

A Ricardian Analysis of the Fully Inclusive Tour Industry

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The UK fully inclusive tour industry is characterised by (a) demand volatility, (b) an oligopolistic market structure and (c) an unstorable product. The interplay of these factors leads to an asymmetric reaction of industry pricing to demand forecasting errors. Demand underestimation results in stable and relatively high prices. However, demand overestimation ensures price and market structure instability. During such periods, lowering price is unlikely to yield a stable outcome for the industry. In fact, there are forces working against prices falling to levels commensurate with demand. Concentration of unit ownership at the margin, and not elsewhere, determines the extent of this price rigidity.

INTRODUCTION

Tourism demand forecasting is frequently unreliable as has been widely discussed in the literature [for example, Athiyaman and Robertson, 1992]. These sources confirm the inherent problems involved in the process. Actual performance is subject to diverse factors, many of them outside of the control of the industry itself. These factors may include economic, political (domestic and international), cultural, climatic and market taste related concerns. At the same time, as rightly pointed out, 'reliable forecasts of foreign holiday demand are essential for efficient planning by airlines, railways, ferry operators, coach operators, hoteliers, tour operators, and other industries connected with the foreign holiday market. They are also of great interest to governments in origin and destination countries' [Witt, 1980: 163].

In considering the United Kingdom outbound package holiday or fully inclusive tour (FIT) industry, this volatility of demand is of particular interest because of the nature of contractual arrangements between

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the tour operator and the customer on the one hand and the tour operator and a number of suppliers, frequently overseas, on the other.

The potential consequences of either the under or over supply of package holiday products, recognising that they cannot be warehoused and re-sold at a later date, places particular onus on tour operators to attempt to forecast demand with at least a semblance of accuracy. The forecasting process is, clearly, highly reactive to immediate historic data and does not appear to be a response to longer term analyses of market and consumer demand trends. For example, excellent summer weather in the United Kingdom during the summers of 1989 and 1990 was a major factor in a drop in licensed outbound holiday packages from 13.7 million in 1990 to 10 million in 1991 [Edwards, 1991]. This rose to 11.45 million in 1992 and, further, to 14.2 million for 1993, in part reflecting weather factors but also changes in licensing rules [*Guardian*, 1 Dec. 1992].

The sector has seen the collapse of many large and small concerns since the early 1970s. Operators such as Clarksons and, more recently, the International Leisure Group (with their most prominent brand, Intersun) as well as charter airlines such as Air Europe and Dan Air represent examples of this. The high level of business failures over the last 20 years suggests a singular inability to achieve the objective of accurate demand forecasting [Ryan, 1989; Middleton, 1991].

In addition, the UK package holiday industry has, traditionally and increasingly, been dominated by a small number of major companies. However, as Table 1 shows, this domination has shown considerable shift, even within the period since 1986.

TABLE 1
SHARE OF INCLUSIVE TOUR CHARTER MARKET 1986-91 (PERCENT)

<i>Tour Operator</i>	<i>1986</i>	<i>1987</i>	<i>1988</i>	<i>1989</i>	<i>1990</i>	<i>1991</i>
Thomson	27.5	31.5	33.0	38.0	30.0	35.0
International Leisure	18.0	18.0	19.0	19.0	16.5	-
Owners Abroad	-	3.0	6.0	7.5	15.0	19.0
Airtours	-	-	-	6.0	7.5	16.0
Others	54.5	47.5	42.0	29.5	31.0	30.0

Source: Keynote, Market Review: UK Tourism and Travel, 2nd Edition, London: Keynote, 1992.

Some caution needs to be exercised in interpreting Table 1 as the data refers to inclusive charter market only. Of increasing importance, within FIT travel, are packages arranged with use of scheduled air services. This is particularly true of long-haul FIT travel, although some

destinations, traditionally, have restricted charter access for a variety of reasons (for example, Cyprus). This discrepancy is partially reflected in the allocation of package holiday licences for 1993. Out of a total of 14.2 million charter air holidays licensed for 1993 (up 24 per cent from 1992), 22.5 per cent have been allocated to Thomson; 12.3 per cent to Owners Abroad; 10.6 per cent to Airtours; and 3.4 per cent to Avro, a four-fold increase over 1992 [*Guardian*, 1 Dec. 1992].

Because of the oligopolistic, concentrated nature of the producers, an understanding of the process of strategic behaviour by the major providers of package holidays becomes critically significant. This article addresses the application of theoretical strategic behaviour models, notably Ricardian analysis, to the United Kingdom outbound package holiday market. The models shed light on the effects of demand forecasting process.

Based on its fundamental characteristics, it is shown that the industry's reactions to demand fluctuations are asymmetric. While periods when demand is underestimated (leading to excess demand) yield stable high price equilibria, in periods when demand is overestimated (leading to excess supply), equilibrium typically fails to exist.

This implies that during periods of excess supply, the simple expedient of lowering price is unlikely to yield a stable outcome for the industry. In fact, it is shown that in such periods there are powerful forces working against prices falling to levels commensurate with the state of demand. It is demonstrated that the concentration of unit ownership *at the margin*, and not elsewhere, determines the extent of this price rigidity.

Based on this analysis, periods of underestimated (and hence excess) demand are expected to be characterised by a fairly stable industry structure, with price reflecting the state of the market. However, periods of overestimated demand are expected to be characterised by considerable price instability and by business failures.

THE NATURE OF THE INDUSTRY

The package holiday, for marketing purposes, may be defined as: 'Standardized repeatable offers comprising two or more elements of transport, accommodation, food, destination, destination attractions, and other facilities and services. Product packages are . . . offered for sale to prospective customers at a published inclusive price, in which the costs of the product components cannot be separately identified' [Middleton, 1988: 273].

The UK package holiday market has seen sustained growth since

reaching a relatively significant size in the 1970s. During the period 1978–90, the total number of foreign holidays of four nights and over taken by British residents increased by 9 to 20.5 million and this growth was substantially driven by increases in the size of the FIT market. Over a similar timescale, the number of long-haul holidays taken by British residents increased from 0.4 million in 1976 to 2.6 million in 1990 (of which the USA accounted for 48 per cent), representing some 12 per cent of the market [TPR, 1992]. One of the factors behind both these areas of growth has been the competitive (at times cut-throat) pricing of package tours [Cooper, 1992].

Despite many predictions that the package holiday is in terminal decline [Tourism Policy Forum, 1990; *Guardian*, 1 Dec. 1992], there is little evidence to support this contention, at least in the short-to-medium term and the actual number of licences issued for air package holidays from the United Kingdom increased by 24 per cent from 1992 to 1993 [*Guardian*, 1 Dec. 1992]. Indeed, it is argued that 'there are sound reasons for believing that the concept of packaging, more effectively presented, will become *more*, not less attractive to customers in the 1990s' [Middleton, 1991: 192].

RICARDIAN ANALYSIS

Our analysis of the FIT industry is based on some assumptions.

- (a) It is commonly observed that each firm in the UK FIT industry has a number of 'products' available for sale; these products vary considerably in quality and hence in the price at which they can be sold.
- (b) The quality of the FIT product can be measured and ranked in terms of revenue-generating capacity.
- (c) The FIT product is completely unstorable. An empty airline seat, an empty hotel room, these represent revenues lost forever. Further, after a FIT firm has made up its contractual obligations, the cost of providing a unit of the product is virtually zero. For notational simplicity, it will be assumed to be zero in the analysis.¹
- (d) The industry is dominated by a few oligopolistic firms with considerable market power as documented above.

The analysis is illustrated with some simple models. The models consider specific outcomes in order to demonstrate the non-existence of a price equilibrium.² A duopoly framework is presented to illustrate the main points of the paper, but the results hold for an oligopoly with any number of firms [Masson, Mudambi and Reynolds, 1987].

The Model

Suppose that there are a total of six FIT units, ranked by quality from 1 to 6. Consider the following outcome:

<i>Revenue Generating Capacity</i>	100	90	80	70	60	50
<i>Quality Ranking</i>	1	2	3	4	5	6

First, consider the 'underestimated demand' scenario. Suppose that the demand is for six or more units. Now all the available units can be sold at their maximum revenue-generating potential. The equilibrium price vector is [100,90,80,70,60,50]. This 'high-price' equilibrium is insensitive to market structure, i.e. regardless of whether the ownership of units is dispersed or concentrated, these equilibrium prices prevail.

Now consider the more common 'overestimated demand' scenario. Suppose that the demand is for only four units. Here the equilibrium is sensitive to the the pattern of unit ownership.

The Competitive Case. Suppose that the ownership of the units is completely dispersed, i.e. there are six firms each with control over one unit. Then, although its revenue-generating capacity is 60, the price of the fifth unit is competed to zero (since only four are demanded). This unit then determines the Ricardian equilibrium price vector to be [40,30,20,10,0,0], since $100 - 60 = 40$ and so on.

This is the essence of Ricardian analysis. In Ricardo's classic analysis, when the firms (or rentiers) are competitive, the best unused unit determines the equilibrium prices generated by the superior quality of the units which are used.³

The Oligopoly Case. Concentrated unit ownership, as in the FIT industry, is now considered. For notational simplicity, let there be two firms, A and B. Let firm A own units 1, 3 and 5, while firm B owns the remainder, i.e. units 2, 4 and 6.

If firm A charges the Ricardian prices 40 and 20 for its two best units (and obtains a total pay-off of 60), it can sell these in the face of any non-negative prices chosen by firm B. Hence any strategy involving lower prices for these units cannot be an equilibrium. Similarly, firm B can always obtain 30 and 10 for its best two units (with a pay off of 40).

If either firm charges prices higher than the Ricardian prices and offers all its units for sale, the best response of its rival will be to undercut these prices by a small amount and divert sales to itself. Thus, any price vector higher than the Ricardian price vector cannot be an equilibrium if all units are offered for sale.

If firm A withholds unit 5, it can charge 50 and 30 for its best two units

and sell these in the face of any non-negative prices offered by firm B. Clearly this option is made possible by the ownership of multiple units. This strategy yields a certain pay off of 80.

Firm B's best response to this is to withhold the last unit and charge 90 and 70 for its best two units. Firm A counters by charging 100 and 80 for its best two units. Firm B now responds with price undercutting – charging $90-\epsilon$, $70-\epsilon$ and $50-\epsilon$ for its three units, where ϵ is arbitrarily small. As firm A responds with further price shading, this leads inexorably back toward the Ricardian prices and the cycle begins again.

The model also illustrates why prices will not fall to Ricardian (competitive) levels, even though there is a demand shortfall, i.e. prices will not reflect the state of the demand in the industry.

Firm B knows that firm A will not accept a pay off of less than 80. Thus, firm B can add $2/3(10)=6.667$ to the price of its best two units. This strategy yields a pay off of $36.667+16.667=52.334$. Firm A has no incentive to undercut these prices, since by doing so, and selling all its units, it gets a pay off marginally smaller than 80, i.e., $(46.667-\epsilon) + (26.667-\epsilon) + (6.667-\epsilon) = 80 - 3\epsilon$.

Thus, in the oligopoly case, prices fail to fall to the Ricardian (or competitive) level even in the face of excess supply. Firm A's pay off is at least 80 and firm B's pay off is at least 52.334. These compare with the Ricardian pay offs of 60 and 40 respectively.

Model Variant 1

For simplicity consider the same units as in the original model, but rearrange the ownership pattern, so that firm A owns units 1 to 4 and firm B owns units 5 and 6.

Firm A's guaranteed pay off corresponds to the number of units withheld. This is summarised below:

<i>Units Withheld</i>	None	4	3 & 4
<i>Firm A Pay-off</i>	100	120	190

Knowing that the lowest price firm B can charge is zero, firm A's best initial move is to withhold units 3 and 4 and charge the total revenue-generating capacity for units 1 and 2, yielding a pay off of 190. Firm B's best response is to follow suit and charge 60 and 50 for its units and obtain 110. Firm A now reacts by offering all its units and price shading, obtaining $(100-\epsilon) + (90-\epsilon) + (80-\epsilon) + (70-\epsilon) = 340-4\epsilon$. Firm B reacts with further price shading. Even though firm A owns all the best units, and its ownership corresponds to the number of units demanded, an

equilibrium does not exist. But this is sensitive to the value of the marginal units, as seen in Model Variant 2 below.

Model Variant 2

Consider the following outcome:

<i>Revenue generating capacity</i>	100	90	80	70	20	10
<i>Quality ranking</i>	1	2	3	4	5	6

Firm A is guaranteed a pay off corresponding to different withholding strategies as summarised below:

<i>Units Withheld</i>	None	4	3 & 4
<i>Firm A Pay-off</i>	260	240	190

Firm A's optimal strategy is to withhold no units and charge the Ricardian prices (which in this case are [80,70,60,50]), thus obtaining a pay off of 260. Firm B's best response is to charge zero and the Ricardian prices [80,70,60,50,0,0] are an equilibrium.⁴

It may be seen from the above models that even when one firm owns the best units, the critical factor determining whether an equilibrium exists or not is the concentration of ownership and the quality levels of the marginal units. For instance, in comparing model variants 1 and 2, it is seen that by altering the quality levels of the marginal units, the situation moves from one with no equilibrium to one with an equilibrium.

CONCLUDING REMARKS

The objective of this article has been to assess the nature of the UK FIT industry, taking into account its market structure and the nature of its product. Noting that the market structure is oligopolistic and that the output has strong Ricardian characteristics, it is possible to reach the prediction that the industry's reaction to endemic demand forecasting errors is *asymmetric*.

In periods when demand is underestimated (excess demand), it is expected that there will be stable equilibria at high prices, relatively unaffected by market structure. However, in periods when demand is overestimated, equilibrium only exists if one firm has a virtual monopoly control of the units in the industry. Such an extreme industry structure is unlikely to be observed at a FIT industry destination. Thus,

in all probability, equilibrium prices fail to exist and considerable price and market structural instability is to be expected.

These results propose interesting hypotheses for empirical testing. It would be interesting to examine historical FIT data and develop a quantitative means of distinguishing between periods of excess demand and excess supply. On the basis of the results presented here, periods of excess demand should be characterised by industry stability; instability in prices and market structure should be more prevalent in periods of excess supply.

Further, the models demonstrate that the normal pattern of reducing price to clear excess demand does not function in the FIT industry. Thus, it is predicted that prices will be downwardly inflexible during periods of overestimated demand.

Finally, it is predicted that market concentration in the middle and lower ranges of FIT product quality will have a greater effect on such downward inflexibility of prices and hence on industry instability. This is because the marginal units during periods of excess supply are likely to be middle or lower quality units.

NOTES

1. These are the considerations that underlie the possibility of obtaining a last-minute two-week FIT in Majorca, for example, at a price as low as £69, which just about covers the taxes and minor overheads involved.
2. In the terminology of game theory, the non-existence of a pure strategy equilibrium is demonstrated. As seen below, for unusual ownership patterns, a pure strategy equilibrium can exist, but the likelihood of such ownership patterns actually arising is very slight. The equilibrium concepts used here are completely characterised elsewhere: [Mudambi, 1986], [Masson, Mudambi and Reynolds, 1987; Masson, Mudambi and Reynolds, forthcoming].
3. In the words of Ricardo, 'When in the progress of society, land of the second degree of fertility is taken into cultivation, rent immediately commences on that of the first quality, and the amount of that rent will depend on the difference in the quality of these two portions of land' [see Ricardo, 1917]. Of course, the price of the best unused unit is driven to zero.
4. In this setting, firm B's charge of zero may be interpreted as an attempt to earn a reputation or invest in customer loyalty for future periods when the demand situation improves.

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