

Abstract

Cycles and Uncertainty: Applications in the Tourist Accommodation Market [†]

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Abstract: In the socio-economic field, it is not surprising that decision-making is based on asymmetric information. Economic agents make decisions to forecast in primary and secondary industries related to the tourism sector. This study aims to provide knowledge in situations of asymmetric information with increasing randomness using time series for tourism accommodation markets. We are trying to solve the question of how consumers exchange their preferences for tourist accommodation between tourist apartments and hotel accommodation in Spain. The emergence of the sharing economy concept has emerged as a competitor to the traditional hotel accommodation in the tourist market. To do this, we will develop a theoretical framework to measure situations of uncertainty and their temporal evolution. Information Theory (IT) is the central axis of the study, particularly the concept of entropy. The Shannon entropy (SE) concept is a static measure of information. This work proposes to model the temporal arrangement of SE to discover the behaviors of the systems. The study in the domain of time and frequency allows us to understand the cycles of uncertainty between systems. To apply the theoretical framework, we will work with data from official Spanish sources for tourist accommodation from January 2008 to December 2019. The results of the empirical analysis show the decision changes of economic agents according to a seasonal pattern. Consumers have new accommodation options, and the answer we get from this work is that consumers have different preferences depending on seasonality. The use of SE allows us to make better predictions compared to SARIMA models, the traditional modelling of seasonal dummy variables, and VAR models. The results of the Matrix U1 Theil verify this hypothesis. The theoretical framework and empirical analysis find an answer to asymmetric information. The implications of this work contribute to the field of social sciences related to the tourism sector, in particular to thermodynamics, statistical mechanics, and IT. The modelling of uncertainty allows for the forecasting and control of accommodation tourist markets in random situations. The applications of this study can be tested in other areas of the economy such as finance, transportation, or investment.



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