

Don't take it for granted: the importance of science-oriented workers on innovation in the accommodation industry

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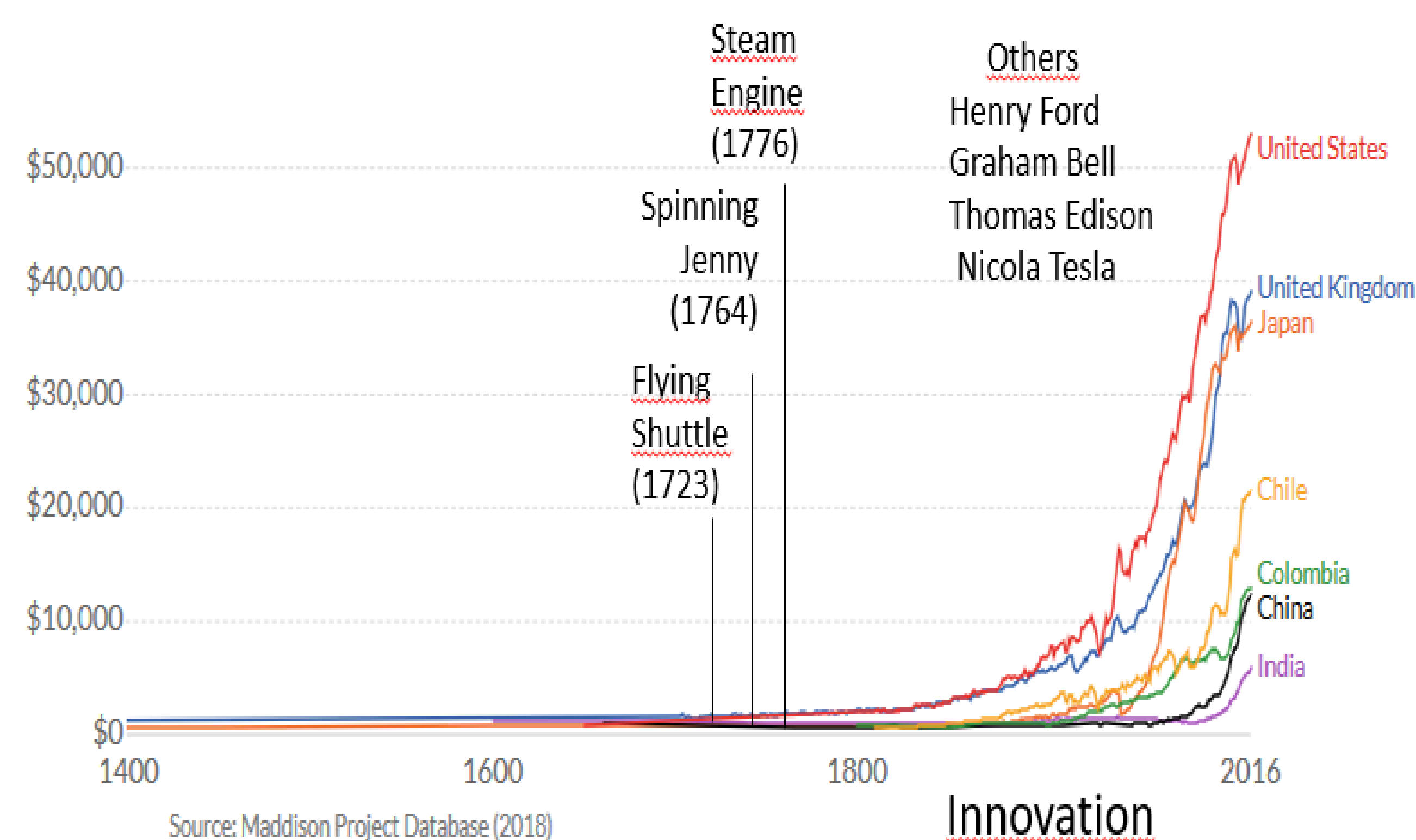
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Introduction

- Accommodation industries contributes to growth of tourism sector in Colombia.
- Innovation in the accommodation industry is lag behind other service industries (Banking, Education, Transport), and represents a challenge for its economic growth in the long run.
- Technology advances are fundamental to increase productivity (Jones, 2000; Xala-i-Martin, 2000).
- The Maddison project on History's Hockey Stick has taught "innovation is crucial to grow in the long run"



Research aim: study the determinants of innovation in accommodation industries, in particular, the role of science-oriented workers

Research questions: First, whether growth in the proportion of workers involved in STI activities in accommodation establishments increases the likelihood of introducing innovations. Second, whether an increase in the number of STI-oriented workers rises the number of innovations introduced by these accommodation establishments.

Literature review

- More science-oriented workers in the accommodation industry leads to a greater likelihood of introducing innovations in Germany (Brunow, Birkeneder & Rodriguez-Pose, 2018). They applied a Probit model.
- A transformation in accommodation providers from labor-based workers to innovation-based workers is key to grow in Europe (Romão & Nijkam, 2019).
- Evidence of a positive relationship between innovative and organizations' competitiveness in Balearic Island (Jacob, Florido, & Aguilo, 2010).
- Little evidence exists on whether the accommodation industry in Colombia tends to introduce innovations as STI-oriented workers grow
- The link between innovation-oriented workers and innovation dynamics is pivotal to analyze in the literature.

Key results

	Coef.	Robust Std. Err.	z	P> z
A. Likelihood of innovation (s_i)				
ocuparate_i	12.50	6.17	2.03	0.04
<i>median_i</i>	0.735	0.33	2.19	0.02
<i>large_i</i>	1.197	0.38	3.12	0.00
<i>const_i</i>	-2.26	0.29	-7.59	0.00
B. Number of innovations (w_i)				
ln ocupasti_i	0.033	0.013	2.52	0.01
$\partial y_i / \partial \ln ocupasti_i$	0.0006	0.00032	1.97	0.04
<i>median_i</i>	0.076	0.121	0.63	0.53
<i>large_i</i>	0.031	0.191	0.16	0.87
<i>export_i</i>	0.186	0.089	2.09	0.03
<i>propintel_i</i>	-0.4490	0.1071	-4.19	0.00
<i>coop_i</i>	0.248	0.104	2.38	0.01
<i>const_i</i>	-0.28	0.09	-2.83	0.00
ln sigma	-1513	0.106	-14.18	0.00
Covariance	0.220	0.023		
Observations	317			
Pseudo R-square	0.3212			
Prob (Wald χ^2)	0.000			

Further information <https://www.uexternado.edu.co/wp-content/uploads/2021/02/DDT-66.pdf>

Data and Methodology

Data source: Technical Development and Innovation in Trade and Services Sectors (EDITS) survey (317 observations)

Period: 2016-2017

Econometric model: Cragg's (1971) Double Hurdle model (model for corner solution) to see:

- The accommodation companies' decision to innovate
- The number of innovations introduced by them

The Oslo Manual on innovation (OECD & Eurostat, 2018).

$$y_i = s_i w_i^*$$

$$s_i = \begin{cases} 1 & \text{if } z_i \gamma + e_i > 0 \\ 0 & \text{otherwise} \end{cases} \quad \text{and} \quad w_i^* = \exp(x_i \beta + u_i)$$

$$E(y_i | z_i) = \Phi(z_i \gamma) e^{x_i \beta + \frac{\sigma^2}{2}}$$

$$y_i(s_i = 1) = \alpha + \beta_1 ocuparate_i + \beta_2 median_i + \beta_3 large_i + u_i$$

$$y_i(w_i | z_i = 1) = \alpha + \beta_1 \ln ocupasti_i + \beta_2 media_i + \beta_3 large_i + \beta_4 export_i + \beta_5 propintel_i + \beta_6 coop_i + u_i$$

Estimation method: The maximum likelihood

Conclusions and discussion

- Findings highlight the role of STI-oriented workers to increase innovation in the accommodation industry

- There should be an active plan to increase the percentage of workers involved in STI activities (the current percentage is less than one percent,

- A revision of strategies toward an increase in Human Capital with doctorates and master involved in STI activities (looking for a trade off against low-cost workers) and pursuing innovation in strict sense.