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Seasonality of hotel demand in the main Spanish provinces: Measurements and decomposition exercises☆

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HIGHLIGHTS

- There is no single way to measure seasonality and we should use different measures.
- Decomposing seasonality by factors would imply to reduce the attractive of the Gini.
- The paper makes an analysis of seasonality in the main Spanish provinces.
- Seasonality typically grows but with some divergences.
- Decomposing by groups is significant (quarters and seasons) and also by markets.

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ABSTRACT

This paper analyses the seasonal concentration of tourist activity in the main Spanish provinces for the period 1999–2012, taking hotel nights as the indicator of reference. We propose using several standard summary measures in order to evaluate the level, evolution and some decompositions. Our main results can be summarized as follows: first, across the whole country and especially since 2007, there is a growth in seasonality; second, seasonal concentration is greatest in the Balearic Islands and two of the Catalan provinces, and least in Madrid and the Canary Island provinces; third, although the overall patterns typically agree, nevertheless, in some provinces the indexes we deal with show some discrepancies; fourth, the decomposition of the monthly concentration by major markets typically indicates the main role played by the foreign component; finally, the overall evidence does not support the thesis that the domestic market offsets the foreign one.

1. Introduction

Baron (1975) highlights seasonality, or rather the seasonal concentration of tourist activity, as one of the main problems facing mature tourist destinations. Consequently, it is predictable that most of their medium- and long-term development and consolidation strategies would include a significant reduction in seasonality as one of their main policy goals, or, to put it another way, a greater balance in the distribution of tourist flows throughout the year. The reasons for this concern are well known (Baum, 1999). Firstly, there are concerns about its impact on social and environmental sustainability (Manning & Powers, 1984). The environmental effects include the effects on wildlife, erosion, noise and environmental pollution, both directly and indirectly through the consumption of inputs that have significant impacts. The social effects have to do with the effects of this concentration on the welfare of the residents – these arise from traffic problems, security, parking, queues, etc. In fact, these impacts affect the welfare, not only of the residents, but also of the tourists themselves Secondly, there is concern about the repercussions in terms of economic inefficiency and the deficient use of both public and private resources (Roselló et al., 2004). Indeed, seasonality gives rise to resource-use saturation at some times of the year, with consequent effects on satisfaction levels and service quality while, at other times, resources are under-used, with consequent problems associated with revenues and private profitability. Finally, there are worrying implications in terms of the labour market, salaries and disincentives for investment in human capital (Krakover, 2000). So, seasonality creates difficulties in recruiting and retaining workforce, can disincentive investment in human capital and, finally, will result in reduced labour qualification and/or over qualification.

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For all these reasons it is logical that the academic literature has devoted attention to studying seasonality from various different approaches. In this respect, Koenig-Lewis and Bischoff (2005), in their well-known survey, identified the six main topics of interest in relation to the analysis of seasonality, with significant shortfalls in each of them. These were: the definitions of seasonality; its causes and its impacts; the policy implications; studies into consumer behaviour and approaches to measuring seasonality. This paper focuses fundamentally on the last of these aspects.

To deal with the question of measuring this phenomenon consistently, it first needs to be clarified what exactly is understood by seasonality. In this respect, the literature uses slightly different connotations, although in most cases they refer to seasonality as the emergence in a given destination of a systematic pattern of tourist flows during the year (Baron, 1975; Allock, 1994; Butler 1994, among others). On this regard, the definition that it seems most acceptable in general terms is the one established by Butler (1994), who describes it as "a temporal imbalance in the phenomenon of tourism which can be expressed in terms of different indicators". Based on this last definition, therefore, seasonality would essentially be a distributional imbalance, which can be measured synthetically.

Taking the above definition as a reference, it would therefore be necessary to take synthetic distribution indices and apply them to the annual distribution of tourist activity. Surprisingly, few papers in the literature focus on this type of measurement of seasonality (Wanhill, 1980; Lundtorp, 2001; Fernandez-Morales, 2003; Fernandez-Morales & Mayorga-Toledano, 2008 or Martín et al., 2014). In particular, the literature on the measurement of inequality specifically indicates a set of satisfactory synthetic measures like Gini coefficient (widely used in seasonality applications until now), Theil indexes or the Coefficient of Variation (CV hereafter) (Cowell, 1995). The problem, however, is that there is no single measurement preferable than the rest. This is mainly because each of them has a different weighting on the changes in the different months (i.e. basic analysis units) (Duro, 2012). In this case, the researcher either needs to explain his or her evaluation in this respect or otherwise deal with a broad set of indicators to obtain a comprehensive overview of the situation. So far, the literature on measurement of seasonality does not seem to have devoted much attention to this.

In addition to the global measurement, an important analytical aspect to be taken into account is the decomposition possibilities of the indexes. In this respect, the literature on inequality measurement (Cowell, 1995) essentially emphasizes the usefulness of two possibilities: firstly, the indices, or some of them, may be decomposed by groups, identifying an inter-group component and other intra-group ones (Shorrocks, 1984). In the seasonality case, the groups would be formed by consecutive months or, to put in another way, tourism seasons. This analysis, for example, is interested in terms of the reliability of monthly aggregates as an instrument for explaining global concentrations and as a tool for public planning; secondly, the literature has highlighted the interest in using decompositions when the factors can be expressed additively (also a common example in indicators of tourist demand) (Shorrocks, 1980, 1982). In this sense, it would be necessary to address the role of each factor (source markets for instance) in measuring annual seasonality. Regarding inequality decomposition analyses in the international context we are only aware of the studies by Fernandez-Morales (2003) and Fernandez-Morales and Mayorga-Toledano (2008). The former made an analysis of the monthly concentration of hotel nights in three southern Spanish provinces (Almeria, Granada and Malaga), using the Gini coefficient and its decomposition by groups (i.e. seasons) as a sole indicator. In the latter study, the authors decomposed by source (e.g. markets) the concentration of tourist activity, this being measured analogically using again the Gini coefficient, for the provinces in the south of Spain.

Consequently, this paper aims firstly to highlight the importance of methodological elements of interest in relation to the measurement and decomposition of seasonality, one of the main research lines suggested by Koenig-Lewis and Bischoff (2005) but little investigated in the literature. In particular, in the first case, and given the differential characteristics of the measures, this paper proposes the joint use of the Gini coefficient (the index typically used in the seasonality applications), the Theil Index and CV in order to provide a sufficiently broad qualitative range and avoid over-extending the number of measures. In this way, it hopes to overcome the academic literature's obsession with the Gini coefficient. Meanwhile, the paper also reviews the main methodological elements relating to the implementation of decomposition exercises, highlighting, for example, the advantages of the Theil Index over the Gini coefficient in some cases. This being the case, it examines the possibilities associated with the use of decomposition by groups (by monthly periods) and by sources (markets). Indeed, both these methodological elements stem from extending the instruments currently available in the field of inequality measurements, which, up to now, have received little attention in the academic literature on tourism. Secondly, the paper makes an analysis of tourist seasonality based on the above mentioned instrumental methodology for the main Spanish provinces, which make up 83% of the total demand in Spain, thus providing quite comprehensive territorial coverage. The analysis is conducted using hotel nights as an indicator, based on the figures extracted from the Hotel Occupancy Survey conducted monthly by the Spanish National Institute and for the longest period available, i.e. 1999–2012. The results given in the text concentrate on the years at each end of the period for reasons of space.

Therefore, we believe that this analysis and the work is interesting or makes contributions of interest for the following specific reasons: first, it makes a methodological proposal based on the characteristics of the different indices and in particular, suggests their combined use for measuring seasonality in a comprehensive and more robust way: second, the measurement for Spain allows the analysis of this tourist dimension in some areas which typically exhibit high seasonality and thus permits verification of the overall effectiveness of policies; thirdly, the decomposition analysis used allows the investigation of explanatory factors as a step towards guiding possible control strategies. Here, the inequality decomposition by groups allows exploration of whether the different monthly grouping proposals can be used as a reference for policy. Furthermore, the additive decomposition of markets points to some strategic directions for reducing seasonality.

The paper is thus structured as follows: the second section reviews the main methodological aspects relating to the measurement of seasonal concentration of tourist activity, its factorial decomposition and the main data used for the implementation in the Spanish provinces cases. The third section reproduces the main results obtained. The final section contains the main considerations deriving from this work.

2. Methodology and data

Taking Butler (1994) definition as a reference, seasonality should be measured by different intra-annual temporal imbalance – or inequality – indicators. In this respect, an immediate approach would be to extract some of the learning in the literature on *measuring inequality*. Authors such as Chakravorty (1990) and Cowell (1995) have put forward some interesting views in this respect. Essentially, this literature has produced certain basic