Innovative Entrepreneurship in the Tourism Sector: New Insights on the Role of the Development Context

Isabel Pereira Rodrigues[1]

Abstract

This paper is an empirical study on the drivers of innovative entrepreneurship for the tourism sector, in particular the role of the development context. Using cross-country data from the Global Entrepreneurship Monitor (GEM) project and the Human Development Index (HDI) of the United Nations Development Programme, this study finds evidence that innovative entrepreneurship is negatively related to human development. Although more developed societies have more resources available and higher levels of education development, the tourism entrepreneurs have lower probability of being innovative. More developed societies are established tourism destinations, and facing such high demand, it is possible that tourism entrepreneurs have lower incentives to innovate.

Keywords: Entrepreneurship, innovation, human development, tourism, GEM

1 Introduction

This paper addresses the issue of the drivers of innovative entrepreneurship in the tourism sector, in particular the role of the development context in which the entrepreneurial activities take place.

Entrepreneurship has received attention from policymakers and academics for long. From the policy perspective, it is seem as a way to boost growth, create jobs and improve well-being (e.g. ASEAN, 2015;

[1] Mahidol University International College, Mahidol University, Thailand.
Email: isabel.per@mahidol.ac.th

European Union, 2012; OECD, 2007). For the academics, it is a challenge to understand the black box connecting entrepreneurship and those desired policy outcomes. A major advance of the debate is the recognition that just a few entrepreneurial activities bring such growth and job outcomes, and these activities are associated with innovation (Shane, 2009). Entrepreneurship that is innovative is at the "heart of national advantage" (Porter, 1990, pg. 125) and several studies find evidence on those positive effects for the entire economy (e.g., Audretsch and Thurik, 2000; Wennekers and Thurik, 1999; Acs, 2006; Audretsch et al., 2006; Grilo and Thurik, 2006). The expected effects of innovation and entrepreneurship go beyond economic development. The 2030 Agenda for Sustainable Development adopted at the United Nations Summit in September 2015 explicitly mention innovation and entrepreneurship, both as part of the 17 Sustainable Development Goals and as drivers to achieve the overall Agenda.

Innovative entrepreneurship contrasts with 'ordinary' entrepreneurship, whose benefits are mostly job creation for the individual entrepreneur, often known as *self-employment* (Waasdrop, 2002; Dahlstrand and Stevenson, 2010). Therefore, understanding the drivers of *innovative entrepreneurship*, as opposed to entrepreneurship without innovation seems to be valuable for the design of adequate policies that could bring economic and broader development benefit.

The existing literature on the drivers of entrepreneurship concludes that individual characteristics of the entrepreneur as well as the development context in which he operates influence the entrepreneurial decisions. An earlier literature on the relation between entrepreneurship and development argues that the more developed a society is, the higher the opportunity cost of being an entrepreneur, and as such less entrepreneurial activities are expected (e.g. Kuznets, 1971; Yamanda, 1996). A more recent branch of this literature suggests the relation between entrepreneurship and development should display an opposite pattern,

since in more developed economies there are more resources available to entrepreneurs, and job occupations with personal autonomy are more valued (e.g. Fogel *et al*., 2006; Carree *et al*., 2002). However, these discussions refer to entrepreneurship as a whole, and the empirical findings consider either all economic sectors or specifically the manufacturing activities. The focus on entrepreneurship that is innovative and for the service sector of tourism is lacking. This paper tries to fill the gap.

The choice of the tourism sector is motivated by its economic relevance and its scientific novelty. Tourism is nowadays considered a major source of income around the world. In 2015 there were more than 1,100 million international tourist arrivals, and the international tourism represented 7% of the world's exports in goods and services with a total value up to US$1.5 trillion, ranking ahead of food and automotive export products (UNWTO, 2016b). Through the expansion of employment opportunities, increase in personal incomes, investment in infrastructures and human capital, and earnings in foreign exchange, tourism has a clear positive direct effect on economic growth (e.g. Brau, Lanza and Pigliaru, 2007; Lee and Chang, 2008; Sakai, 2009; Blake et al., 2006). As such, innovation in tourism, lowering the costs or providing new or improved services that match demand requirements, has the potential to produce significant gains for the whole economy.

As Hjalager (2010) points out, throughout the history, the tourism industry has witnesses many examples of innovation, such as the railway travel experiences at lower prices invented by Thomas Cook at the end of 19th century, the food franchise outlet model of MacDonald's started by Raymond Kroc after the 2nd World War, or the Disney thematic parks combining media and many other entertainments. Besides these classical examples, other tourism innovations often happen, sometimes at a smaller local scale (e.g. Nicolau and Santa-Maria, 2013; Sakdiyakorn and Sivarak, 2015). Given that tourism is a service industry, relying in social behaviours and personal interactions, it is

challenging to have a precise distinction between a service innovation and a technological innovation in tourism (e.g. Sundbo, 1998; Sundbo et al., 2007). Ultimately, a technology innovation such as *Foodpanda* (the online food ordering website connected with local restaurants in the Thai cities of Bangkok, Pattaya and Chiang Mai)[2] can be difficult to separate from a service innovation, since it changes behaviours and the way companies interact with their clients. Another example can be the introduction of management software in a hotel, allowing recording the guest history. This tool promotes building a more personalized relationship with each customer, enhancing customer's experience and the value he gives to the service in that particular hotel. The focus of this paper is on innovative entrepreneurship in comparison to 'ordinary' entrepreneurship, so an illustrative example could be a new hotel with such management software, in comparison to another new hotel without such software.

Despites many real case examples of innovative entrepreneurship in tourism, from the scientific perspective, this service sector still present several unknowns. The literature that is now emerging addresses entrepreneurship in tourism and innovation in tourism, as separate discussions (Li, 2008; Hjalager, 2010). This paper combines both entrepreneurship and innovation debates, by studying the role of the development context on the presence of innovation in tourism entrepreneurship. The pattern of the relation between innovative entrepreneurship and development is not obvious. On the one hand, it is plausible that more developed countries have more resources available for the entrepreneurs who wish to innovate. On the other hand, in more developed countries, tourism entrepreneurs can have fewer incentives to innovate. More developed countries have efficient modes of transportation and comfortable tourism facilities, and are perceived as safe travel destinations with well-

[2] www.foodpanda.co.th

functioning institutions; this makes developed countries well-established and consolidated tourism destinations. In 2015, the more advanced economies had the larger share of international tourism receipts (61.5%) and were four out of the five top international tourism destinations (UNWTO, 2016b). Due to this high demand, an individual entrepreneur can be successful even without innovation, and hence there are fewer incentives for innovating Given such trade-off, it becomes intellectually challenging and policy relevant understanding how the development context influences the decision of innovating for a tourism entrepreneur.

Most of the existing entrepreneurship literature that studies its relation with development uses the concept of economic development. A novelty of this paper is to consider the multidimensional concept of *human development.* Based on the capability approach of Amartya Sen (Sen, 1999), the human development is a broad concept that includes more than just the economic dimension:

> 'Human development is the expansion of people's freedoms to live long, healthy and creative lives; to advance other goals they have reason to value; and to engage actively in shaping development equitably and sustainably on a shared planet.[3]

Baumol (1990) already found that institutional arrangements or other social phenomena affect the entrepreneurial effort (Wennekers and Thurik, 1999). However, in more developed societies where people have the opportunity to live longer, healthier and more creative lives, it is not obvious whether these larger opportunities lead to more innovative entrepreneurship; or the presence of these larger opportunities means an increasing opportunity cost for innovative entrepreneurship. Understanding how both economic and social dimensions of

[3] UNDP (2010), pp. 2.

development affect the human agency to pursue entrepreneurial activities that are innovative is, therefore, a valuable insight to inform policy design.

2 Literature Review and Theoretical Framework

The first time that the word entrepreneur was used in economics is traced back to 18th century and Richard Cantillon (1755), identifying the one who undertakes an enterprise and receives the compensation as a premium to bear the risks of such entreprise (Aspromougos, 2012).

By mid-19th century, the focus of economic theory was the problem of allocation efficiency in the economic structure. That was the outset for the neoclassical economic theory, according to which the entrepreneur was the allocator of resources, optimizing processes that would lead markets to equilibrium. Science and innovation were seen as pre-conditions and there was little role for understanding the dynamic process of innovation in such static context (Courvisanos & MacKenzie, 2014).

In early 20th century, Schumpeter re-introduced the endogeneity of innovation and brought the innovative entrepreneur to the centre of economic development (Schumpeter, 1912/1934, 1942). He argued that the human agency of the entrepreneur would bring innovation and economic development, through a process of disruptive discontinuous change.

During the 20th century several other authors made significant contributions explaining the role of the entrepreneur in the creation of new markets, including: Kirzner (1973) and the Austrian school, emphasizing the entrepreneur as an individual alert to market imperfections that can be exploited with profit; Knight (1921/1971), presenting the entrepreneur as an individual with capacity to benefit from risk-adjusted favourable opportunities; and Lucas (1978), arguing argued that individuals are heterogeneous in terms of their

entrepreneurial ability, and that leads them to make different occupational choices. These theoretical works have proved to be a steady basis for several other theoretical and empirical contributions on how individual characteristics influence the entrepreneurial decisions.

Benefiting from this previous literature and recognizing that entrepreneurship has to do with individuals, the current study looks for evidence of whether the characteristics of individual entrepreneurs are also relevant to explain innovative entrepreneurship.

However, this literature on the individual characteristics of the entrepreneur does not provide insights on the underlying conditions necessary for innovation. Following Baumol (1990), individual actions affect the aggregate, but it is natural that there may be feedback effects linking the socio-economic arrangements surrounding the entrepreneurs and their individual decisions. North and Thomas (1973) refer to the institutional and social context that affects the efficiency and performance of economic organizations. Wennekers and Thurik (1999) denote these contextual factors of entrepreneurship as the *conditions*, the "environment in which an individual carries out his or her entrepreneurial activities" (Wennekers and Thurik, 1999, page 51). Similar to them, this paper defends that the socio-economic context matters to the presence of innovative entrepreneurship. Such context is described here as the human development level of the society in which the entrepreneurial activities happen.

Before us, several authors analysed the relation between development and entrepreneurship. Initial works defend a negative relation based on arguments that the economic development process has impacts on: i) the relative importance of the economic sectors, shifting from agricultural to manufacturing, affecting employment status and decreasing the relative position of farmers and small scale producers; ii) the opportunity cost of being self-employed as

compared to safe professional earning as employee (Lucas, 1978); and iii) the preference of individuals to take less risky professional opportunities than entrepreneurship (Iyigun and Owen, 1999). More recently, there have been studies supporting a different pattern, U-shape. At higher levels of economic development, there is a revival of entrepreneurship due to: the availability of more resources to the individuals who want to be entrepreneurs, the favourable institutional environment, and the value given to occupational choices with more autonomy and self-realization. However, both branches of this literature are referring to overall entrepreneurship, and not innovative entrepreneurship. Anokhin and Wincent (2012) is one of the few empirical attempts to combine the study of start-up rates with innovation and countries' stage of development, finding some evidence of a U-shape relation. The existing literature also refers to the manufacturing sector or the economy as a whole.

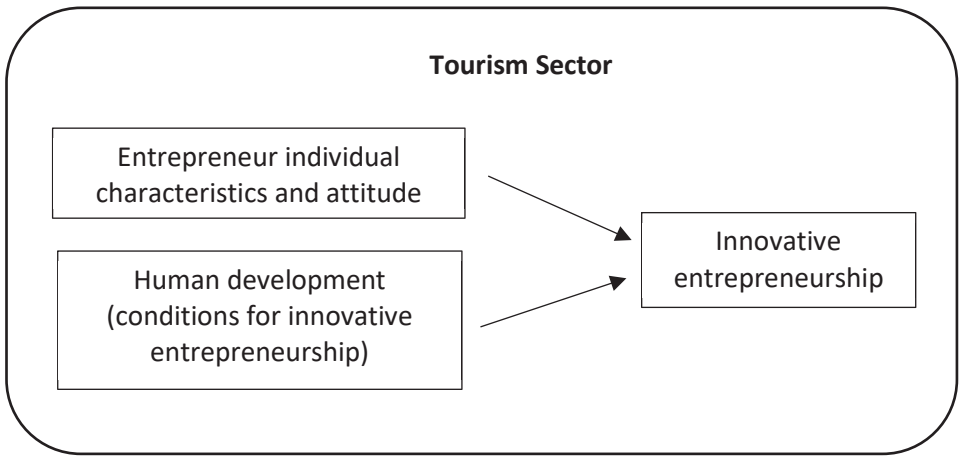
This paper extends the discussion on the relation between entrepreneurship and development by being specific on the entrepreneurship associated with innovation, by focusing on the tourism sector, and by considering the multidimensional concept of human development, which goes beyond economic development. Up to our knowledge, Gries and Naudé (2011) is the only study debating the relation between entrepreneurship and human development. That paper presents entrepreneurship as a production factor, a functioning that is possible because people access the resources of entrepreneurial capital and opportunities. In more developed societies there is a better matching between the individual functionings and the available opportunities,[4] and individuals take entrepreneurial activities that are more valuable for them. This paper contributes with some new empirical insights on this first theoretical debate. Moreover, since human development is a

[4] '*Functionings* are beings and doings that people value and have reason to value.' (Alkire, 2010, pp. 41).

multidimensional concept, with both economic and social dimensions that affect the human agency to pursue entrepreneurial activities, this paper investigates the relation of different development dimensions with the presence of innovation in tourism entrepreneurship.

Given the debates presented and inspired by the work of Wennekers and Thurik (1999), the theoretical framework illustrated in Figure 1 can be summarized as: innovative entrepreneurship is an individual attitude, and as such it is linked to the characteristics and attitudes of the entrepreneur; individual actions takes place within a certain socio-economic context, and therefore the human development environment of the entrepreneur affects his decision to innovate.

Figure 1. Theoretical framework.



Within such theoretical framework, the research questions (RQ) and the associated hypotheses (H) are:

RQ1. What is the pattern of the relation between human development and innovative entrepreneurship for the tourism sector?

H1: There is an inverted U-shape relation between human development and innovative entrepreneurship in tourism. Due to the higher demand in more developed countries, tourism entrepreneurs have fewer incentives to innovate.

RQ2. Since human development is a multidimensional concept, dimensions show similar or different patterns of influence when explaining the relation with innovative entrepreneurship?

H2: The three dimensions of human development (income, health, education) have similar patterns of influence.

RQ3. What is the relation of individual attitudes and socio-economic characteristics of the entrepreneur with innovative entrepreneurship in tourism?

- *Individual attitude*. Several studies find that the main reason to become an entrepreneur is necessity rather than to seize an opportunity (e.g., Porschke, 2013).

H3a: Innovative entrepreneurship in tourism is driven more by necessity than by opportunity.

- *Age*. The propensity to become entrepreneur seems to decrease with age (e.g. Reynolds et al., 2003; Blanchflower, 2004; and Ramos-Rodriguez et al., 2012).

H3b: There is a U-shape relation, with both younger and older adults having higher propensity to develop innovative entrepreneurial activities. Younger adults can be more creative and more able to try innovative (and risky) entrepreneurial activities; while older adults have more experience and capacity to develop and implement innovative products, services or technologies.

- *Gender*. Results have been mixed (e.g. Kelley et al., 2011; Minniti and Nardone, 2007), but some studies found a positive

relation between being male and creating new firms; (e.g. Reynolds et al., 2003).

H3c: Women are less likely to be innovative entrepreneurs in the tourism sector.

- *Work occupation*. Theories of occupational choice of the individuals (e.g. Lucas, 1978; Jovanovic, 1994; Hamilton, 2000) defend that the decision on how to allocate time between different activities depends on the expected gain of each alternative as compared to their current situation, the *status quo*. Unemployed persons or part-time workers have lower opportunity cost and, hence, they have higher likelihood of starting new firms. However, it may well be that these individuals are unemployed or not in full-time occupations due to factors also linked to their ability, which also affects their likelihood of developing entrepreneurial activities that are innovative.

H3d: Individuals working in full-time positions (either self-employed or working as employees of others) have higher probability of starting innovative entrepreneurial activities in the tourism sector, as compared with those who are not working or in part-time positions.

- *Education level*. In the occupational choice theories cited above, the expected gain of each choice depends on the ability or human capital of the individuals. The education level is a common proxy for such ability and for human capital.

H3e*:* More educated individuals have higher probability of creating innovative entrepreneurial activities.

- *Household income*. Entrepreneurship is a risky endeavour. Previous studies have concluded that entrepreneurs are individuals who are less risk-averse (e.g. Kihlstrom and Laffont, 1979). At higher levels of income, not only such risk aversion is lower, but there are also less financial constraints (e.g. Hurst and Lusardi, 2004).

  H3f: Entrepreneurs coming from households with higher income have higher probability of innovating.

3 Methodology

The empirical data for this study comprises three sets of data.

The *first set* is the data from the Global Entrepreneurship Monitor (GEM) project, using the Adult Population Survey (APS) for the year 2011.[5] The GEM is an international observatory on entrepreneurship, with surveys being designed and implemented by experts in entrepreneurship around the world, both academics and practitioners. The completion of the surveys is under the responsibility of National Teams, in each of the more than 50 countries and territories that GEM covers, and their work is supervised and coordinated by a central team. The GEM surveys include all types of entrepreneurial activities, both formal and registered, and informal and not registered in official databases; and follow harmonized framework and methodology, allowing for international comparisons. The APS is an annual questionnaire, administered to a minimum of 2000 adults in every GEM country or territory.

According to the Global Monitor Project, entrepreneurship is: 'Any attempt at new business or new venture creation, such as self-employment, a

[5] The GEM-APS 2011 for the tourism sector was kindly shared by the School of Entrepreneurship & Management, Bangkok University. This institution is the source and sole owner of this dataset.

team of individuals, or an established business' (Bosma *et al*., 2012, pp. 20).

The current study uses GEM-APS information about individuals developing entrepreneurial activities at the total-early stage (TEA) in the tourism sector, that is, those who are either actively involved in start-up efforts, are the owners of a start-up, or manage or own a business that is at most 42 months old. The definition of the tourism sector follows the International Standard Industrial Classification (ISIC) - Revision 4 (UN, 2008).[6]

The GEM-APS data identifies two indicators of innovative entrepreneurship: entrepreneurs whose *product or service* is new to the customers, and entrepreneurs who use new *technologies*. However, in our sample the vast majority of innovations in tourism relates to products or services (61%) rather than technology innovations (35%). This is consistent to the findings in previous works (e.g. Sundbo et al., 2007), which explain the fact referring to the nature of the tourism industry. Tourism is a service industry and, therefore, innovations end up changing the way service is delivery and the social interaction between customer and business. In other words, the boundary between technology innovation and service innovation is challenging to establish in the tourism sector and, therefore, most of the innovations are perceived as service innovation (Gronroos, 1990). As such, the dependent variable used in this study is an indicator of *Innovative entrepreneurship in product or service*, a dummy variable indicating TEA with (all or some) customers considering the tourism products or services new or unfamiliar.

The GEM-APS dataset also provides information on the individual attitude and socio-demographic characteristics of each respondent. These are used to build the exogenous variables for the analysis, namely: the individual

[6] Activities in the tourism sector include categories 55 (accommodation), 56 (food and beverage service activities) and 79 (travel agency, tour operator, reservation service and related activities) of ISIC-Rev.4.

attitude to become an entrepreneur (pursue an opportunity, or out of necessity), age, gender, work occupation, education level, and household income.

The *second set* of data is the Human Development Index (HDI) and its component indexes of income, health and education development, for each country and territory on the year 2011, provided by UNDP (2015). According to HDI, the development of each country or territory translate in a number between 0 (the worst) and 1 (the best).

> "The HDI is a summary measure of average achievement in key dimensions of human development: a long and healthy life, being knowledgeable and have a decent standard of living. The HDI is calculated as the geometric mean of normalized indices for each of the three dimensions."[7]

The *third set* of data is the tourism expenditures for each country for the year 2011, as published by UNWTO (2016a).

The overall dataset has a total of 1254 observations for the entrepreneurial activities considered as TEA in the tourism sector. These refer to individuals living in 49 different countries and territories around the world.[8] While additional details on the exogenous variables are presented in Table A1 at the Annex, the descriptive statistics of the sample are shown in Table 1

Table 1 shows that in the database, the majority of the individuals develop their entrepreneurial activity to seize a business opportunity rather than

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[7] Source: http://hdr.undp.org/en/content/human-development-index-hdi accessed on May 1, 2017.

[8] The 49 countries and territories in our sample are, by alphabetic order: Algeria, Argentina, Australia, Bangladesh, Belgium, Bosnia and Herzegovina, Brazil, Chile, China, Colombia, Croatia, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Ireland, Jamaica, Japan, Korea (Republic of), Latvia, Lithuania, Malaysia, Mexico, Netherlands, Nigeria, Norway, Pakistan, Panama, Peru, Poland, Portugal, Romania, Russian Federation, Slovakia, Slovenia, Spain, Sweden, Switzerland, Taiwan, Thailand, Trinidad and Tobago, Turkey, United Kingdom, United States of America, Uruguay, Venezuela (Bolivarian Republic of).

out of necessity. Entrepreneurs have an average age of 38 years old, are majority male, and around half of them are self-employed. A higher proportion of individuals has at least secondary education, and comes from households with above average income.

Table 1 Descriptive statistics – sample of entrepreneurial activities, tourism sector.

Variable	Obs	Weight	Mean	Std. Dev.	Min	Max
Entrepreneurship_ _Innovative Product or Service	1254	1276.47	0.61	0.49	0	1
TEA_Opportunity	1254	1276.47	0.71	0.45	0	1
TEA_Necessity	1254	1276.47	0.25	0.44	0	1
Age	1254	1276.47	37.17	11.73	18	80
Female	1254	1276.47	0.45	0.50	0	1
WOccupation_Full or Part time	1254	1276.47	0.29	0.46	0	1
WOccupation_Self employment	1254	1276.47	0.49	0.50	0	1
WOccupation_Part time	1254	1276.47	0.06	0.24	0	1
WOccupation_Retired or Disabled	1254	1276.47	0.01	0.12	0	1
WOccupation_Homemaker	1254	1276.47	0.04	0.20	0	1
WOccupation_Student or Not working	1254	1276.47	0.10	0.29	0	1
Educ_UN_pre primary or primary	1254	1276.47	0.09	0.28	0	1
Educ_UN_lower secondary	1254	1276.47	0.14	0.35	0	1
Educ_UN_secondary	1254	1276,47	0.33	0.47	0	1
Educ_UN_post secondary	1254	1276.47	0.18	0.39	0	1

Table 1 Countined

Variable	Obs	Weight	Mean	Std. Dev.	Min	Max
Educ_UN_tertiary	1254	1276.47	0.25	0.43	0	1
Household income_lowest third	1254	1276.47	0.14	0.35	0	1
Household income_middle third	1254	1276.47	0.37	0.48	0	1
Household income_highest third	1254	1276.47	0.49	0.50	0	1
HDI_2011	1254		0.77	0.09	0.50	0.94
Income_HDI 2011	1254		0.77	0.08	0.48	0.97
Health_HDI 2011	1254		0.86	0.08	0.49	0.97
Education_HDI 2011	1254		0.70	0.11	0.37	0.92
Inbound Tourism Expenditure, %GDP	1254		2.79	3.17	0.1	15.5

Note: The observations from the GEM database have been weighted to match the distribution of the adult population 18+ years in each country, as per recommendation of the GEM Manual (Bosma *et al*., 2012, pages 54-58). The weight variable uses individuals older than 65 years old. The data from HDI and Inbound tourism expenditures are already referring to the overall country or territory and, therefore, they don't need to be weighted.

Source: Author's calculation base on GEM-APS (2011), UNDP (2015), and UNWTO (2016a).

Based on HDI value, UNDP classifies each country as having low human development (HDI below 0.550), medium human development (HDI between0.550 and 0.699), high human development (HDI between 0.700 and 0.799), or very high human development (HDI 0.800 and above). The average HDI in our sample is 0.77, which corresponds to high human development. In particular, most of the observations are from individuals in either high or very

high human development countries or territories, 55% and 41% of our sample, respectively. Therefore, the results of this study are more relevant for these countries and territories in the upper part of the development distribution.

The analysis of the research questions uses several econometric techniques:

- First, correlation analysis between each explanatory variable and the dependent variable;
- Second, multilevel analysis with random-intercept effect of HDI;
- Third, estimation of a Binary Logit model (e.g. Greene, 2012) inferring the empirical model:

$$\text{Probability (Innovative Entrepreneurship)}_{ij} = f(\text{Individual attitude and characteristics}_{ij}, \text{Human development}_{j}, \text{Tourism economic importance}_{i}, \varepsilon_{ij})$$

where indexes *i* refers to individual, *j* to country or territory, and ε_{ij} is a random error.

- Fourth, further robustness analysis presenting the probability at means and the marginal effects for the Binary Logit model estimated, using Delta method.

4 Findings and Discussion

The first step of the statistical analysis investigated the pairwise correlation between the innovative entrepreneurship in product or service and the explanatory variables, with results presented in Table 2.

This initial analysis detected a significant negative association between HDI and innovative entrepreneurship. As discussed theoretical, it was expected that in more developed countries or

territories, the tourism entrepreneurs had less incentives to innovate, which would lead to fewer innovations. This first evidence was consistent with such expectation.

When disaggregating HDI into its sub-components indexes, income and education development showed the same significant negative association with innovative entrepreneurship, while the association with health development failed to be significant.

Regarding the correlation with the individual attitude and characteristics of the entrepreneur, these initial exploratory results pointed in the direction that favoured some, but not all, of our theoretical hypotheses. The correlation with both individual attitudes was not significant, suggesting no clear pattern of whether the innovation in tourism was either driven by necessity or to seize an opportunity and, therefore, not in line to what was initially expected in H3a. The correlation with *Age* was negative, partially in line with H3b, which anticipated that innovation was more common among younger entrepreneurs. The hypothesis that the *gender* of the entrepreneur was correlated to the presence of innovation was not confirmed. On the opposite, work occupation and education level of the entrepreneur showed some significant correlation with innovative entrepreneurship. Regarding the first, innovation appeared negatively correlated to entrepreneurs being retired, disabled or homemaker, which was aligned with the theoretical expectation in H3d; but the expectation of positive correlation with full-time occupation was not confirmed. With respect to education, the negative correlation with lower levels and the positive correlation with higher levels showed an overall pattern consistent with H3e, more educated entrepreneurs were associated with more innovation. The correlation with the categories of household income did not fully support H3f, according to which it was expected to see a positive correlation between the presence of innovation and higher

income households. However, the data showed that innovation was negatively correlated with lower income households, which was in consonance with the expectation. A final and interesting result was that a higher percentage of inbound tourism expenditures were associated with the presence of innovation in products or services.

Table 2 Pairwise correlations with Innovative Entrepreneurship in Product or Service

Variable	Correlation
TEA_Opportunity	0.033
TEA_Necessity	-0.009
Age	-0.113***
Female	-0.005
WOccupation_Full or Part time	0.024
WOccupation_Self employment	0.012
WOccupation_Part time	0.108***
WOccupation_Retired or Disabled	-0.094***
WOccupation_Homemaker	-0.120***
WOccupation_Student or Not working	-0.030
Educ_UN_pre primary or primary	-0.084***
Educ_UN_lower secondary	-0.066**
Educ_UN_secondary	0.003
Educ_UN_post secondary	0.054*
Educ_UN_tertiary	0.057**
Household income_lowest third	-0.061**
Household income_middle third	0.021
Household income_highest third	0.022
HDI_2011	-0.092***
Income_HDI 2011	-0.136***
Health_HDI 2011	-0.032

Table 2 Continued

Variable	Correlation
Education_HDI 2011	-0.089***
Inbound Tourism Expenditure, %GDP	-0.175***

Note: *, **, *** indicate statistical significance at the 10%, 5% and 1% levels, respectively.

Source: Author's calculation base on GEM-APS (2011), UNDP (2015), and UNWTO (2016a).

Before conducting the regression analyses, we investigated possible multicolinarity between the explanatory variables, which could disturb the estimation results. The results presented in Table A2 at the Annex show high correlation between three exogenous variables: TEA by necessity, Work occupation being self-employment, and Household income at the highest third. These categories were then excluded from the estimation, becoming the basis against which the remaining categories could be compared to. A fourth variable that was also taken as basis was Education at primary level or below.

The following step to infer about the theoretical model of this study was to conduct multilevel data analysis with random-intercept effect of HDI. This allowed checking whether grouping by HDI had some power to explain the variance of entrepreneurship being innovative or not. Table 3 presents the results. The low p-value rejected the hypothesis of non-significant random effects; while the value of interclass correlation between zero and one was consistent with the expectation that grouping by HDI was useful, but after grouping by HDI, there was still some variance to be explained by other factors at individual level.

Table 3 Multilevel Mixed-effects with random intercept of HDI

Dependent variable:	**Coeffs.**
Entrepreneurship_Innovative Product or Service	
TEA_Opportunity	0.071
Age	-0.072
Age_square	0.001
Female	0.075
WOccupation_Full or Part time	0.158
WOccupation_Part time	0.741
WOccupation_Retired or Disabled	-1.244
WOccupation_Homemaker	-0.473
WOccupation_Student or Not working	0.060
Educ_UN_lower secondary	0.550
Educ_UN_secondary	0.559
Educ_UN_post secondary	0.639
Educ_UN_tertiary	0.920
Household income_lowest third	0.022
Household income_middle third	0.140
Inbound Tourism Expenditure, % GDP	-0.003
constant	0.687
Random-effects Parameters	**Estimate**
HDI_2011: Identity	
sd(_cons)	0.973
LR test vs. logistic regression: chibar2(01)	138.000
P-value	**0.000**
Nr. Observations	1254
Wald chi2	34.640
df	16
P-value	0.005
Log likelihood	-727.529

Table 3 Continued

Dependent variable: Entrepreneurship_Innovative Product or Service	Coeffs
Group variable: HDI_2011	
Nr. Groups	44
Obs per group: min	2
avg	28.500
max	355
Integration points	30
Intra-class correlation	**0.223**

Source: Author's calculation base on GEM-APS (2011), UNDP (2015), and UNWTO (2016a).

In consideration of the previous findings revealing the influence of HDI towards the presence of innovation, we estimated the theoretical model studying the determinants of innovative entrepreneurship in products or services, using the Binary Logit technique. Given the interest in inferring the influence of overall human development as well as of separated dimensions of development, the estimation made use of two alternative specifications: Model A, using the level of HDI of each country or territory as the composite measure of human development; Model B, replacing HDI by its sub-component indices of income, health and education development. A word of caution must be recorded regarding the estimation of model B and the high correlation between the sub-component indexes of development. Since education and income development were highly correlated, both were not included as controls in the same model; rather, the influence of income and health development was inferred in one model (model B1), and the influence of health and education development in a different model (model B2). Table 4 presents the results.

Table 4 Probability of innovative entrepreneurship in product or service, Binary Logit

Dependent variable: Entrepreneurship_Innovative Product or Service	Model (A), coeffs.	Model (B1), coeffs.	Model (B2), coeffs.
TEA_Opportunity	0.034	0.076	0.022
Age	-0.118***	-0.126***	-0.123***
Age_square	0.001**	0.001***	0.001***
Female	0.188	0.208	0.210
WOccupation_Full or Part time	0.073	0.113	0.085
WOccupation_Part time	1.065***	1.070***	1.048***
WOccupation_Retired or Disabled	-1.466**	-1.455**	-1.390*
WOccupation_Homemaker	-1.053**	-1.026**	-0.990**
WOccupation_Student or Not working	-0.232	-0.268	-0.286
Educ_UN_lower secondary	0.189	0.287	0.357
Educ_UN_secondary	0.440	0.557*	0.653**
Educ_UN_post secondary	0.550*	0.647**	0.698**
Educ_UN_tertiary	0.861***	0.957***	0.981***
Household income_lowest third	-0.173	-0.148	-0.176
Household income_middle third	0.152	0.146	0.139
HDI_2011	26.418***	--	--
HDI_2011_square	-19.219***	--	--
Income_HDI 2011	--	-5.898***	--
Health_HDI 2011	--	3.208**	1.605
Education_HDI 2011	--	--	-2.808***
Inbound Tourism Expenditure, %GDP	-0.127***	-0.119***	-0.120***
constant	-6.146*	4.413***	3.160***
Nr. Observations	1254	1254	1254
Wald chi2	87.200	91.360	80.590
df	18	18	18
P-value	0.000	0.000	0.000
Log likelihood	-776.064	-773.192	-782.661

Notes: *, **, *** indicate statistical significance at the 10%, 5% and 1% levels, respectively. The estimation procedures consider robust standard errors, allowing for the possibility of failure of the assumption of homogeneity of the variance of the residuals.

Source: Author's calculation base on GEM-APS (2011), UNDP (2015), and UNWTO (2016a).

From the estimation of Model A, the significant negative quadratic relation of HDI confirmed our first hypothesis (H1) of an inverted U-shape relation between human development and the probability of entrepreneurship being innovative. Given the large representation of countries and territories with high development in our sample, this meant that in those more developed countries, tourism entrepreneurs were less likely to introduce innovations in products or services. When disaggregating human development in its sub-components, the estimation of Models B1 and B2 showed that the negative relation between development and innovative entrepreneurship was mostly driven by the income and education development and not so much by the health component. This finding did not fully supported H2, where it was anticipated that all three dimensions of human development would have similar patterns of influence.

As far as the individual attitudes and the characteristics of the entrepreneurs were concerned, the estimations of models A and B were aligned, and mostly consistent to the correlation analysis done earlier. In particular, there was no evidence of significant difference between entrepreneurs who innovated to seize an opportunity and those who did it out of necessity and, therefore, H3a was not validated. Age of the entrepreneur did seem to influence the probability of having entrepreneurship that was innovative and the quadratic relation was significant. This was consistent to H3b, which anticipated that innovation would be more likely among younger and older entrepreneurs. The expected difference of behaviour between male and female entrepreneurs stated in H3c was not confirmed. Likewise, there was no evidence in favour of H3f, according to which the probability of innovating would be different between entrepreneurs coming from households of distinct income levels. On the affirmative side, the estimations showed that entrepreneurs who were retired, disabled or homemakers were less likely to innovate than the self-employed entrepreneurs,

while entrepreneurs working in part-time jobs were more likely to innovate. These results partially favoured hypothesis H3d, anticipating that individuals working in full-time jobs would have higher probability of innovation than those not working. Finally, the data was also consistent with H3e on education level. Compared to entrepreneurs with at most primary education, more educated entrepreneurs also had a higher probability to innovate, and there was evidence that the higher the education level, the higher that probability.

To further check the robustness of the previous model, namely in terms of the main relation of interest between human development and the probability of Innovative entrepreneurship in product or service, we calculated the probability at the means and the marginal effects for the HDI groups.[9] The results, showed in Table 5, were aligned with the previous ones. In more developed countries there seemed to be lower probability that tourism entrepreneurship was innovative.

Table 5 Innovative entrepreneurship and HDI groups: Probability at the means and Marginal effects

		pr (Entrepren_Innovative Product or Service)	Marginal effect, dy/dx (HDI_2011)
at	mean(Low HDI)=.4985	0.773***	-0.466***
at	mean(Medium HDI)=.608692	0.718***	-0.538***
at	mean(High HDI)=.728591	0.649***	-0.605***
at	mean(Very high HDI)=.854414	0.570***	-0.651**

Notes: *, **, *** indicate statistical significance at the 10%, 5% and 1% levels, respectively. Probability at means and Marginal effects refer to Model A.

Source: Author's calculation base on GEM-APS (2011), UNDP (2015), and UNWTO (2016a)

[9] HDI groups followed the UNDP classification, as explained in the Methodology section. Robustness checks were also conducted using HDI quartiles, based on the dataset, but results were similar.

In sum, from our empirical analysis there was a clear indication that the socio-economic context in which the tourism entrepreneurs operated affected their decisions to innovate. In more developed societies, there was evidence that the probability of innovation was smaller. When considering different dimensions of development, the data showed that in societies with more material resources and more knowledge, tourism entrepreneurs appeared less likely to innovate on their products or services. These findings contrast with what the previous literature on entrepreneurship and innovation have argued. Because the actions of individual entrepreneurs take place within a particular market, the novelty of the results here obtained is better understood within the context of the tourism sector. More developed countries are established tourism destinations and is plausible that such guarantee high demand reduces the incentives of the individual entrepreneurs to be innovative in the products or services they offer.

Similar to the previous literature on entrepreneurship, the analysis also showed evidence that the individual characteristics of the entrepreneurs were relevant to explain innovative entrepreneurship in tourism. In particular, the entrepreneur's age, work occupation and education level are the factors whose influence was consistent with the initial theoretical hypotheses.

5 Concluding remarks

This study extends the discussion on the drivers of entrepreneurship by focusing on innovative entrepreneurship, for the tourism sector, and exploring its relation to human development.

While the recent literature on entrepreneurship and development argues for a U-shape relation, the analysis in this study finds evidence of the reverse pattern: in more developed societies tourism entrepreneurs are less likely to innovative in their products or services.

A possible explanation to our contrasting result relies on the reality of the tourism sector. The previous literature was mostly focusing either on the manufacturing sector or in the aggregate of all economic sectors, and the entrepreneurship in more developed societies was explained by arguments of more abundant resources available or by intrinsic value of independent job occupations. This study assumes a different focus, product or service innovations in the tourism sector; a broader concept of development, human development, which encompasses both economic and social dimensions; and offers a new insights for the role of the development context. First, more development may actually decrease the incentives to innovate. Second, when disaggregating the analysis into the thinner dimensions of income, health and education development, income and education were the most relevant in explaining the negative relation with the probability of innovative entrepreneurship. Despite having more resources available and higher levels of education development, the probability of having innovation in tourism entrepreneurship was smaller in more developed countries. Perhaps due to structural conditions favourable to tourism, more developed societies already have their established *brand name* as attractive tourism destinations (*Paris is Paris*!). This secure high tourism demand reduces the incentives and the need of entrepreneurs to introduce (risky and costly) innovations.

These results have interesting policy implications. The design of initiatives promoting innovative entrepreneurship, to boost economic growth and create jobs, should be aware that other obstacles rather than resources and education prevent innovation. The entrepreneurs' decision to innovate is likely to be related to individual cost-benefit of such innovation.

The findings of this study open a new research area that can explore how the specific conditions of each industry affect the individual decisions of the

entrepreneurs to innovative. The current study makes an initial contribution for the understanding of such reality in the tourism sector.

This study has naturally its own limitations. First, most of the data comes from countries or territories with high or very high human development levels. While this enables a sound discussion for these more developed countries or territories, it does not properly allow for contrast with lower developed countries. Second, this analysis considers development as an exogenous variable, which may be an oversimplification. Since this study is interested in the individual decision of being innovative, the impact that it has for the development of the society (the non-studied relation) is felt only a few periods later, eliminating the endogeneity problem in this cross-country single year analysis. However, future research will consider an enhanced model where the development process could also be studied.

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Annex

Table A1 List of exogenous variables

Variable	Description
TEA_Opportunity	Indicator (1/0) of whether the early-stage entrepreneurial activity is mainly driven by an opportunity that the entrepreneur wants to seize.
TEA_Necessity	Indicator (1/0) of whether the early-stage entrepreneurial activity is mainly driven by necessity (individuals don't have other viable options for work or employment).
Age	Age of the respondent, in years.
Gender	Indicator (1/0) of whether the entrepreneur is female (1) or male (0).
*WOccupation_*	Set of indicators (1/0) of the main current work occupation of the entrepreneur, following the harmonized classification of Bosma *et al*. (2012). The data is grouped as: Full or Part-time, Self-employment, Part-time, Retired or Disabled, Homemaker, Student or Not working.
*Educ_UN_*	Set of indicators (1/0) of the highest education level of the entrepreneur. The classification follows the UN ISCED categories (UNESCO, 2012). The data is grouped as: pre-primary or primary, lower secondary, secondary, post-secondary, or tertiary education.
*Household income_*	Set of indicators (1/0) of the third-tile of the entrepreneur's household income, within the country. The data is grouped as: lowest third, middle third, highest third.
HDI_2011	Human Development Index for the year 2011, at country level, as presented by UNDP (2015).

Table A1 Continued

Variable	Description
Income Index_HDI 2011	Income Index used in the calculation of HDI 2011, at country level.
Health Index_HDI 2011	Health Index used in the calculation of HDI 2011, at country level.
Education Index_HDI 2011	Education Index used in the calculation of HDI 2011, at country level.
Inbound Tourism Expenditure over GDP	Percentage of inbound tourism expenditure over GDP, at country level, for the year 2011, as presented by UNWTO (2016a).