## Regional Impact of Tourism Firms in Sustainability: harnessing a policy toolkit

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The tourism sector is kernel of the global economy, notwithstanding, its ecosystem also intersects high polluting sectors, such as transportation, energy, electricity, water, and waste management. It is among the world's largest industries, growing faster than most economic sectors. It serves as major source of income for many countries, and it is considered as a determinant instrument for regional development, multiplying its positive effect in income generation. On the positive side, tourism contributes to economic growth by improving the balance of payments, creating job vacancies, and increasing gross income and production. On the other side, it also poses significant challenges, particularly concerning environmental and community impacts. It can lead to environmental degradation, through pollution and resource depletion, and it can disrupt local communities through cultural commodification and gentrification.

Tourism firms have special production conditions, given that they deal, simultaneously, with private and public goods, imbedding in their production function common resources. The supply combines internal and external factors, based on the ability to produce goods and services that meet the interests of the domestic and the foreign markets, generating high levels of income, job opportunities while preserving common resources and respecting the welfare of local communities. These firms live in interdependence with the local ecosystem, as the product they supply also relies on the environment and the locals. Additionally, the sector is permeable to multiple external factors such as economic volatility, oil shocks, political instability, social conflicts and natural constraints such as seasonality, resource maintenance, weather conditions and government regulations.

Despite its undoubted ability to create income, job opportunities, prosperity and multiplier effects, due to the reliance on common resources, tourism can also cause share of problems, such as overcrowding, congestion, overpressure on public facilities, housing problems, economic dependence and ecological degradation. Notwithstanding, these impacts can be managed, controlled, contained and regulated. Indeed, tourism policy and management will determine the extent of sustainability of the industry.

Given the reliance on public goods, the market forces seem to be insufficient to produce the a socially desirable outcome of the industry, as expansions towards short-term private-driven objectives, may lead to the destruction of the integrity of the resources upon which tourism is built. Nevertheless, its positive impact normally outweighs the negative, still free market actions may lead to unintended consequences jeopardizing both the community, the common resources, and in the long run even the private sector.

Additionally, the sector is highly fragmented and heterogeneous, covering a wide range of industries with very broad managerial strategies, dimensions, human capital intensity, ecological and environmental attitudes, and competitiveness. While their geographical distribution is constrained to the attractiveness, quality and accessibility of destinations.

The evaluation of the regional economic impacts of tourism grasps great interest among academics and policy-makers, and several paths may be adopted. The first branch or research focuses on the direct effect of the tourism value chain while the second relies upon the derived effects of the tourism activity. Here, we approached the first, focusing on firm level effects and addressing the impact those players have on the geography they are placed in, to better understand their role in the ecosystem. Then, we include some policy measures to better picture the effect of governmental actions in income generation.

The study relies on quantitative approach based on multi-regression analysis. We combine firm level economic information collected from SABI with municipality information collected from INE and Tourism of Portugal. Our unit of analysis is the Portuguese municipalities. Several policy instruments were collected such as tourist tax, fiscal benefits, regional incentives to investment. The impact of the activity of these firms was measured on the Gross Value added and multiple dimensions of sustainability. Also, an extensive statistical analysis was performed to fully picture the placement of the tourism supply in the territory, as well as its structural characteristics to fully understanding the impacts in the community, in dimensions such as the job market, space use, proximity to public facilities, cultural amenities and ecological resources. The database covers all the Portuguese municipalities (308, mainland and islands).

Despite the robustness of the sample in statistical terms, as we cover the entire territory and all the registered firms, the analysis of sectional data may bring doubts about the inexistence of a long-time frame to address causality. However, the implementation of robustness checks undermining model structure and parameters support the validity of the results. Despite using secondary data, we always relied upon official institutions therefore, the metadata follows their procedures; in regards to the firm sample, we used 5-digit SIC codes and we have opted to include only those codes entirely devoted to the sector, leaving us with a narrow sense of the sector which is not the same methodology than the satellite account.

The present study provides empirical evidence of the regional impact of tourism firms, in both the economic, the social and the environmental domains. At first, it becomes evident that these activities contribute to the local income generation, they generate job opportunities and they raise economic vitality of the region. It also seems that there is a positive impact of those sectors in the availability of cultural amenities, which generate spillovers to the entire community. Perhaps some transport facilities, some public services, among others were also enhanced due to the presence of these firms. Albeit the positive effects mentioned, the presence of private activities relying upon collective resources also brings some negative effects mainly noticed in natural resource use and conservation, availability and management of space, mobility, waste management, and crowding.

Also, the empirical results highlight the importance of the policy actions to leverage the effect of these firms in their regions, proposing a toolbox to address the most effective policy mix to magnify the positive effects of these firms in the territory, while mitigating some negative externalities through regulations or controls. The instruments were split into two vectors: enhancers and hinderers to shed light on the most effective government intervention in such a complex sector.

At present communities are gaining awareness of the sacrifices they are forced to make because of tourism, questioning the use of their collective resources, their social construction and space by foreigners to the benefit of private agents. It is more than ever required understanding the impacts of these private players in their territories to balance the positive impacts with the negative spillovers and balance community welfare.

As resources are becoming scarcer and the fight for space part of the daily lives of the average citizen, putting the tourism policy and tourism management in the center of the policy agenda is mandatory if we want to recover social peace, involving the entire community in the decision-making process about how and who will access resource endowment and its precise effect. It seems evident that this policy needs to take a place-based approach as regions are multifaceted and the exploitation of resources as well as the economic impacts of the sector is very diverse.

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