
Real interest rate	-0.0906*** (0.0338)	-0.3181 (0.2655)
Trade Openness		-0.0967 (0.0596)
Financial Dev.	-0.0952** (0.0430)	-0.0498 (0.0364)
Year dummy	Yes	Yes
N	57	244
R ²	0.2200	0.0755
AR(2)	0.3151	0.5361
Sargan p-value	0.1290	0.3020
No. of instruments	34	40

Note: The SYS-GMM method is used. In column (1), the variables 'Education', 'Real interest rate' and 'Trade openness' are omitted due to multicollinearity and small number sample observations, while for other regressors (except year effects) the first lag is used as GMM-type instrument. In column (2), seven lags are used as GMM-type instruments for the regressors (except year effects). In order to limit instrument proliferation, we chose the 'collapse option' of 'xtabond2'. The values reported in parentheses are the Windmeijer-corrected standard errors. Following De Vita and Kyaw (2017), we also report an adjusted SYS-GMM 'R²' goodness of fit measure. *** denotes statistical significance at the 1% level, ** 5%, and * 10%.

Findings and implications

- Results reveal not only that peace and geopolitical stability are a significant determinant of inbound tourism but that they are also a *conditio sine qua non* for inbound tourism to significantly contribute to the economic growth of (tourism) recipient countries.
- A country scoring high on geopolitical risk may be better off by concentrating its policy efforts first on reducing the threats of adverse geopolitical events from their realisation and escalation. Only then economic growth-gains from inbound tourism can be fully realised.
- Specific recommendations to policy makers for sustainable tourism growth, particularly in times of geopolitical turmoil, include being vigilant about and possibly anticipating the media atmosphere of geopolitical risks, whilst being cognisant of its deleterious impact on tourism investment.
- Promoting domestic tourism may help soften the blow caused by lower inbound tourism due to geopolitical risk and contribute at least to some extent to the resilience of the sector by re-activating a slowing sector so as to protect tourism jobs and businesses. Promoting sustainable tourism and moving to a greener tourism system, could also help increase the competitiveness of the tourism sector in countries affected by geopolitical instability.

Limitations and future research

- Exploration of nonlinearities in the form of a threshold effect in the moderating role of geopolitical risk
- Geopolitical risk data in the form of sub-indexes, i.e. sub-divided into 'threats' and 'acts' at country level, future research can disentangle whether the moderating effect of geopolitical risk on the relationship between inbound tourism and growth is stronger for *threats* of adverse geopolitical events or for their *realisations*
- Higher frequency data for asymmetry in the dynamics between geopolitical risks and tourism-growth in short term versus long term horizons