Chapter 40
Resort Pricing and Bankruptcy

Alberto A. Pinto, Marta Faias, and Abdelrahim S. Mousa

Abstract We introduce a resort pricing model, where different types of tourists choose between different resorts. We study the influence of the resort prices on the choices of the different types of tourists. We characterize the coherent strategies of the tourists that are Nash equilibria. We find the prices that lead to the bankruptcy of the resorts and, in particular, their dependence on the characteristics of the tourists.

40.1 Introduction

The distribution of different types of tourists reaching a destination affects both the demand and supply side of the tourism industry. From the demand perspective, the choice of a particular destination will depend greatly on the beliefs of the agent about which kind of tourists will share the resort with him/her (see [4, 5]). On the supply side, resorts try to sell their destination based on reputation, and a large factor that determines the character and reputation of a resort is the type of tourists who frequent that resort (see [6]). Brida et al. [1] presented a tourism model where the choice of a resort by a tourist depends not only on the product offered by the resort,
but also depends on the characteristics of the other tourists present in the resort. In order to explore the effect the type of resident tourist has on other potential tourists selecting the same resort, they introduced a game theoretical model and described some relevant Nash equilibria. We add to the previous models the influence of resort prices on the tourist’s choice of a resort (see [7]). We characterize the prices that lead to the bankruptcy of the resorts and, in particular, their dependence on the characteristics of the tourists.

40.2 Resort Pricing Model

The resort pricing model has two types $T = \{t_1, t_2\}$ of tourists $i \in I$ that have to choose between two goods or services. For instance, the tourists have to choose between spending their holidays in a beach resort $B$ or in a mountain resort $M$, i.e. $r \in R = \{B, M\}$. Let $n_q \geq 1$ be the number of tourists with type $t_q$. Let $\mathcal{P}$ be the price vector whose coordinates $p^r$ indicates the standard price of the resort $r$ for each tourist, independently of its type,

$$\mathcal{P} = (p^B, p^M).$$

Let $\mathcal{L}$ be the preference location matrix whose coordinates $\omega^r_q$ indicate how much the tourist, with type $t_q$, likes, or dislikes, to choose resort $r$

$$\mathcal{L} = \begin{pmatrix} \omega^B_1 & \omega^M_1 \\ \omega^B_2 & \omega^M_2 \end{pmatrix}.$$ 

The preference location matrix indicates, for each type, the resort that the tourists prefer, i.e. the tourists taste type (see [1, 8]).

Let $\mathcal{N}_r$ be the preference neighbors matrix whose coordinates $\alpha^r_{qq'}$ indicate how much the tourist, with type $t_q$, likes, or dislikes, that tourist, with type $t_{q'}$, chooses resort $r$

$$\mathcal{N}_r = \begin{pmatrix} \alpha^r_{11} & \alpha^r_{12} \\ \alpha^r_{21} & \alpha^r_{22} \end{pmatrix}.$$ 

The preference neighbors matrix indicates, for each type of tourists, whom they prefer to be with or to not be with at each resort, i.e. the tourists crowding type (see [1, 8]).

We describe the tourists’ location by a strategy map $S : I \rightarrow R$ that associates to each tourist $i \in I$ its location $S(i) \in R$. Let $\mathcal{S}$ be the space of all strategies $S$. Given a strategy $S$, let $\mathcal{O}_S$ be the strategic occupation matrix, whose coordinates $l^r_q = l^r_q(S)$ indicate the number of tourists, with type $t_q$, that choose resort $r$

$$\mathcal{O}_S = \begin{pmatrix} l^B_q \\ l^M_q \end{pmatrix}.$$