Tourism in Pacific Islands: a comparative study based on a gravity model

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MOTIVATIONS BEHIND THIS STUDY

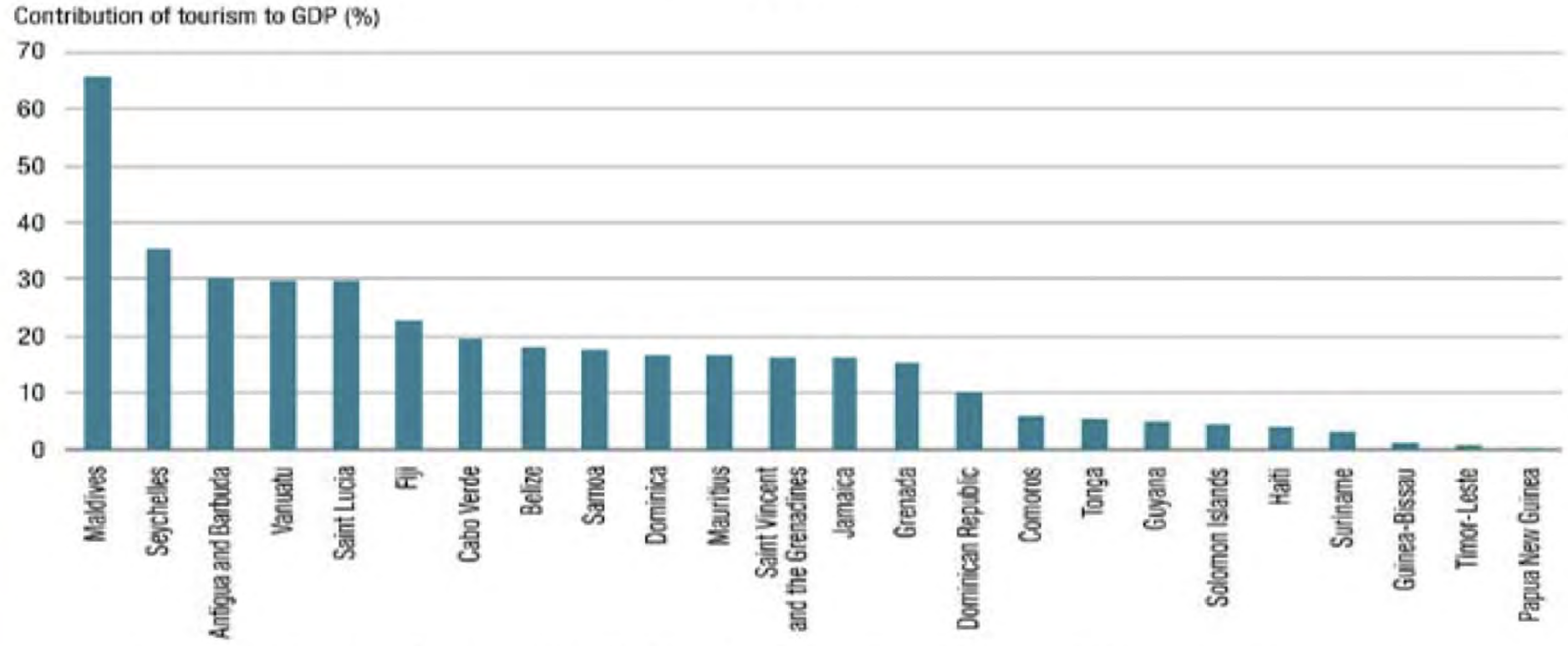
- **Bertram and Poirine (2018) point to the '*small island paradox*': the economic development of small islands often depends on trade openness and tourism growth, but their remoteness and smallness are daunting challenges to overcome.**

Bertram, G. and Poirine, B. (2018) Economics and development, In G. Baldacchino (eds), *The Routledge International Handbook of Island Studies*, Abingdon: Routledge.

MOTIVATIONS BEHIND THIS STUDY

- **Tourism is one of the key drivers of economic growth for small island developing states (SIDS).**

Figure 1.8. Tourism represents over 20% of GDP for almost two thirds of small island developing states



Source: Adapted from UN World Tourism Organization (2016), Statistics database www2.unwto.org/content/data.

"Tourism offers Pacific Islands significant opportunities for economic growth" (World Bank, 2016)

Pacific possible

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In 2040, transformational tourism opportunities could bring an additional US$1.7 billion in revenue and 116,000 jobs to Pacific Island Countries

Opportunity	→ → Additional Impact	
Increasing the Chinese Market	660,000 tourists US$947m receipts	65,200 jobs $36.9m airport taxes
Home-basing 4 Cruise Ships	266,000 tourists US$67m receipts	4,700 jobs $9.2m port fees
Expanding the High-end Resorts Market	139,000 tourists US$487m receipts	32,500 jobs $7.8m airport taxes
Capturing the Retiree Market	10,000 retirees US$200m receipts	13,800 jobs $0.56m airport taxes

Long-term Economic Opportunities and Challenges for Pacific Island Countries

INTERNATIONAL TOURISM TO PACIFIC ISLANDS

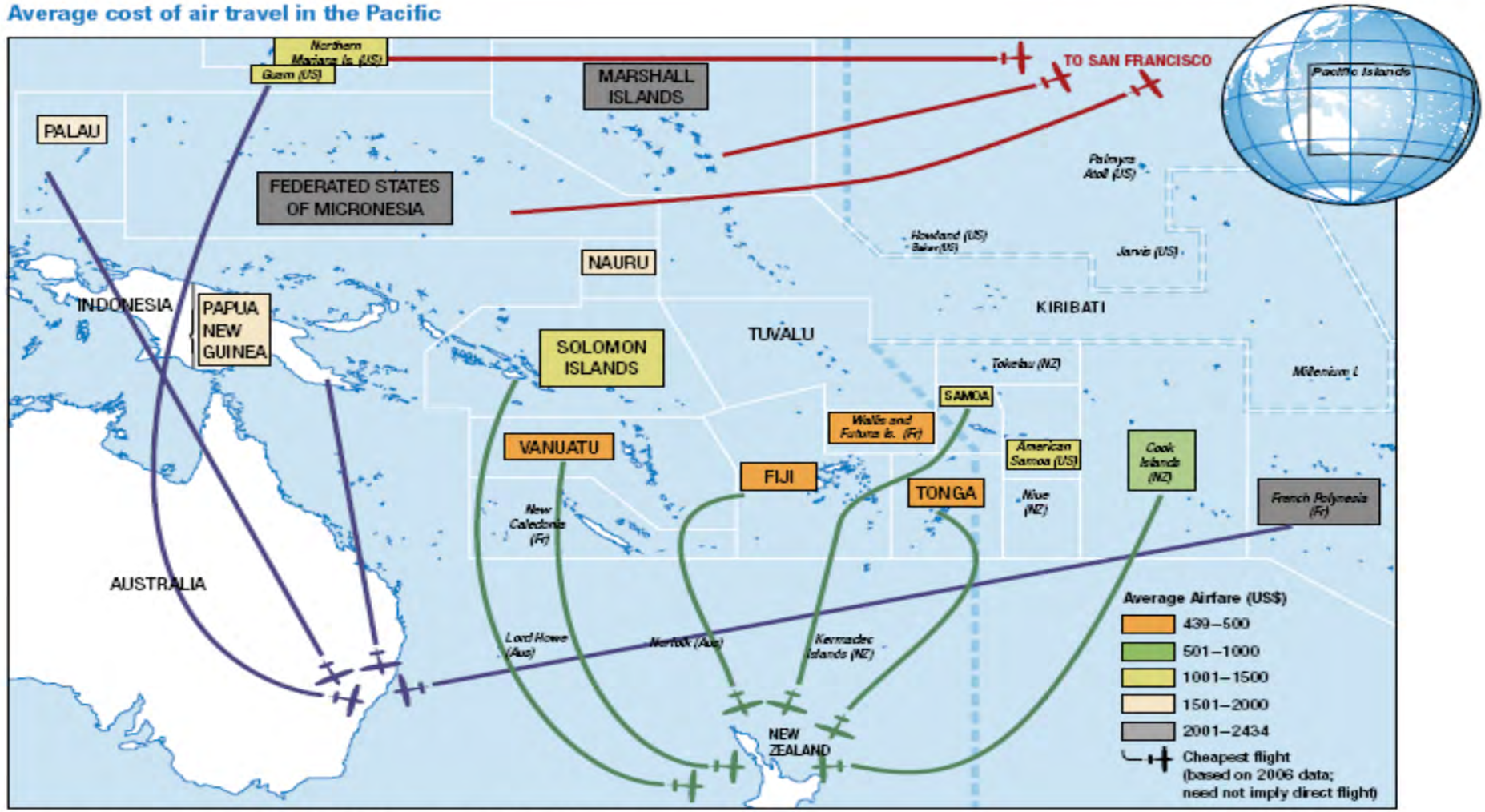
Country or territory	Number of international tourists (2015)	Number of tourists per capita	Tourism Receipts (% exports)	Tourism Receipts (% GDP)	Ordered by Per capita tourism receipts in 2015 (US$)
Hawaii	8 679 564	6.09	88.8%	18.3%	$10 500
Guam	1 409 000	8.71	60.7%	28.4%	$9 994
Palau	162 000	7.61	87.1%	52.4%	$7 328
New Zealand	3 039 000	0.66	18.7%	5.2%	$1 989
French Polynesia	184 000	0.66	41.6%	8.3%	$1 678
Fiji	755 000	0.85	48.4%	23.6%	$1 162
Vanuatu	90 000	0.34	78.9%	34.2%	$960
Samoa	128 000	0.66	57.6%	15.7%	$652
New Caledonia	114 000	0.42	8.9%	1.6%	$581
Tonga	53 800	0.51	67.5%	11.5%	$470
Micronesia. Fed. Sts.	31 200	0.30	n.d.	7.9%	$239
Tuvalu	2 400	0.22	12.0%	7.3%	$218
Marshall Islands	6 300	0.12	9.0%	3.3%	$113
Solomon Islands	21 600	0.04	11.4%	5.3%	$102
Kiribati	3 900	0.03	10.8%	1.1%	$16
Papua New Guinea	184 000	0.02	0.02%	0.01%	$0.2
Pacific island small states	*1 259 768*	*0.53*	*48.0%*	*20.1%*	*$733*

MOTIVATIONS BEHIND THIS STUDY

- **SIDS (e.g. Pacific islands) often face a "*3-D challenge*" (WB, 2009) :**
  - ***Distance*** **(remoteness)**
  - ***Density*** **(small size)**
  - ***Division*** **(protectionism)**

MOTIVATIONS BEHIND THIS STUDY

Remoteness & small size of South Pacific islands

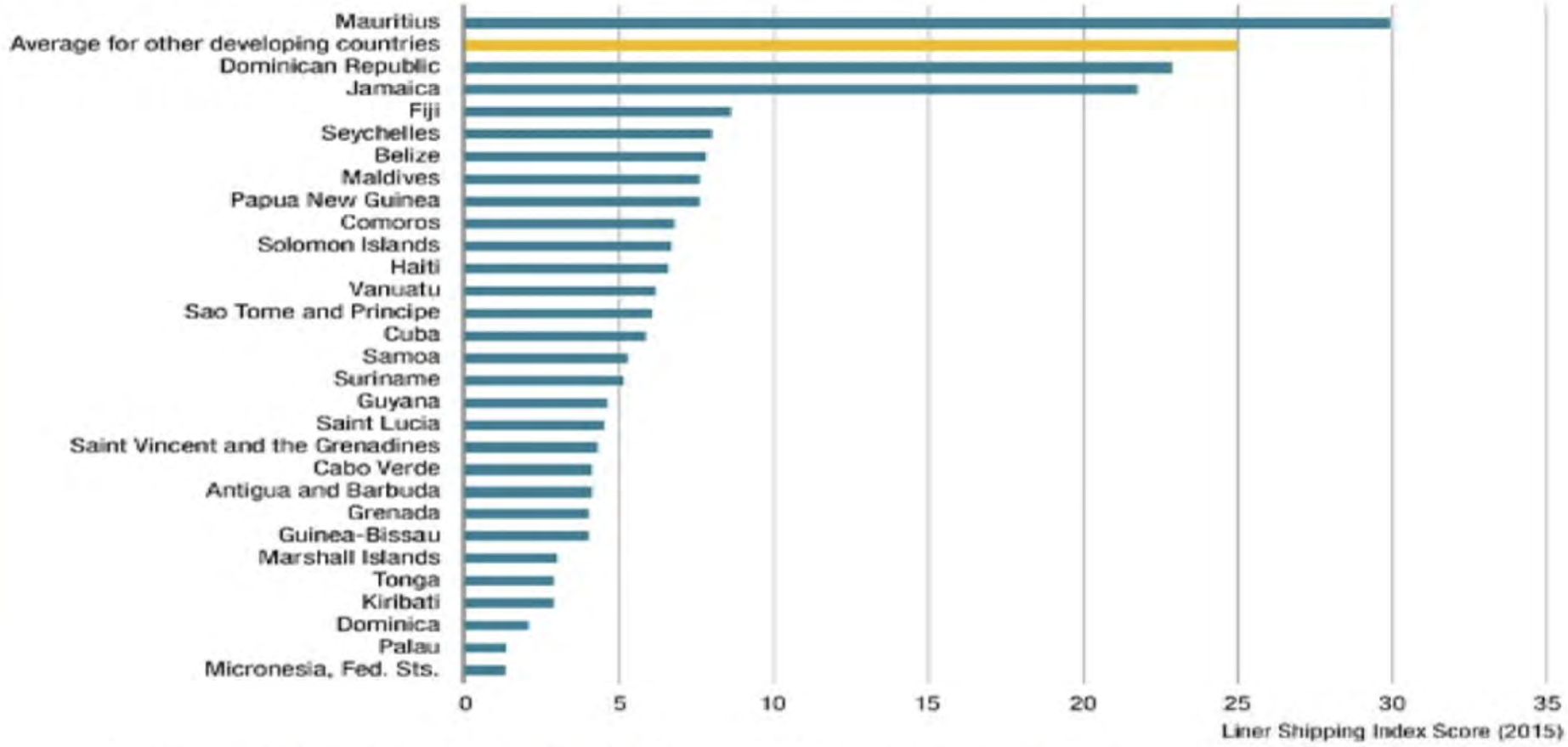


Source: Adapted from Gibson (2006). Original data from AusAid (2006), ADB (2006).

MOTIVATIONS BEHIND THIS STUDY

Remoteness & small size => low connections & high costs

Figure 1.6. Small island developing states are less than one third as well-connected as other developing countries



Source: Adapted from UNCTAD (n.d.), Liner shipping connectivity index, http://unctadstat.unctad.org/wds/TableViewer/tableView.aspx?ReportId=92.

MOTIVATIONS BEHIND THIS STUDY

- How sensitive are bilateral tourism flows to these handicaps (large distances to customers, high prices due to lack of economies of scale, …) and to other economic, political and cultural proximity variables?
- Are small islands more or less sensitive to each of these variables than other destinations?
- What are the optimal strategies to boost tourism in Pacific islands?

THE GRAVITY MODEL

$$F_{ij} = \frac{M_i M_j}{D_{ij}^2}$$

where M = mass (GDP); D = distance

$$F_{ij} = G M_i^{\beta_1} M_j^{\beta_2} D_{ij}^{\beta_3} \eta_{ij}$$

$$Ln(F_{ij}) = \beta_0 + \beta_1 (GDP_i) + \beta_2 Ln(GDP_j) + \beta_3 Ln(D_{ij}) + \varepsilon_{ij}$$

THE GRAVITY MODEL APPLIED TO TOURISM FLOWS

Dependent variable : F_{ij} = flows of international tourists from *i* to *j*

where *i* denotes the tourist's country of residence, *j* denotes his/her destination country

Explanatory variables :

Gravity variables

- D_{ij}: distance between *i* and *j*
- $Dm_{i\ or\ j}$: multilateral distance of country i or j = geometrically weighted average distance between country i or j and the 50 richest countries (multilateral resistances)
- GDP_i : annual GDP (in PPP-US$) of country *i* (purchasing power of tourists) ;
- GDP_j : annual GDP (in PPP-US$) of country *j* (purchasing power of hosts) ;

Other important variables

- *Pi/Pj* : price ratio (real exchange rate)
- *Currency Union dummy* (monetary proximity)
- *Common Language dummy* (ease of communication)
- *Common Religion dummy* (beliefs & culture)
- *Past Colonization dummy* (institutional proximity)

THE GRAVITY MODEL APPLIED TO TOURISM FLOWS

Data sample:

- Panel of bilateral tourist flows between 174 countries
  => 9800 available observations

  … including 32 small island nations or territories (+ Hawaii)
  => 1055 available observations

Estimation techniques:

- Cross-country data for 2015 => 2SLS
- Panel data for 1995-2015 => GMM

Estimation method:	Cross-country data - 2015 (2SLS)			Panel data - 1995-2015 (GMM)		
	World	Small Islands	Diff.	World	Small Islands	Diff.
Number of countries in sample	174	32		174	32	
Number of observations	9 800	1 105		114 843	9 654	
Dependent variable:	Log (Number of Tourists)			Log (Number of Tourists)		
Log (Distance)	-1.78**	-1.90**	**	-1.74**	-1.83**	
Log (Multilateral distance of country i)	0.08	-0.91**	*	0.17**	-0.38**	**
Log (Multilateral distance of country j)	0.98**	1.37*		1.28**	0.66**	**
Log (GDP of country i)	0.91**	0.79**	**	0.84**	0.73**	**
Log (GDP of country j)	1.00**	1.32**	**	-0.90**	0.78**	**
Log (Price ratio Pi/Pj)	-0.55**	-1.55**	**	-0.36**	-1.33**	**
Common currency	0.36**	-0.26	*	0.23**	0.01	
Common language	1.26**	1.28**		1.16**	1.12**	**
Common religion	0.13	0.26		-0.04**	-0.22**	
Past colonization	1.06**	1.50**		1.36**	1.30**	
R2	76.7%	84.1%		99.1%	80.8%	
Adjusted R2	76.7%	83.9%		99.1%	80.7%	

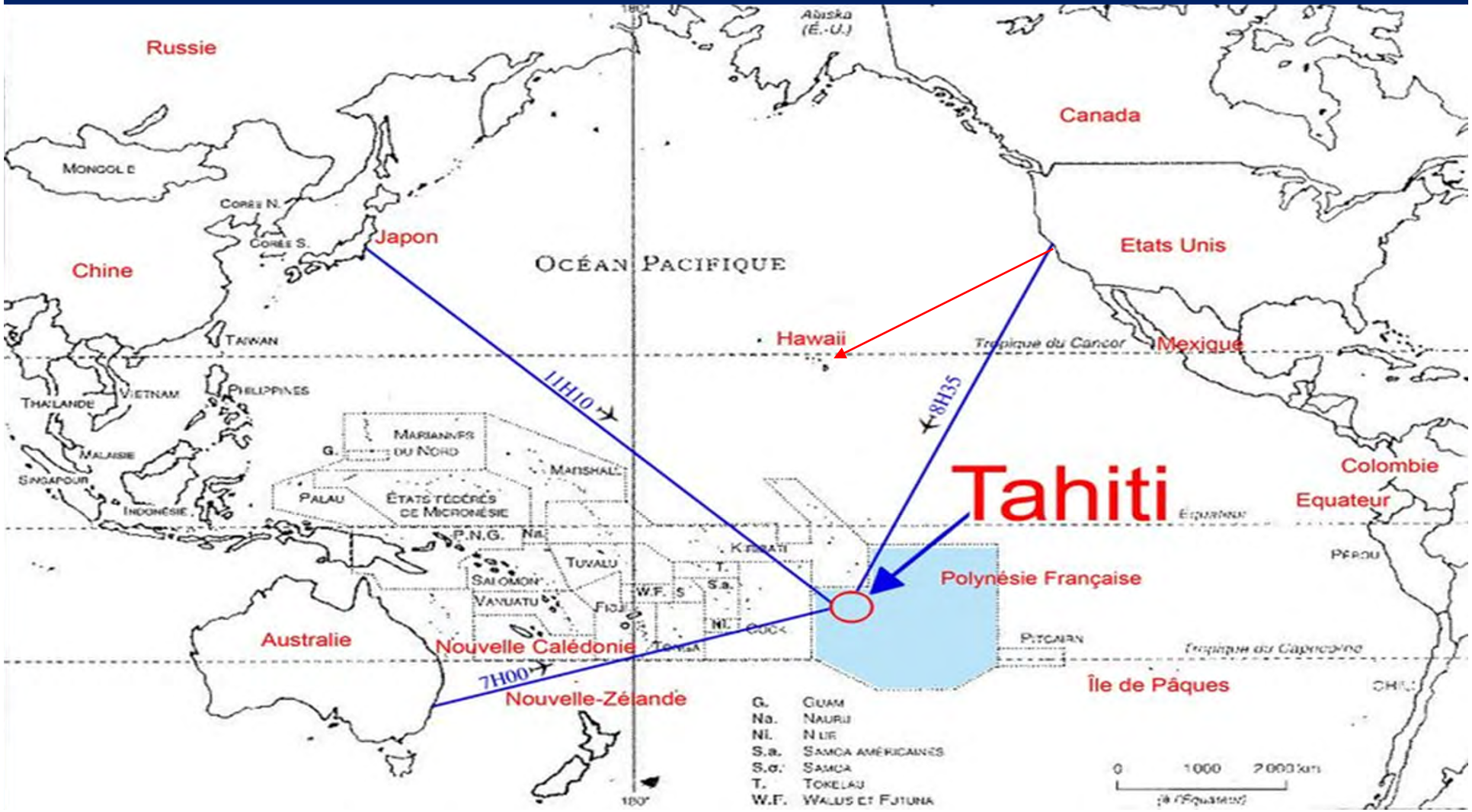
BILATERAL TOURISM FLOW "MULTIPLIERS"

Marginal effects of several variables of the augmented gravity model

Effect of:	World	Small Islands
Doubling the distance between the origin and destination countries	-70%	-72%
Doubling GDP of the origin country	+79%	+66%
Doubling GDP of the destination country	+86%	+71%
Doubling the relative cost of living in the destination country	-22%	-60%
Sharing a common currency	+26%	+1%
Sharing a common language	+218%	+205%
Sharing a common religion	-4%	-20%
Having a common colonial past	+290%	+268%

TOURISM IN PACIFIC ISLANDS

An example : tourism in Tahiti and Hawaii



CONCLUSIONS

- **Remoteness and small size of Pacific islands are challenges to tourism development, which is important for economic development ('*small island paradox*').**

- **Yet, tourism development in Pacific islands benefit from high-growth countries of China and Asia, and from rich, but low-growth countries (high-end and retired tourists)**

- **The gravity model quantifies the potential tourist flows, but does not take into account non-quantifiable or unquantified latent factors. The relative success of tourism in Pacific islands also depends on developed infrastructure and selected growth strategies.**

CONCLUSIONS

The good news is that the benefits from welcoming Chinese tourists begin to be felt. For example, the number of Chinese tourists rose about ten-fold:

- **to Fiji (from 2009 to 2015)**
- **to French Polynesia (from 2007 to 2015)**
- **to the Mariana Islands (from 2003 to 2015)**
- **to Palau (from 2013 to 2015)**

… but also to non-Pacific islands :

- **to the Maldives (from 2007 to 2015)**
- **to the Seychelles (from 2010 to 2015)**

But some small island economies are still uncompetitive (protectionist policies => 'Dutch disease')

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THANK YOU !