On the Optimal Relationship between Tourism and Economic Development

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Abstract:
This note explores the association existing between the relevance of tourism in an economy and the level of economic development attained. Using the Human Development Index (HDI) as a development measure and data on tourism's contribution to GDP and employment in Spanish regions in 2021, we analyze this relationship to determine its functional form. Our analysis suggests a U-shaped relationship, implying minimum thresholds to deviate from in order to foster a balanced and diversified economic activity mix in the region. It's important to note that the obtained results do not imply causation but rather underscore the observed association between the variables under scrutiny.

1 Introduction

Tourism is widely advocated by numerous organizations, such as the World Tourism Organization, as a positive instrument for promoting economic development in many countries and less developed regions. Accordingly, the deployment of certain tourism activities is recommended to support territories affected by crises in other sectors like agriculture or industry, to revitalize deteriorated neighborhoods, or to foster growth in depopulated or peripheral regions.
In the academic sphere, the relationship between tourism growth and economic growth has been extensively explored in numerous articles testing the so-called Tourism Led Growth Hypothesis. However, it's important to note that growth is not synonymous of development. While one question is to ascertain or prove that tourism fosters the economic growth of a territory, a wholly different matter is to what extent such economic growth translates into genuine economic development of the territories. This latter question, which is truly crucial, depends on numerous factors related both to the tourism development model implemented in the territory and to the roles played by the various stakeholders involved.
This brief note examines the relationship between the degree of tourism implementation or dependence of a region and its level of economic development. This analysis is conducted for the current case of Spain, utilizing 2021 data on

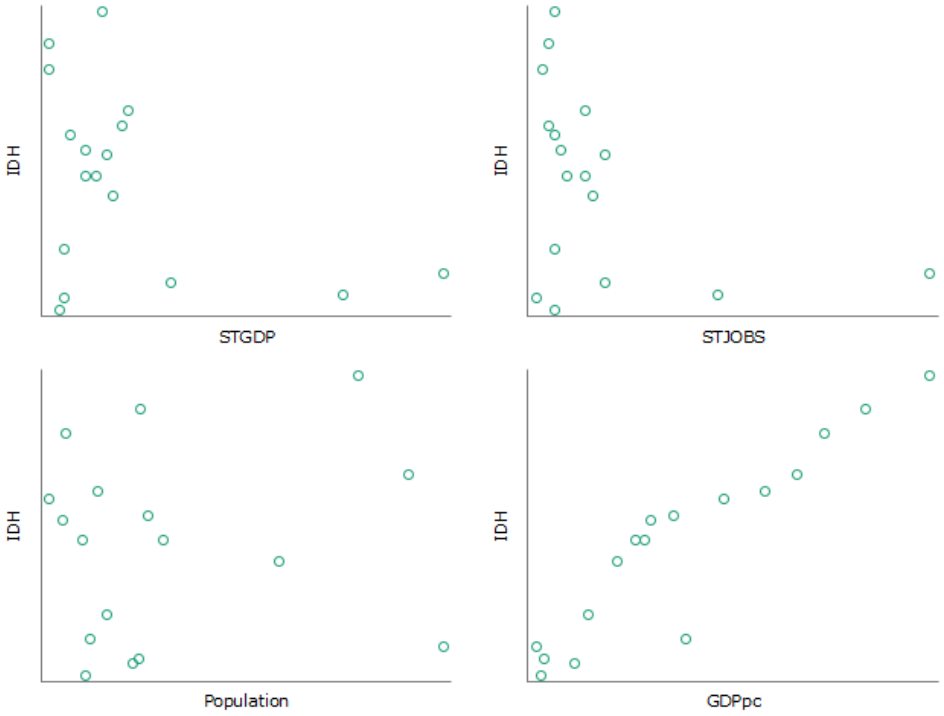
the significance of tourism activity in each of the 17 Spanish regions and their level of economic development measured through two indicators, the Human Development Index (HDI) and GDP per capita.

2 Data and sources

Data on the weight of tourism in the economy is provided by McKinsey (2021), encompassing both its direct and indirect impact on the GDP and employment of Spanish regions. The HDI data for Spanish regions are sourced from https://globaldatalab.org/shdi/table/shdi/, while GDP per capita is obtained from the Spanish National Institute of Statistics in its Regional Accounting of Spain (www.ine.es).

3 Results

Figure 1 depicts the relationship between the various variables under consideration.



Firstly, the lower-right graph highlights the close relationship between a region's GDP per capita (GDPpc) and its level of development measured by the Human Development Index (HDI). Therefore, both indicators faithfully reflect the degree of development of each territory. Secondly, the relationship between a region's population size and its level of development as measured by the HDI is depicted in the lower-left graph, and is much less evident, with a Pearson linear correlation of merely 0.11.
Regarding the relationship between the weight of tourism and the level of economic development of regions, the graphs suggest an inverse, potentially non-linear relationship, resembling a U-shape, more pronounced in the case of tourism weight in employment than in the case of tourism weight in GDP.

Model 1 presents the Ordinary Least Squares (OLS) estimation of the relationship between the GDPpc of regions and the weight of tourism in their GDP in linear and quadratic terms adjusted for the population of the region. With only 17 observations available, statistical significance is not a relevant concern. However, what is noteworthy is that the estimated coefficients indicate the existence of this potential U-shape relationship, with the minimum set at 48.55 percent of tourism weight in GDP.

$$\widehat{\text{GDPpc}} = \underset{(4726.9)}{30379.2} - \underset{(394.62)}{530.599}\,\text{STGDP} + \underset{(4.4115)}{5.46436}\,\text{sq\_STGDP} + \underset{(0.78360)}{0.728749}\,\text{Population}$$
$$T = 17 \quad \bar{R}^2 = -0.0200 \quad F(3, 13) = 0.87382 \quad \hat{\sigma} = 4897.8$$
(standard errors in parentheses)

Model 2 presents the same Ordinary Least Squares (OLS) estimation of the relationship between the HDI of regions and the weight of tourism in their GDP in linear and quadratic terms adjusted for the population of the region. In this case, the estimated coefficients also indicate the potential existence of this U-shape relationship, with the minimum set at 73.25 percent of tourism weight in GDP.

$$\widehat{\text{IDH}} = \underset{(0.022844)}{0.913412} - \underset{(0.0016941)}{0.00118341}\,\text{STGDP} + \underset{(1.8835\text{e}{-}005)}{8.08172\text{e}{-}006}\,\text{sq\_STGDP} + \underset{(3.1500\text{e}{-}006)}{1.85458\text{e}{-}006}\,\text{Population}$$
$$T = 17 \quad \bar{R}^2 = 0.0180 \quad F(3, 13) = 1.3265 \quad \hat{\sigma} = 0.022533$$
(standard errors in parentheses)

Lastly, model 3 presents the same Ordinary Least Squares (OLS) estimation of the relationship between the HDI of regions and the weight of tourism in their employment in linear and quadratic terms, adjusted for the population of the region. In this case as well, the estimated coefficients suggest the potential existence of this U-shape relationship, with the minimum set at 60.73 percent of tourism weight in GDP.

$$\widehat{\text{IDH}} = \underset{(0.041845)}{0.944080} - \underset{(0.0024476)}{0.00257639}\,\text{STJOBS} + \underset{(3.1136\text{e}{-}005)}{2.12114\text{e}{-}005}\,\text{sq\_STJOBS} + \underset{(2.9840\text{e}{-}006)}{1.39176\text{e}{-}006}\,\text{Population}$$
$$T = 17 \quad \bar{R}^2 = 0.0309 \quad F(3, 13) = 0.94883 \quad \hat{\sigma} = 0.022384$$
(standard errors in parentheses)

4 Conclusion

The results obtained point to the existence of a negative relationship between the weight of tourism in the economy and their degree of development. The interpretation of this negative association cannot be made, under any circumstances, from a causal standpoint. In this regard, if, as stated at the introduction, tourism activity is prescribed to promote the development of poor or crisis-ridden regions, the negative association observed between tourism and development would make logical sense. However, not in the sense that regions

become poor due to the implementation of tourism, but rather because tourism is implemented in the poorest regions lacking other more beneficial development alternatives.
Drawing causal conclusions in the proposed sense would entail conducting a more complex and sophisticated analysis, akin to the one carried out in this note. Nonetheless, this analysis can serve as a starting point for such endeavors, highlighting the indicated negative association, the potential U-shape functional form of the relationship, and the possibility of calculating minimum values that would need to be surpassed in the pursuit of an appropriate and diversified mix of economic activities within the territory.

5 References

McKinsey (2021) Spain's travel sector can't afford to wait to recover. What can stakeholders do? Travel, Logistics & Transport Infrastructure Practice Report.https://www.mckinsey.com/industries/travel-logistics-and-infrastructure/our-insights/spains-travel-sector-cant-afford-to-wait-to-recover-what-can-stakeholders-do