Determinants of Tourism in French Overseas Departments and Collectivities

Florent Deisting, Serge Rey

DETERMINANTS OF TOURISM IN FRENCH OVERSEAS DEPARTMENTS AND COLLECTIVITIES

Florent DEISTING[*] , Serge REY[**]

Abstract - *This article focuses on the determinants of tourism in French overseas departments and collectivities. An initial estimate of a panel model of annual data for Guadeloupe, Martinique, Mayotte, Reunion Island, French Polynesia, and New Caledonia (NC), over the period 1990–2012, shows that a 1% appreciation of the euro against the dollar reduces the number of tourists by 0.47%. The results also confirm the negative impact of distance/transport costs and the chikungunya crisis. Conversely, stronger growth in France or the United States and a higher level of wealth in the collectives promote tourism. A more detailed panel analysis, with monthly data for NC over the period 1995–2014, reveals that a 1% appreciation of the euro reduces tourism flows by 0.12%, and higher inflation in NC also penalizes tourism. However, distance and the economic situation of the country of origin do not significantly influence tourism flows to NC.*

Key-words - TOURISM, FRENCH OVERSEASES DEPARTMENTS AND COLLECTIVITIES, NEW CALEDONIA, PANEL MODEL, EURO/US DOLLAR

JEL Classification - R1, L83, C23, F31

[*] CATT, ESC Pau, France; florent.deisting@esc-pau.fr
[**] CATT, Université de Pau et des Pays de l'Adour, France; serge.rey@univ-pau.fr

1. INTRODUCTION

With their legacy of a French colonial past, overseas departments (Dom) and overseas collectivities (Com) share some common features with Small Island, developing states (SIDS) but also exhibit some economic and political specificities that may explain the differences in their economic performance. With this study, we focus on six territories: four overseas departments (Martinique, Guadeloupe, Reunion, and Mayotte); a collectivity, French Polynesia; and a community with a unique legal status conferred by the Nouméa Accord, New Caledonia.

These French Dom-Com exhibit many of the defining characteristics of SIDS; French Polynesia and New Caledonia are officially part of the group of 52 SIDS identified by the United Nations. For example, they experience substantial vulnerability, for several reasons. These island economies are highly specialized in their primary sector (Kerr, 2005; Candau et al., 2012), which is usually agriculture, potentially nickel ores, or tourism. But unlike larger economies, their manufactured products sector remains poorly developed. The few sectors that function in these territories depend heavily on public aid, whether for agricultural production or tax incentives that promote tourism. This dependence increased further with important public aids sent by the metropolis in favor of households, which have impacted both on the consumption and on the investments in real estate (Candau et al., 2014; Candau and Rey, 2014). The sustainability of such support is far from assured. Vulnerability also is linked to their geographical situation; the islands are subject to serious climatic shocks. Finally, they are distant from major economic areas. Graph 1 shows the distances of each Dom-Com from metropolitan France, the United States, and Japan. Other than the relatively proximate Caribbean Islands, which are near the United States (3000 km), the distances are all substantial and involve air transport of anywhere from 8–20 hours. The cost of transport also can constitute a vulnerability factor, because it depends strongly on the price of oil, such that an oil shock can hinder transfers of goods and persons between these territories and large markets.

Another common characteristic of these islands is the difficulty of ensuring sustainable development. Sustainable development exists when economic growth meets the needs of the present, without compromising the ability of future generations to meet those same needs. Development is sustainable if the present generation leaves a legacy to future generations that is equivalent in capital (human, physical, and natural) to the one it had. Therefore, the global savings rate needs to be at least equal to the depreciation of capital. This condition of sustainability can be either weak or strong (Turner et al., 1993). For example, if actors assume that the different forms of capital are substitutable, they might seek to maximize economic growth by destroying natural capital but offset it with increased physical capital. In this case, sustainability is low. However, if we assume that forms of capital are complementary, we recognize the need to preserve all forms for future generations. This strong type of sustainability can meet goals of intergenerational equity and thus is essential to these territories, which often have an exceptional natural heritage that provides a good

foundation for sustainable tourism activity. In these settings, the intensive use of pesticides for agricultural activities (e.g., Antilles) or methods to extract ores (e.g., New Caledonia) may conflict with the objective of preserving natural capital.

**Graph 1. Geographical distance (km) between Dom-Com and France, USA and Japan**
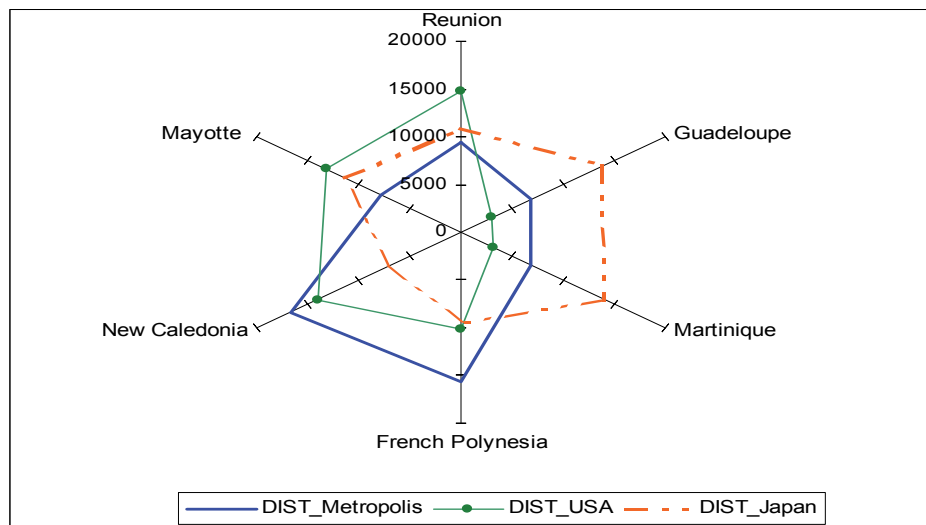
Source: CEPII Chelem.

Therefore, it should not come as a surprise to find that Dom-Com suffer developmental delays, according to a comparison of their gross domestic product (GDP) per capita with that of the metropolitan France (Graph 2). Although the years between 1990 and 2012 show improvements, the gap with metropolitan France remains significant. Given the high level of prices in these territories, the difference would likely be even more prominent for GDP corrected by purchasing power parity.

Estimates of indices of human development (Hoarau and Blancard, 2013; Goujon and Hermet, 2012) confirm the gaps for these territories. An economic model, adapted to the specificities of Dom-Com, could help define ways to increase the standard of living for the people, as well as reduce the very high levels of unemployment and social tensions that result from poor living conditions. The model should focus on economic activities. For example, agricultural production can develop in limited areas, but such pressures reduce available land. Because of the small size of these economies, the realization of economies of scale for manufacturing is impossible. In addition, the connection of these territories with metropolitan France is both an advantage and a disadvantage. The islands benefit from aid from metropolitan France (financial, human) and the European Union. Yet they also suffer higher wage costs than neighboring countries and a currency whose value is determined by the economic fundamentals of other countries, which may be overvalued relative to the economic and

financial situation of a Dom-Com. Even with little room to maneuver due to their geographic and economic situation, tourism can be a development path, similar to that adopted by Greece and other outermost regions of the EU (Sauernheimer, 2013). The possession of this natural, high-quality capital is not enough though; the islands need to be able to preserve and enhance it.

Graph 2. GDP per capita (Euros, not PPP-Adjusted)
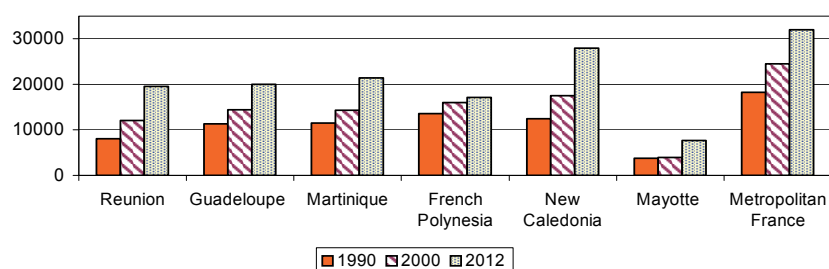
Source: INSEE, IEDOM, Cerom.

This article seeks to analyze the determinants of tourism in Dom-Com to establish recommendations for public and private decision makers. We therefore proceed by specifying the weight of this sector for the creation of wealth and value added (Section 2). In Section 3, by estimating our panel model, we explain the tourism variables of the six Dom-Com over the period 1990–2012. Then, in Section 4 we investigate the case of New Caledonia (NC) in more detail, distinguishing between bilateral tourist flows according to the countries of origin during 1995–2014. After, Section 5 offers some recommendations for developing tourism in these islands, and Section 6 concludes this work.
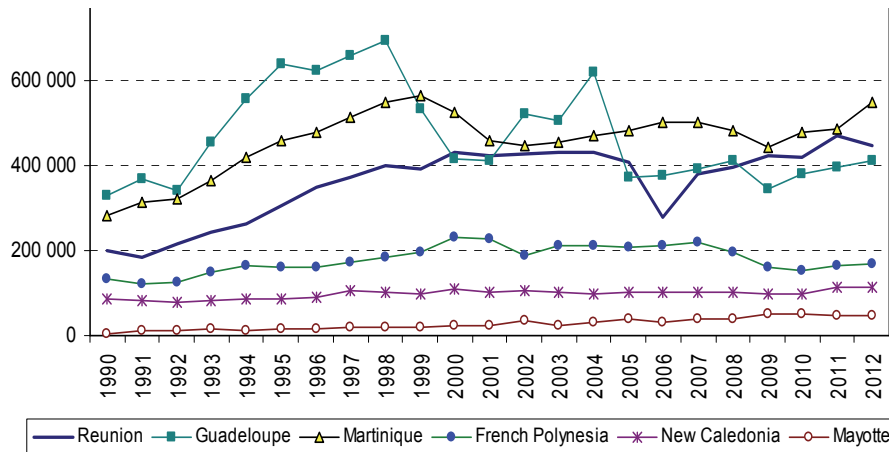
2. THE WEIGHT OF THE TOURISM SECTOR IN THE DOM-COM

Graph 3 shows the evolution in the number of tourists in the six Dom-Com for the period 1990–2012. We offer two main observations. First, we can identify two distinct groups in the early 2010s. Reunion, Guadeloupe, and Martinique each attract slightly more than 400,000 tourists annually, a level that is equivalent to the full-time population of Martinique or Guadeloupe but only a little less than half of the population of Reunion Island. The other three islands receive approximately 50,000 tourists for Mayotte, 100,000 for Polynesia, and 200,000 for NC. Relative to the number of inhabitants, Mayotte and Polynesia experience a deficit in tourists, as Reunion Island, while the "Rock" ('*Caillou*')[1] is "as good as" the Caribbean islands. Second, we find a progression, such that during the 1990s, tourist arrivals stabilized, but then they began a trend movement in the 2000s.

In Graph 4 we compare the number of tourists per capita in 2012 for the six Dom-Com and SIDS that represent their main competitors in the sector. Some very small islands have high ratios (e.g., Seychelles, St. Martin), but the Dom-Com rank around the average achieved by these competitive territories.

---

[1] Nickname of New Caledonia.

**Graph 3. Tourist arrivals in Dom-Com from 1990 to 2012
(except cruises)**

Source: INSEE, ISEE and ISPF, IEDOM.

Graph 4. Tourists per capita
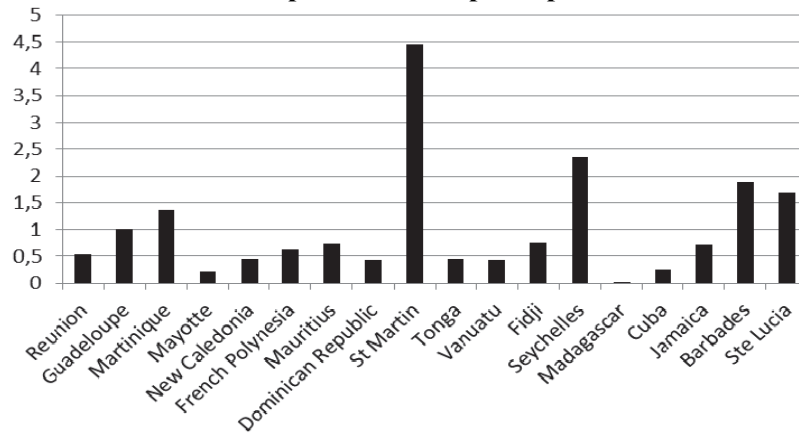
Source: INSEE, ISEE and ISPF, IEDOM, UNWTO.

Next, in Graph 5, we compare the share of the tourism sector in the GDP for the Dom-Com in three periods: 2000, 2005, and 2010. The tourism sector declined in terms of its share of GDP, likely as a result of diversification in revenues. However, this finding highlights the difficulties that these regions have attracting tourists during turbulent economic periods.

As a complement, we show that even though the share of jobs in the tourism sector is uneven in all Dom-Com (Graph 6), there is some stability. The most significant differences occur in Martinique and Guadeloupe, which corresponds to the decline in tourism demand following strikes after 2006.

Graph 5. Share of tourism in GDP
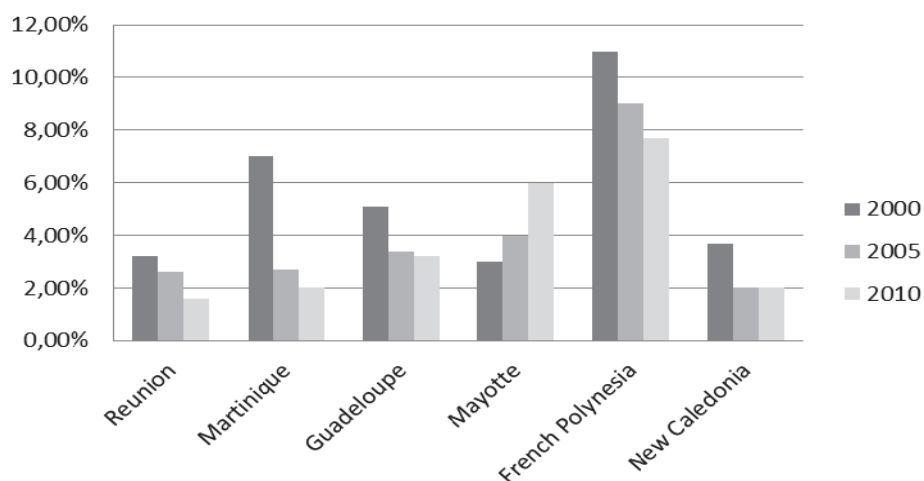
Source: INSEE, ISEE and ISPF, IEDOM.

Finally, air traffic to the Dom-Com (Graph 7) reveals two important characteristics. First, these territories are served by a small number of companies. Table 1 gives the number of local and international companies that serve these territories and the number of flights per day. The small number of airline flights poses a problem of concurrency and explains the high prices of tickets that penalize these destinations. Indeed, in many cases, we have companies in monopoly or oligopoly that use their dominant position to increase their profit margins. We can verify that the number of international flights is higher for Mauritius and Dominican Republic, the two important competitors.

Graph 6. Share of employment in tourism sector (% of total)
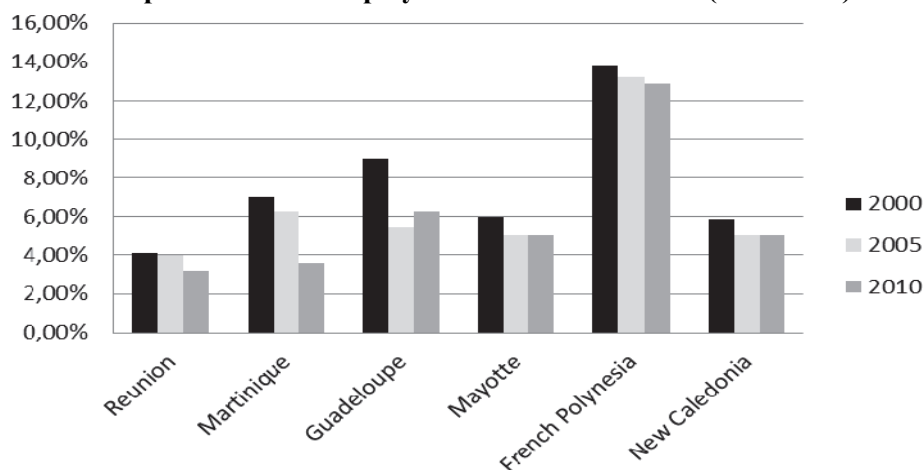
Source: INSEE, ISEE and ISPF, IEDOM.

Second, we detect small variations during the 2000s. Airports in Reunion, Martinique, and Guadeloupe are strongholds, with more than 1.5 million annual passengers. We also note the minimal importance of French Polynesia compared with its neighbor, New Caledonia.

Graph 7. Flight passagers
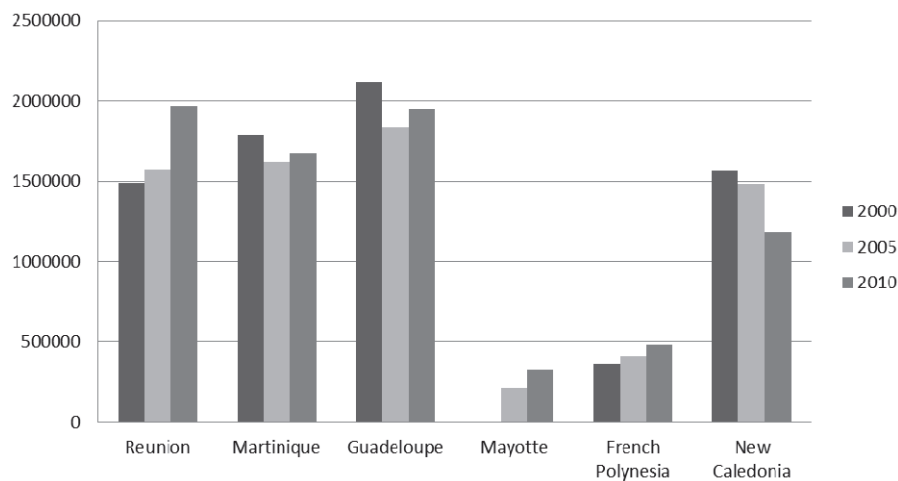
Source: Union des Aéroports Français.

Table 1. Number of airline flights with the overseas territories

	N. of intern. air flights companies	N. of flights per day (average)	N. of air flights Companies DOM-COM to France	Destinations (outside the Island)
Guadeloupe	8	30	5	42
Martinique	11	34	4	22
Mayotte	9	6	1	16
New Caledonia	5	20	1	10
French Polynesia	7	4	1	9
Reunion Island	6	18	4	15
Mauritius	12	24	3	27
Dominican Rep.	15	38	2	20

Source : Airport of Guadeloupe ; Airport of Martinique ; Airport of Mayotte ; Airport of La Tontouta (New Caledonia) ; Airport of Tahiti (French Polynesia) ; Airport of Saint Denis – Roland Garros (La Reunion island) ;Mauritius International Airport ; Airport of Saint Domingue.

3. PANEL MODEL FOR THE DOM-COMS

For this estimation, we used annual data during 1990–2012. With the limited sample size, we chose a panel model for the six overseas territories, namely, the four departments, Guadeloupe, Martinique, Mayotte, and Reunion, and the two collectivities, French Polynesia and New Caledonia.

3.1. Determinants of tourism

3.1.1. Transportation costs

The cost of a trip includes an important variable, that is, the price of the ticket. That price depends on two factors: geographical distance and the price of oil, to the extent that it determines the price of kerosene used by airplanes (COMMISSION Européenne, 2006). The share of oil in the cost of transport increases with distance. Ringbeck et al. (2009) show that for a distance of 8000 km and a barrel cost of $100, this share is close to 50%, but it was only 40% for a distance of 1000 km. Most Dom-Com tourists come from metropolitan France and/or from developed countries such as the United States or Japan. So they take long-haul flights. To address cost in more detail, we also retain a interaction variable between the geographical distance (Dist) and the oil price (Brent) or ($Dist \times Oil$). Higher costs should lead to fewer tourists.

3.1.2. Price competitiveness

Competitiveness ideally should be measured by the ratio of prices between the host country and the country of origin of tourists or else competing Dom-Com (Dwyer et al. 2000, 2001). But we lack sufficient information about tourists' origins to construct this indicator. Instead, we chose to retain two variables: the nominal exchange rate of the euro against the dollar (*Euro_dollar*) and the price of the host country expressed in U.S. dollars, calculated by multiplying the consumer price index of the Dom-Com (*CPI*) by the nominal exchange rate (*CPI $\times$ Euro_dollar*). An appreciation of the euro benefits other tourist zones with lower currencies.

3.1.3. Economic conditions in countries of origin

To the extent that visits to overseas territories are relatively expensive, consumer trade-offs might favor less distant, less expensive destinations when economic conditions are difficult or as growth slows. For example, U.S. tourists go mainly to the Caribbean zone, French tourists go to the Caribbean and Indian Ocean zones, and Japanese tourists visit Pacific zone territories. We therefore retained three specifications of the model, with the growth rates of the real GDP of France, the United States, and Japan (*g_partner*), respectively.

3.1.4. Level of development of the host country

The richer a territory, the high quality its reception facilities are likely to be. Therefore, as a proxy, we use the nominal GDP per capita (*GDP/Pop.*)[2].

3.1.5. Chikungunya crisis

This epidemic hit Reunion in early 2006. To study its effects, we introduced a dummy variable (Chik), equal to 0 before 2006 and 1 from 2006. To the ex-

---

[2] Note that other local factors such as strikes in Guadeloupe and Martinique in 2009 might also have a negative impact on tourism. However, as these incidences coincide with the global recession, introducing a dummy variable here could not help distinguish the effect of strikes from the impact of the economic crisis. Moreover, since we already took into account the economic activity of the country of origin (the variable 'growth'), we chose not to introduce a specific variable for these local events.

tent that these epidemics periodically affect the overseas territories it is possible that this may have negative impacts on tourism beyond Reunion Island. For example, we know that, during the same period of time, many cases of chikungunya were discovered in Mayotte, while other suspected epidemics such as dengue and zika were reported in different overseas territories. To those tourists coming from thousands kilometers away, they might consider that the risk is ubiquitous in all overseas territories. The expected impact is negative.

Thus, the panel model can be written as:

$$\ln Tour_{i,t} = \alpha . \ln Tc_{ij,t} + \beta . \ln(Comp_{i,t}) + \gamma . growth_{j,t} + \delta . \ln(Gdp_{i,t} / pop_{i,t}) + \dots$$
$$+ \lambda . Chik + \phi + f_i + \varepsilon_{i,t} \quad , with \, i = 1, \dots, n, \quad \alpha < 0, \beta < 0, \gamma > 0, \delta > 0 \, and \, \lambda < 0. \tag{1}$$

where j represents the countries of origin of tourists, Metropolitan France, USA, or Japan; ε_i is a error term normally distributed; c is a constant; and f_i is an individual fixed effect (country).

Table 2: Tourist equation, Dependent variable: *ln (tourists)*

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Ln Euro	-0.1591 (0.17)	-0.4689** (0.000)		-0.2071* (0.07)	-0.4657** (0.000)		-0.2144** (0.05)	-0.4889** (0.000)	
Ln (Euro x CPI)			-0.3551** (0.002)			-0.3460** (0.003)			-0.3634** (0.002)
g_Fra	0.0128* (0.08)								
g_Fra x chik		-0.0265** (0.016)	-0.0252** (0.025)						
g_Jap				-0.0007 (0.91)					
g_Jap x chik					-0.0091 (0.180)	-0.0074 (0.282)			
g_USA							0.0163** (0.02)		
g_USA x chik								-0.0267** (0.014)	-0.0236** (0.033)
Ln Tc	-0.2790** (0.00)	-0.3291** (0.000)	-0.3734** (0.000)	-0.2669** (0.00)	-0.3482** (0.000)	-0.3940** (0.000)	-0.2583** (0.00)	-0.3181** (0.000)	-0.3682** (0.000)
Ln (GDP/pop)	1.7033** (0.00)	1.5384** (0.000)	1.7741** (0.000)	1.6790** (0.00)	1.5541** (0.000)	1.7888** (0.000)	1.6496** (0.00)	1.5260** (0.000)	1.7735** (0.000)
Chik. Dummy	-0.2525** (0.00)			-0.2628** (0.00)			-0.2257** (0.00)		
Constant	23.7895** (0.00)	23.7160** (0.000)	26.9340** (0.000)	23.6043** (0.00)	24.0704** (0.000)	27.2667** (0.000)	23.3956** (0.00)	23.6731** (0.000)	27.0762** (0.000)
Country FE	yes	yes	Yes	yes	yes	yes	yes	yes	yes
No. of obs.	138	138	138	138	138	138	138	138	138
R² adjusted	0.836	0.792	0.797	0.828	0.801	0.790	0.839	0.807	0.796

*Notes: p-Values are in parenthesis; **and * indicate that the coefficients are significant at the 5% and 10% level, respectively. Ln Tc = Ln (Dist × Brent), because the transfer cost depends on both geographical distance and oil prices. The distance between each Dom-Com and the j origin country is a constant though. FE = fixed effect (country-specific effect).*

3.2. Estimation results

Table 2 presents the estimates of the tourist (logarithm of arrival) equation. We provided three alternative specifications, according to the variable of economic activity in the country of origin of tourists (real GDP growth rate). Given that the number of observations is small (138 observations for 6 variables in 23 years), we calculate fixed-effect estimators. The estimation of the model with country-specific effects revealed four key findings. First, the number of tourists decreases when the exchange rate of the euro increases. An appreciation of the euro by 1% leads to a reduction of 0.47% in the number of tourists, and 0.36% if we account for the consumer price of the Dom-Com. Second, when economic growth is strong in France and the United States, the number of tourists increases. However, this effect is relatively small (coefficient = 0.01), and it becomes negative when we consider it in combination with the effect of the chikungunya crisis. Third, transport costs have negative impacts on tourism flows, which can be explained by the distance between the Dom-Com and the country of origin of the tourists (see Graph 1). An increase in these costs by 1% (i.e., higher oil prices) causes an average decline of 0.3% in the number of tourists. Fourth and finally, the level of development/wealth of the Dom-Com, approximated by its nominal GDP per capita, positively influences the arrival of tourists. This effect is strong, with elasticities between 1.5 and 1.7.

4. THE CASE OF NEW CALEDONIA

More information is available for NC, specifically, monthly data that indicate the origin country of the tourists for the period 1995M01–2014M06. We consider five tourist countries of origin, as detailed in Graph 8: metropolitan France, Australia, New Zealand, Japan, and the United States.

Graph 8. Shares of tourists to New Caledonia by country of origin, 1995-2014 (%)
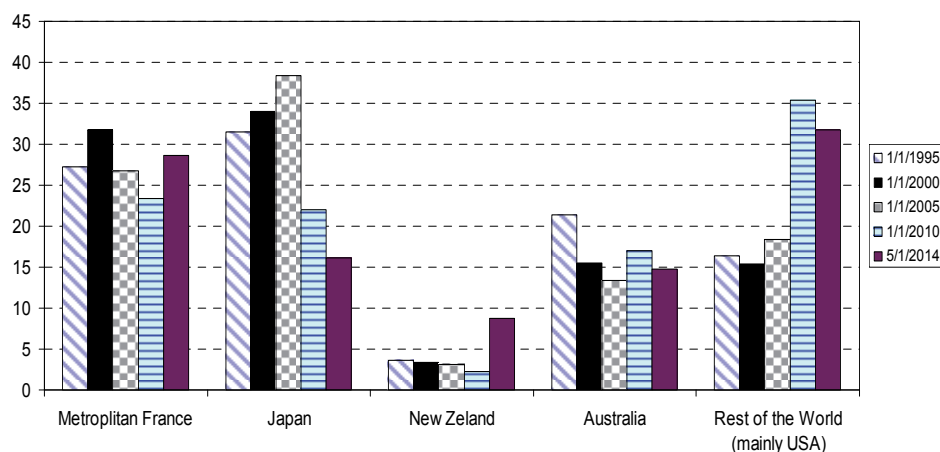
Source: Institut de la Statistique et des Etudes Economiques (ISEE) de Nouvelle-Calédonie.

4.1. Determinants of New Caledonian tourism

The transportation costs were measured as in the previous model (see Section 3). For price competitiveness, we retained bilateral nominal and real exchange rates between NC and the respective countries of origin of the tourists. The real exchange rate is defined as $R_{NC/j} = \dfrac{N_{CFP/j}.P_{NC}}{P_j}$, where $N_{CFP/j}$ reflects the nominal exchange rate of NC ("*Change Franc Pacifique*" or Pacific Franc Exchange) against j countries, and P_{NC} and P_j are the prices of NC and the five j countries, respectively. The parity of *CFP* is fixed against the euro (1 euro = 119.33 CFP). We present the evolution of real exchange rates over the period in Graph 9, which suggests three main phases: real depreciation from 1995 to 2002, appreciation between 2002 and 2009, and then depreciation again until 2014. If these swings reflect changes in the nominal exchange rate of the euro, we can observe some gaps that result in price differences, especially for Japan. The great stability of the rate relative to metropolitan France is a consequence of the stability of inflation in the two territories. Although price levels are higher in NC, the gap in prices remains stable. Regarding the economic situation of the country of origin (*A*), it is difficult to obtain monthly statistics about economic conditions, so we retained a proxy variable, according to either the inflation rate or the price of stocks. The destinations we study largely are accessible only to travelers with high purchasing power. These households likely hold some portion of their wealth as financial assets. Therefore, when the stock market goes up (down), we expect a positive (negative) wealth effect that will result in an increase (decrease) in tourism demand.

Graph 9. Real exchange rates of New Caledonia
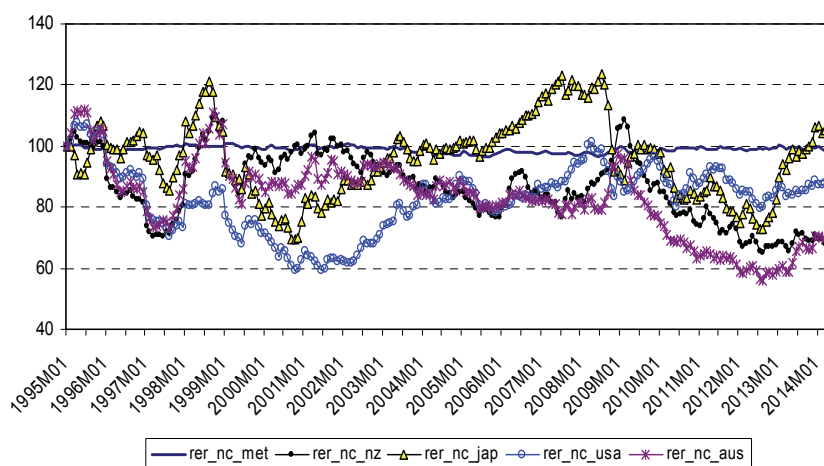
Bilateral exchange rates of New Caledonia.
Source: International Financial Statistics, International Monetary Fund.

Finally, two events in our data may have had an impact on tourism flows: the terrorist attacks in New York on September 11, 2001, and the bankruptcy of

Lehman Brothers in September 2008. We introduce two dummies variables, D_{2001} and D_{LB}.

4.2. Empirical evidence

We consider a dynamic panel data model that includes p lags of the dependent variable:

$$\ln Tour_{NC,j,t} = \sum_{k=1}^{p} \alpha_j . \ln Tour_{NC,j,t-k} + \beta_j . \ln Tc_{NC,j,t} + \delta_j . \ln R_{NC,j,t} + \gamma_j . A_{j,t} + \dots$$
$$+ \lambda_1 . D_{2001} + \lambda_2 . D_{LB} + \eta_j + \varepsilon_{NC,j,t} \tag{2}$$

with a country-specific effect η_j and an error term $\varepsilon_{NC,j,t}$. When we consider the inflation rate of j countries of origin for the tourists, the panel is balanced. Conversely, when we retain the stock index as an economic condition variable, the only data available are from 2003M01 for New Zealand, and the panel is unbalanced.

Table 3. Arellano-Bond dynamic panel data estimates of tourist equations for New Caledonia, Dependent variable: *ln (tourists)*

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Model with nominal exchange rate				Model with real exchange rate			
ln Tour(-1)	0.268**	0.339**	0.318**	0.317**	0.292**	0.342**	0.322**	0.320**
	(0.012)	(0.001)	(0.002)	(0.003)	(0.003)	(0.001)	(0.002)	(0.002)
ln Tour(-2)	0.161**	0.097	0.070**	0.069	0.168**	0.098	0.071	0.070
	(0.001)	(0.143)	(0.0292)	(0.325)	(0.000)	(0.128)	(0.292)	(0.299)
ln Tour(-3)	0.151**	0.159**	0.198**	0.198**	0.140**	0.159**	0.178**	0.199**
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
ln Ner	-0.128**	-0.113**	-0.126**	-0.124**				
	(0.010)	(0.044)	(0.017)	(0.019)				
ln Rer					-0.123**	-0.108*	-0.115**	-0.111**
					(0.025)	(0.082)	(0.051)	(0.057)
ln Tc	0.022	-0.001	-0.001	-0.001	0.015	-0.003	-0.003	-0.002
	(0.213)	(0.992)	(0.989)	(0.997)	(0.348)	(0.932)	(0.936)	(0.951)
Ln Stock		0.047	0.048	0.048		0.046	0.047	0.047
		(0.440)	(0.451)	(0.448)		(0.444)	(0.455)	(0.452)
Inflation_nc	-3.032**		-2.639**	-2.647**			-2.532**	-2.541**
	(0.000)		(0.001)	(0.002)			(0.001)	(0.003)
Inflation	-0.3417			-0.2511				-0.267
	(0.821)			(0.845)				(0.837)
D_2001	-0.004	0.027**	0.026**	0.025**	-0.002	0.024**	0.023**	0.022**
	(0.856)	(0.003)	(0.002)	(0.004)	(0.879)	(0.012)	(0.011)	(0.016)
D_LB	-0.026				-0.023			
	(0.572)				(0.579)			
Constant	2.344**	2.172**	2.197**	2.208**	3.287**	3.076**	3.166**	3.146**
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Wald test [a]	70.89**	43.90**	51.18**	186.9**	222.5**	48.55**	60.75**	362.4**
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
M2 test [b]	-0.222	0.274	0.574	0.577	-0.196	0.287	0.593	0.592
	(0.824)	(0.783)	(0.565)	(0.563)	(0.844)	(0.774)	(0.553)	(0.553)
No. of obs.	1165	1059	1059	1059	1165	1059	1059	1059

*Notes: The p-values are in parentheses. ** and * indicate rejection of the null hypothesis at the 5% and 10% levels, respectively. [a] The Wald statistic of the null hypothesis that all coefficients except the constant are zero. The null hypothesis is rejected in all cases. [b] The M2 Arellano-Bond test of whether the average autocovariance in residuals of order 2 is 0. The null hypothesis is not rejected in all cases.*

To estimate Model 2, we used Arellano and Bond's (1991) method. We derived one-step generalized method of moments (GMM) estimators for the model parameters. The *p*-values in Table 3 appear in parenthesis under the coefficients, and in all regressions, we present the results in the case of robust standard errors. From this analysis, we can demonstrate that tourist arrivals in New Caledonia:

- Decrease when the euro appreciates against the U.S. dollar. Similar coefficients emerge from the bilateral nominal or real exchange rate. An appreciation of 1% reduces the number of tourists by 0.12%.

- Decrease when Caledonian inflation rises.

- Occur in conjunction with expected effects of the variables, though those coefficients are not significant. Therefore, we expect more tourists when the stock price increases in the country of origin. The coefficient of the wealth effect is positive but not significant. The coefficient of transport costs also is negative but not significant.

- Did not change according to most of the dummies, with the exception of the September 11, 2001, attacks[3]. This positive sign can be explained by the diversion effect that led tourists to avoid the United States and Europe and prefer the Pacific Zone, and particularly NC.

5. DEFINING AN ECONOMIC POLICY FOR TOURISM IN THE DOM-COMS

With their high level of development and sometimes exceptional natural capital, French Dom-Com have assets that make tourism an obvious driver of their economies. However, these islands also suffer handicaps. Perhaps most important, they exhibit low price competitiveness, particularly in comparison with close geographic territories and direct competitors, such as islands in the Caribbean, the Indian Ocean, or the Pacific. This weakness reflects two causes. First, production costs and prices are very high in the Dom-Com, sometimes up to twice as expensive as they would be in metropolitan France, depending on the area. The distance and high cost of certain imported products may partly explain this effect, though these areas also likely suffer from increased public remittances (Gay, 2012; Candau et al., 2014). Second, these "island states" use the euro as their currency (or CFP attached to the euro) and therefore may suffer with any significant appreciation of the European currency, as in the 2000s.

Another handicap results from the remoteness of the country of origin of tourists. This factor is relatively less important for NC or French Polynesia, in that Japanese, U.S., and Australian tourists chose among these equally distant destinations, but it is a much greater issue for the islands of the Caribbean or the Indian Ocean. For the latter, metropolitan French tourists have other destination choices, such as Middle East and North African countries (Tunisia, Morocco, Egypt) or Southern Europe (Greece, Turkey), with much lower costs.

---

[3] Other dummies variables introduced to take into account various events (Fukushima catastrophe for example) were not significant and consequently not conserved.

In these conditions, opportunities to improve price competitiveness are limited, and the most viable choice could be to set a goal of non-price competitiveness. For example, one option would be to offer luxury accommodations that attract tourists with high purchasing power. Such a strategy presupposes quality services though, which require highly developed infrastructure (roads, health, water) and upscale hotels. Among the Dom-Com, Reunion Island follows an interesting strategy: In 2010, it obtained a designation for La Reunion National Park, circuses, pitons and ramparts from the UNESCO World Heritage Committee, which accounts for approximately 40% of its total area. At the same time, it greatly increased its range of hotel facilities. But this territory remains vulnerable to shocks, such as the chikungunya or "shark crisis." The quality of the reception available to tourists also is very uneven across Dom-Com.

Other policies or strategies might include fiscal policies, in the form of tax exemptions, to develop tourism. Prior implementations in Dom-Com have been poorly targeted, such that the initial investments were diverted to real estate transactions. A policy more focused on cruise passengers could be leveraged much better. In particular, we found that during the 2000s, the Caribbean islands have lost tens of thousands cruise passengers (Gay, 2012, p. 1638). The French overseas territories have suffered a significant delay in this sector.

6. CONCLUSION

This article has focused on the determinants of tourism in French overseas departments and collectivities. We are interested in explaining the number of tourists who arrive in overseas territories, except those arriving on cruises. First, we used a panel composed of six Dom-Com over the period 1990–2012 and, with a panel model estimation of the annual data, showed that appreciation of the euro by 1% against the dollar reduced the number of tourists by 0.47%. We also confirmed the negative impact of distance/transport costs and the chikungunya crisis on arrivals. Conversely, stronger growth in France or the United States and a higher level of wealth in the Dom-Com promoted tourism. Second, using monthly data for bilateral tourism flows, we realized a more detailed panel analysis for New Caledonia over the period 1995–2014. Taking the countries of origin of the tourists into account, we showed that an appreciation of the euro by 1% reduced tourism flows to NC by 0.12%. Higher inflation in NC penalized tourism. However, the distance and economic situation of the countries of origin did not significantly influence arrivals in NC. As possible extension for this latter analysis, we could take into account competitiveness and price indicators that integrated the prices of competitor destinations, insofar as we know, for example, the repartition of Japanese tourists across Europe, the United States, other Asian countries, and NC.

Globally, the exchange rate of the euro has a very important role in tourists' choices of destinations. Tourists seemingly make a trade-off across different destinations, such as in the Caribbean area or Indian Ocean Zone. Except for New Caledonia, the transport costs, which depend on both geographical distance and the price of oil (kerosene), also are significant determinants. Finally, it seems pointless to try to compete only on cost; tourism providers must make major efforts to improve their quality and offer superior product ranges.

REFERENCES

Arellano, M. and S. Bond, 1991. "Some Test of Specification for Panel Data: Monte Carlo Evidence and an Application to Employment Equations", *The Review of Economic Studies*, vol. 58, n°2, pp. 277-297.

Candau, F., Hoarau, J.-F. and S. Rey, 2012. "L'impact de la distance et de l'intégration sur le commerce d'une région ultrapériphérique d'Europe: l'île de La Réunion", *European Journal of Development Research*, vol. 24, n°5, pp. 808-831.

Candau F. and Rey S. 2014. "International Trade in Outermost Europe: A Comparative Analysis of Mayotte Island and French Overseas Departments ». The *European Journal of Comparative Economics*, vol.11, n°1, pp. 123-146.

Candau, F., Goujon M., Hoarau J-F. and S. Rey, 2014. "Real exchange rate and competitiveness of an EU's ultra-peripheral region: La Reunion Island*", International Economics*, vol. 137, pp 1-21.

Commission Européenne, 2006. "Fuel and air transport", Analysis of the EU Air Transport Industry, Final Report, Contract no: TREN/05/MD/S07.52077, prepared by Air Transport Department, Cranfield University.

Dwyer, L., Forsyth, P. and P. Rao, 2000. "The price competitiveness of travel and tourism: a comparison of 19 destinations", *Tourism Management*, vol. 21, n°1, pp. 9-22.

Dwyer, L., Mistilis, N., Forsyth, P. and P. Rao, 2001. "International price competitiveness of Australia's MICE industry", *International Journal Tourism Research*, vol. 3, pp. 123-139.

Gay, J.-C., 2012. "Why is Tourism Doing Poorly in Overseas France?", *Annals of Tourism*, vol. 39, n°3, pp. 1634-1652.

Goujon, M. and F. Hermet, 2012. "L'indice de développement humain : une évaluation pour Mayotte", Note et Document, *Région et Développement*, vol. 36, pp. 229-244.

Hoarau, J.F. and S. Blancard, 2013. "An optimal sustainable human development indicator for small island developing states: a reappraisal from data envelopment analysis", *Economic Modelling*, vol. 30, pp. 623- 635

Kerr S. A., (2005). "What is Small Island sustainable development about?". *Ocean and Coastal Management*, vol. 48, pp. 503-524.

Ringbeck, J., Gautam A., and T. Pietsch, 2009. "Endangered Growth: How the Price of Oil challenges International Travel and Tourism Growth", The Travel and Tourism Competitiveness Report, World Economic Forum.

Sauernheimer, K. 2013. Current Account Imbalances in the Eurozone: Causes, Remedies and the Role of the ECB, in: Kumar, R., Daianu, D., Basevi, G., D'Adda, C. (Eds.), *The Eurozone Crisis and the Future of Europe*, Palgrave Macmillan, London, New York.

Turner, R.K. (ed.), 1993. *Sustainable Environmental Economics and Management*, Belhaven Press, London.

LES DÉTERMINANTS DU TOURISME DANS LES DÉPARTEMENTS ET COLLECTIVITÉS D'OUTRE-MER FRANÇAIS

Résumé - *Cet article met l'accent sur les déterminants du tourisme dans les départements et les collectivités d'outre-mer Français. Une première estimation d'un modèle de données de panel annuelles pour la Guadeloupe, Martinique, Mayotte, Ile de la Réunion, la Polynésie Française et la Nouvelle Calédonie (NC), sur la période 1990-2012, montre qu'une appréciation de 1% de l'euro face au dollar réduit le nombre de touristes de 0,47%. Les résultats confirment aussi l'impact négatif des frais de la distance (coût de transport) et de la crise du Chikungunya. A l'inverse, une croissance plus forte en France ou aux Etats-Unis et un niveau plus élevé dans les collectivités d'outre-mer ont tendance à promouvoir le tourisme. Une analyse plus détaillée en panel, avec des données mensuelles pour la NC sur la période 1995-2014, révèle qu'une appréciation de 1% de l'euro face au dollar réduit les flux touristiques de 0,12%, et une infla- tion plus élevée en Nouvelle Calédonie pénalise également le tourisme. Cepen- dant, la distance et la situation économique du pays d'origine n'influencent pas significativement les flux touristiques vers la NC.*

Mots-clés - TOURISME, DÉPARTEMENTS ET COLLECTIVITÉS FRANÇAIS D'OUTRE-MER, NOUVELLE CALÉDONIE, MODÈLE DE PANEL, EURO/US DOLLAR