

Tourism and migration. A structural gravity approach

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- ▶ The difference between a migrant and a tourist has to do with attitude and time
- ▶ A migrant, like a tourist, travels to a foreign destination but usually he/she stays longer or permanently and has different motivations
- ▶ In the last few decades, globalization and advances in transportation and communication technologies have caused a large increase in both migration and tourism flows
- ▶ A positive relationship is expected between the number of immigrants residing in a destination and inbound tourism to the host country

Table 1. Migration stock and tourist arrivals (% population) in 2015

	International migrant stock	International tourist arrivals		International migrant stock	International tourist arrivals
Luxembourg	43.96	191.36	Netherlands	11.70	88.59
Switzerland	29.39	112.35	Slovenia	11.41	131.18
Australia	28.22	31.28	Iceland	11.39	389.64
Israel	24.95	33.40	Greece	11.34	218.09
New Zealand	22.96	66.13	Denmark	10.10	183.41
Canada	21.80	50.33	Italy	9.68	83.54
Austria	17.47	309.26	Portugal	8.09	113.18
Sweden	16.77	66.15	Finland	5.74	47.85
Ireland	15.92	202.64	Hungary	4.56	50.08
Estonia	15.42	225.10	Czech Republic	3.84	82.56
Germany	14.88	42.81	Turkey	3.77	50.27
United States	14.49	24.25	Slovak Republic	3.27	31.73
Norway	14.24	103.32	Korea, Rep.	2.64	25.94
Latvia	13.35	102.35	Chile	2.62	24.92
United Kingdom	13.20	52.87	Japan	1.61	15.52
Spain	12.69	146.79	Poland	1.60	44.04
Belgium	12.28	74.11	Mexico	0.94	26.34
France	12.09	126.82			

Tourist arrivals and migration stock in Spain in 2013 (in thousands)

Origin	international tourist arrivals	international migrantion stock
United Kingdom	14,333.77	321.14
Germany	9,856.69	209.65
France	9,539.04	208.37
Italy	3,225.36	99.32
Netherlands	2,616.78	47.61
Belgium	1,873.39	43.31
Sweden	1,715.26	19.43
Portugal	1,679.81	123.40
Russian Federation	1,583.61	71.48
Norway	1,517.71	16.20
Switzerland	1,487.43	63.10
Ireland	1,270.20	14.62
United States of America	1,194.31	39.74
Denmark	984.84	11.50
Finland	657.06	11.77
Austria	568.40	9.00
Brazil	392.23	111.71
Japan	385.01	6.30
Argentina	362.99	264.03
Mexico	262.10	49.17
Canada	245.22	6.28
Venezuela	149.51	156.27
Luxembourg	126.24	1.42
Greece	66.18	3.92
Chile	57.64	59.71

- ▶ (i) We provide a novel theoretical background to the gravity models in tourism:
 - ▶ We adapt the gravity model of Anderson (2011) to explain the effect of migrants on international tourism through the reduction of travel costs and informational asymmetries.
 - ▶ We introduce multilateral resistance terms (MRT) in tourism flows as a measure of remoteness.
 - ▶ We explore different channels that might be explaining this nexus.
- ▶ (ii) We apply the most recent and robust gravity estimation procedures to a global panel dataset:
 - ▶ We control for dynamic multilateral-resistance terms, unobservable country-pair heterogeneity, migrant skill heterogeneity (education level), tourist heterogeneity, heteroskedascity and endogeneity with an instrumental variable approach.

- ▶ Mechanisms through which migration may affect tourism:
 - ▶ The most directed one is visiting friends and relatives (VFR).
 - ▶ Migrants might increase the stock of accommodation (home settings) making the destination more accessible to acquaintances.
 - ▶ Permanent migrants enrich the host country's culture, making it more interesting and diverse.
 - ▶ The existence of a large pool of compatriots may increase tourists' disposition to visit that country.
 - ▶ Immigrants may retain or forge business links which may stimulate international trade and associated business trip.
 - ▶ An increase in permanent immigrants may boost the demand for travel related services, creating competition in the tourism sector and reducing prices.

- ▶ To sum up, the mechanisms that drive the effect that migrants have on inbound tourism (pull effect) can be classified into three groups.
 - ▶ **Demand channel** (cultural proximity): A large stock of migrants creates VFR tourism and the awareness among compatriots to visit the country.
 - ▶ **Information channel** (education level): Immigrants advertise their host country to their compatriots, reduce bilateral informational asymmetries and create social networks that stimulate trips.
 - ▶ **Travel costs channel** (financial costs): A large stock of migrants reduces total travel costs since they intensify transport connections and help to finance compatriots' trips, acting as an implicit subsidy.
- ▶ An inverse (push) effect might also exist since migrants stimulate outbound tourism. These bidirectional links might raise endogeneity concerns.

- ▶ The foundations of this paper are taken from the well-established relationship between goods, capital flows and migration.
- ▶ Using gravity models, several papers have found evidence of the empirical link between migration and
 - ▶ Trade: Gould, 1994; Head and Ries, 1998; Blanes, 2005; Peri et al., 2010; Bergstrand et al., 2008; Felbermayr and Toubal, 2012; Cohen et al., 2017; Menard and Gary, 2017; Parsons and Vezina, 2018
 - ▶ FDI: Tomohara (2017), Cuadros et al (2016, 2019)
- ▶ Different channels have been proposed to explain this link:
 - i **Preference channel:** immigrants bring with them a preference for products from their home countries.
 - ii **Transaction cost channel:** immigrants can reduce trade costs via their connections (networks) with the home country and additional knowledge about their markets and institutions.
 - iii **Market size channel:** immigrants imply an increase of domestic demand.

- ▶ The current state of knowledge regarding the effect of migration on tourism is limited to country case studies
- ▶ The only antecedent that explore the link from a multi-country perspective is Balli (2016):
 - ▶ Focus on the push effect of migration using tourism departures from the 34 OECD countries to 52 middle-to low-income countries.
 - ▶ Emphasized the role of trade and institutional quality on tourism and the main channel proposed is the advertising effect.
 - ▶ Results suggest that immigrants residing in the OECD countries encourage nationals to visit immigrant source countries.
 - ▶ However, (i) the paper does not provide a solid theoretical justification for the empirical setting, (ii) does not explore the channels that drive this relationship and (iii) falls into several known caveats that bias gravity model results

- ▶ Our model builds upon the gravity model of migration of Anderson (2011). A tourist choose to travel if:

$$(l_j \varphi_{ij} / \tau_{ij}) > l_i \quad (1)$$

- ▶ Let's add more realism to the model and introduce multiple destinations from which the tourist can choose:

$$u_{ij} = \ln l_j + \ln \varphi_{ij} - \ln \tau_{ij} - \ln l_i. \quad (2)$$

- ▶ Then, the predicted aggregate flow of tourists from source country i to destination country j is:

$$T_{ij} = G(u_{ij}) N_i, \quad (3)$$

- ▶ With logarithm utility, the tourist equation is:

$$T_{ij} = \frac{\varphi_{ij} l_j / \tau_{ij}}{\sum_k \varphi_{ik} l_k / \tau_{ik}} N_i. \quad (4)$$

- ▶ After some substitutions, we can obtain a tractable log-linear equation:

$$\ln T_{ij} = \ln \varphi_{ij} - \ln \tau_{ij} + \lambda_i + \lambda_j \quad (5)$$

- ▶ Information asymmetries are not directly observable, although migrant stock can be an (imperfect) proxy of informational asymmetries since increase knowledge, reduce travel costs and increase travel demand via migrant networks (VFR)
- ▶ We can use the log of migrant stock to jointly parametrize information and travel costs:

$$\ln \varphi_{ij} - \ln \tau_{ij} = \alpha_1 \ln m_{ij} - \alpha_2 \ln d_{ij} + \varepsilon_{ij} \quad (6)$$

- ▶ Finally, we obtain a tractable baseline empirical equation

$$\ln T_{ij} = \alpha_0 + \alpha_1 \ln m_{ij} - \alpha_2 \ln d_{ij} + \lambda_i + \lambda_j + \varepsilon_{ij} \quad (7)$$

▶ **Travel costs channel: credit constraints**

- ▶ Migrants reduce travel costs since they increase the provision of accommodation, help to finance the cost of the trip and shape the supply of air routes, reducing costs and fares for inbound tourism.
- ▶ We focus on the credit constraints that followed the banking crisis to identify the travel cost channel.
- ▶ During period of financial crises, financial constrains would reduce the migrant's capacity to help to finance the cost of the trip of friends and relatives.

$$\ln T_{ij} = \alpha_0 + \alpha_1 \ln m_{ij} - \alpha_2 \ln d_{ij} + \alpha_3 (Dcrisis_i \times \ln m_{ij}) + \lambda_i + \lambda_j + \varepsilon_{ij}, \quad (8)$$

▶ VFR demand channel: cultural affinity

- ▶ People travel to VFR that previously migrated to a foreign country.
- ▶ Permanent migrants might promote their new homeland among their acquaintances and create awareness among their compatriots.
- ▶ The existence of a stock of immigrants enrich cultural life, the supply of tourism services (accommodations and restaurants) and promote trade stimulating business travel.
- ▶ VFR are related to culturally close migrant diasporas. The effect of migration on inbound tourism is expected to be higher in culturally similar countries.

$$\ln T_{ij} = \alpha_0 + \alpha_1 \ln m_{ij} - \alpha_2 \ln d_{ij} + \alpha_3 (Dcrisis_i \times \ln m_{ij}) + \alpha_4 (ComRel_{ij} \times \ln m_{ij}) + \lambda_i + \lambda_j + \varepsilon_{ij}, \quad (9)$$

▶ Information channel: Education level

- ▶ High-educated individual have the language skills, cultural sensitivity and a a more in-depth understanding of customer behavior,
- ▶ So, skilled migrants have a larger capability to share information, advertise their host country, and reduce searching costs.
- ▶ Skilled migrants have a higher purchasing capacity, make more intensive use of transport connections and have a higher capacity to receive friends and relatives

$$\begin{aligned} \ln T_{ij} = & \alpha_0 + \alpha_{0L} Shm_{ij}^L + \alpha_{0H} Shm_{ij}^H + \alpha_1 \ln m_{ij} \\ & - \alpha_2 \ln d_{ij} + \alpha_3 (Dcrisis_i \times \ln m_{ij}) \\ & + \alpha_4 (ComRel_{ij} \times \ln m_{ij}) + \lambda_i + \lambda_j + \varepsilon_{ij}, \quad (10) \end{aligned}$$

- ▶ The base category for migration coefficient is migrant networks from countries without financial crises and different religions.

- ▶ We use a global panel dataset with migrant stocks from 157 immigrant-home countries to 34 OECD host countries during 1995 to 2013.
- ▶ To explore the role of education, we construct a two-year (2005, 2010) panel with data on the migration level of education.
- ▶ The model is estimated by OLS and PPML with dyadic and country-year FE.
- ▶ Pseudo-Poisson maximum likelihood estimator (PPML) correctly accounts for the existence of heteroscedastic residuals (Santos-Silva and Tenreyro, 2006; 2010).
- ▶ We use the iterative PPML algorithm developed by Correia et al (2019) in Stata (PPMLHDFE).

Table 2: Baseline and endogeneity

	(1)	(2)	(3)	(4)
	Baseline		Endogeneity	
$\ln m_{ijt}$	0.119*** (0.04)	0.161*** (0.03)	0.584*** (0.10)	0.079*** (0.01)
$\ln(T_{ijt-1})$				0.291*** (0.02)
Observations	10867	10867	10867	9046
R2	0.993	0.995		
Method	OLS	PPML	IV-2SLS	GMM
<i>HH*Year FE</i>	Yes	Yes	Yes	No
<i>Pair FE</i>	Yes	Yes	No	Yes
<i>Year FE</i>	No	No	No	No

Robust standard errors in parentheses, clustered by pair.

IV-2SLS does not allow dyadic FE, .

so distance, border, language, colonial links and EU membership are included as controls

GMM estimator does not allow to include HH*Year FE.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 3: Channels

	(1)	(2)	(3)	(4)
$\ln m_{ijt}$	0.119*** (0.04)	0.113*** (0.04)	0.162*** (0.03)	0.142*** (0.03)
$Dcrisis_i \times \ln m_{ijt}$	-0.050*** (0.02)	-0.050*** (0.02)	-0.010 (0.01)	-0.009 (0.01)
$ComRel_{ij} \times \ln m_{ijt}$		0.027 (0.03)		0.063*** (0.02)
Observations	10867	10867	10867	10867
r2	0.993	0.993	0.995	0.995
Method	OLS	OLS	PPML	PPML
$HH*Year$ FE	Yes	Yes	Yes	Yes
Pair FE	Yes	Yes	Yes	Yes

Robust standard errors in parentheses, clustered by pair.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 4: Bias

	(1)	(2)	(3)	(4)	(5)	(6)
$\ln m_{ijt}$	0.489*** (0.03)	0.487*** (0.03)	0.493*** (0.03)	0.290*** (0.06)	0.293*** (0.05)	0.293*** (0.05)
$Dcrisis_i \times \ln m_{ijt}$		0.003** (0.00)	0.003* (0.00)		-0.001 (0.00)	-0.001 (0.00)
$Drel_{ij} \times \ln m_{ijt}$			-0.081*** (0.02)			-0.017 (0.03)
Observations	11465	11465	11465	11465	11465	11465
r2	0.983	0.983	0.983	0.989	0.989	0.989
Method	OLS	OLS	OLS	PPML	PPML	PPML
<i>HH*Year FE</i>	No	No	No	No	No	No
<i>Pair FE</i>	Yes	Yes	Yes	Yes	Yes	Yes

Table 5: Migrants by education level, years 2005 and 2010

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Primary (stock)	0.063** (0.03)			-0.064* (0.04)			
Secondary (stock)		0.123*** (0.03)		0.222*** (0.08)			
Tertiary (stock)			0.159*** (0.05)	-0.032 (0.08)			
Primary (share)					-0.524** (0.26)		
Secondary (share)						0.731** (0.30)	
Tertiary (share)							-0.279 (0.28)
$\ln m_{ijt}$					0.170*** (0.05)	0.094** (0.04)	0.091* (0.06)
Observations	822	822	822	822	822	822	822
R2	0.997	0.997	0.997	0.997	0.997	0.997	0.997
Method	PPML	PPML	PPML	PPML	PPML	PPML	PPML
Pair FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
HH*Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Table 6: Migrants by education level, years 2005 and 2010

	(1)	(2)	(3)	(4)	(5)	(6)
Primary (share)	-0.416 (0.26)			-0.376 (0.27)		
Secondary (share)		0.646** (0.32)			0.681** (0.32)	
Tertiary (share)			-0.281 (0.28)			-0.401 (0.30)
$\ln m_{ijt}$	0.162*** (0.05)	0.098** (0.04)	0.092* (0.05)	0.137*** (0.05)	0.071* (0.04)	0.051 (0.06)
$Dcrisis_i \times \ln m_{ijt}$	-0.028* (0.02)	-0.020 (0.02)	-0.043*** (0.02)	-0.024 (0.02)	-0.013 (0.02)	-0.036** (0.02)
$ComRel_{ij} \times \ln m_{ijt}$				0.104* (0.06)	0.121** (0.05)	0.129** (0.06)
Observations	822	822	822	822	822	822
R2	0.997	0.997	0.997	0.997	0.997	0.997
Method	PPML	PPML	PPML	PPML	PPML	PPML
Pair FE	Yes	Yes	Yes	Yes	Yes	Yes
HH*Year FE	Yes	Yes	Yes	Yes	Yes	Yes

- ▶ After controlling for MRT, country-pair observable heterogeneity, financial and religion covariates (travel cost and VRF channels), and skill level (information channel), the migration stock (network) still has a positive and significant effect on tourism flows.
- ▶ Results are robust after controlling for endogeneity.
- ▶ Credit constraints at the source country inhibit the positive effect of migration on tourism.
- ▶ The effect of migration is augmented by cultural proximity.
- ▶ The effect of migrants is more intense for skilled migrants