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The impact of changes in household vacation expenditures on the travel and hospitality industries

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ABSTRACT

Two large tourism industries, travel and hospitality, are strongly affected by changes in household demand for vacations. In recent years, rising income and declining prices per unit of quality have led to changes in patterns of household vacation consumption. To understand the impact of these changes on the travel and hospitality industries, we develop a theoretical model distinguishing between travel and on-site expenditures and apply it to Israeli data. We find that under certain circumstances, the changes in income and prices are responsible for a shift toward multiple, short vacations. This trend can be a boon to the travel industry but a disadvantage for the hospitality industry. Both industries are expected to face a rise in the demand for high-quality products.

1. Introduction

Changes in households' vacation consumption patterns can affect the two largest tourism industries, travel and hospitality, differently. For example, the recently observed shift from one long vacation to multiple short ones (OECD, 2002) means an increase in the demand for travel, while the hospitality industry faces a drop in length of stay and a rise in guest turnover. Most of the studies analyzing households' vacation expenditures do not distinguish between travel and on-site expenditures, instead analyzing them as a whole. We claim that these two components of vacation spending can, on the one hand, be affected differently by changes in income and prices, and on the other, have different effects on the travel and hospitality industries. To understand the economic motivations behind vacation decision-making and their impact on the different tourism industries, travel and on-site expenditures need to be analyzed separately. In this study, we develop an economic model of vacation consumption which distinguishes between travel and on-site expenses, and apply it to a household expenditure survey of Israel.

Throughout this paper, we loosely adapt Decrop's (2006) definition of vacation, i.e. vacation involves leisure tourism: vacationers can spend their vacation touring or staying in the same spot. Unlike Decrop (2006), however, we exclude the possibility of vacationing at home from our definition.

The different aspects of vacation decision-making are discussed at length in Decrop's (2006) book and in many other papers (for example: Heung, Qu, & Chu, 2001; Litvin, Xu, & Kang, 2004; Duman & Mattila, 2005; Pan & Fesenmaier, 2006; Hyde & Laesser, 2009). More relevant to the current study are the following studies explaining what determines a tourist's length of stay. Gokovali, Bahar, and Kozak (2007) analyzed determinants of vacation duration for tourists in Bodrum, Turkey. Their analysis was based on direct questioning of the tourists. By employing survival analysis, they found that about 16 variables, among them nationality, education and income, are significantly associated with length of stay. A similar approach was used by Menezes, Moniz, and Vieira (2008) to examine the length-of-stay determinants for tourists in the Azores. Alegre and Pou (2006) took an economic approach to explain the continuous declining trend in vacation duration for tourists visiting the Balearic Islands. Their analysis was based on data collected by a survey of tourists' expenditures on the islands, taking into account their demographic and socioeconomic characteristics. The analysis was limited to the vacation on the islands themselves and thus cannot give a full picture of the household's holiday consumption. Further economic analyses of households as consumers of vacations were conducted by Davies and Mangan (1992) for the UK, Van Soest and Kooreman (1987) and Melenberg and Van Soest (1996) for the Netherlands, and Taplin (1980) for Australia. These economic studies were based on household expenditure surveys in different countries. They had information on the household's vacation expenditure during the survey year and they were mainly concerned with the impact of income change on these expenditures. The major finding repeatedly reported in those studies was that vacation expenditures are expected to increase faster than income. Fleischer and Rivlin (2009a, 2009b), in their studies of the Israeli case, were able to

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obtain price elasticities in addition to income elasticity and distinguish between the quality and quantity of vacations by using additional data on the number of vacation days each household took. This decomposition enabled them to determine that about half of the increase in expenditures goes to improvement of vacation quality. However, they also treated vacation as an aggregate product and did not decompose it into travel and on-site expenses.

We claim that by separating vacation expenditures into travel and on-site expenses, we can explain the trend toward shorter vacations noted by Alegre and Pou (2006) and the switch to higher-quality holidays pointed out by Morgan (1991). Moreover, we can obtain the relationship between these trends and economic variables such as income and prices. This is mainly because the number of vacations is affected by, among other things, economic factors in the travel industry. Each vacation involves traveling and thus, for example, the emergence of low-cost carriers can affect number of vacations taken by a household. On the other hand, total number of vacation days is determined mainly by economic factors affecting the hospitality industry. Furthermore, changes in income do not necessarily have the same impact on the number of vacations as on the total number of vacation days. The length of the vacation is the product of these two decisions. If a household decides to take more vacations but does not change the total number of vacation days during the survey year, the result is more, but shorter vacations. Thus, to understand where changes in the number of vacations and their duration are stemming from, we have to distinguish between travel and on-site expenses. We find that with an increase in income and a decrease in price level, households tend to increase the number of vacations they take but the total number of vacation days during the survey period is not affected. This result provides a possible explanation for the continuous drop in vacation duration.

The next section provides the theoretical model, the derived empirical model and the estimation procedure. The data source and preparation procedure are described in the third section. The results of the estimated models are presented and discussed in the fourth section, followed by a concluding section on the possible implications of increasing income and decreasing price levels for the travel and hospitality industries.

2. Theoretical and empirical models

The theoretical one-commodity model developed by Fleischer and Rivlin (2009a) to depict households' vacation demand was adapted here to a two-commodity model: travel and on-site services. The model enables distinguishing between the quality and quantity of each of these commodities. An observed increase in vacationers' travel expenses can be due to an increase in the quality of the travel, e.g., flying business instead of coach, or to an increase in the number of vacations. Similarly, an observed increase in vacationers' on-site expenditures can be due to two factors: a move to higher-quality accommodations and activities on site, or an increase in the number of vacation days. Income and price elasticities for both quality and quantity of travel and on-site demand are derived from the following model.

The utility maximization problem of a household subject to budget constraints can be defined as follows:

$$\begin{aligned} U &= U(d_1, d_2, \ldots d_n, v_1, v_2, \ldots v_k, z) \\ \text{s.t.} \quad & \sum_{i=1}^{n} p_i d_i + \sum_{j=1}^{k} t_j v_j + z = Y \end{aligned} \tag{1}$$

where d_i is the number of vacation days in vacation i, v_j is the number of vacations of type j, z is the rest of the goods and services the household consumes with a normalized price of one, p_i is the on-site price per day for vacation i, t_j is the price of traveling to vacation j, and Y is the household's income. Prices p_i and t_j depend on the quality of the service. In particular:

$$p_i = \widehat{p}_{\mathrm{d}} q_i^{\mathrm{d}} \quad t_j = \widehat{p}_{\mathrm{v}} q_j^{\mathrm{v}} \tag{2}$$

where q_i^{d} is the number of quality units consumed during one day of vacation i, q_j^{v} is the number of quality units of travel to vacation type j, and $\widehat{p}_{\mathrm{d}}$, $\widehat{p}_{\mathrm{v}}$ are the price of a quality unit of vacation days and travel, respectively. The price of a quality unit can be viewed as a group-specific price-level indicator (Nelson, 1991).

By using the definition of price in eq. (2), the same problem faced by the household in eq. (1) can be rewritten in terms of quality units as follows:

$$\begin{aligned} U &= U(D, V, z) \\ \text{s.t.} \quad & \widehat{p}_{\mathrm{d}} D + \widehat{p}_{\mathrm{v}} V + z = Y \end{aligned} \tag{3}$$

where $D = \sum_{i=1}^{n} q_i^{\mathrm{d}} d_i$ is the total number of quality units consumed at the destination and $V = \sum_{j=1}^{k} q_j^{\mathrm{v}} v_j$ is the total number of quality units consumed while traveling to vacation j. The number of vacation days cannot be summed up because they differ in quality as well as in travel to the vacation site. However, converting vacation days and travel into quality units enables their summation and the creation of a quantity measure of aggregate commodities D and V.

Solving the maximization problem in eq. (3) yields the following demand functions for the aggregate goods:

$$\begin{aligned} D &= D\left(\widehat{p}_{\mathrm{d}}, \widehat{p}_{\mathrm{v}}, Y\right) = q_{\mathrm{D}} d_q \\ V &= V\left(\widehat{p}_{\mathrm{v}}, \widehat{p}_{\mathrm{d}}, Y\right) = q_{\mathrm{V}} v_q \end{aligned} \tag{4}$$

where $q_{\mathrm{D}} = \sum_i q_i^{\mathrm{d}} (d_i / \sum_k d_k)$ and $q_{\mathrm{V}} = \sum_j q_j^{\mathrm{v}} (v_j / \sum_k v_k)$ are the weighted average quality units per day on site and per travel to vacation, respectively, $d_q = \sum_i d_i$ and $v_q = \sum_j v_j$ are the number of vacation days and the number of vacations, respectively (for details see Fleischer & Rivlin, 2009a).

The unit values, π_{D}, π_{V}, are the average expenditure per day of vacation and per travel to vacation, respectively. They are calculated by dividing total on-site expenditure E_{D} by the number of vacation days, and by dividing total travel expenses E_{V} by number of vacations:

$$\begin{aligned} \pi_{\mathrm{D}} &= \frac{E_{\mathrm{D}}}{\sum_i d_i} = \widehat{p}_{\mathrm{d}} q_{\mathrm{D}} \\ \pi_{\mathrm{V}} &= \frac{E_{\mathrm{V}}}{\sum_j v_j} = \widehat{p}_{\mathrm{v}} q_{\mathrm{V}} \end{aligned} \tag{5}$$

Unit values can also be interpreted as the weighted sum of quality units multiplied by the exogenous price $\widehat{p}_{\mathrm{d}}$ or $\widehat{p}_{\mathrm{v}}$.

The unit value is comprised of two parts: the price of a quality unit which is exogenous to the consumer, and the weighted average level of quality, which is endogenous to the consumer. The endogeneity stems from the households' decision of how many units of quality to consume as a function of their socioeconomic characteristics.

The income and price elasticities of variable X, η_X and ε_X, respectively, are:

$$\begin{aligned} \eta_{\mathrm{D}} &= \eta_{q_{\mathrm{D}}} + \eta_{\mathrm{d}_q} \\ \eta_{\mathrm{V}} &= \eta_{q_{\mathrm{V}}} + \eta_{\mathrm{v}_q} \end{aligned} \tag{6}$$

$$\begin{aligned} \varepsilon_{\mathrm{D}} &= \varepsilon_{d_q} + \varepsilon_{q_{\mathrm{D}}} \\ \varepsilon_{\mathrm{V}} &= \varepsilon_{v_q} + \varepsilon_{q_{\mathrm{V}}} \end{aligned} \tag{7}$$