

## Taking Account...

### **BEA economist looks at airline price strategies**

The role of pricing strategies, which can have a profound impact on companies' profitability, has attracted plentiful interest from economists recently. Adding to the literature, Adam H. Shapiro, an economist at the Bureau of Economic Analysis (BEA), Marco Cornia of Johns Hopkins University, and Kristopher S. Gerardi of the Federal Reserve Bank of Atlanta have taken a look at price discrimination and its role in the airline industry.

Their paper, "Price Discrimination and Business-Cycle Risk," presents evidence that suggests price discrimination by airlines is highly procyclical and that the use of such pricing strategies has had a profound impact on the entire airline industry.

Price discrimination is a well-known strategy that airlines and other companies employ to try to increase profits. It involves charging higher prices to consumers with a lower price elasticity of demand or with a higher willingness to pay for given products or services.

In this manner, companies are able to increase the average markup of prices to marginal cost and thus increase their profits. In order for airlines to price discriminate, they must be able to identify and separate consumers according to their willingness to pay. They achieve this by offering airline tickets with various types of restrictions so that con-

sumers essentially separate themselves through the ticket choices that they make. This type of self selection is referred to in the economic literature as second-degree price discrimination.

During business cycle booms, airlines can more easily price discriminate among their consumers, while in business downturns, such pricing is much more difficult. This results in procyclical markups and thus procyclical airlines profits. Indeed, airlines that rely more heavily on price discrimination strategies, according to the study, should expect more volatile profits over business cycles.

Given the large number of bankruptcies in this industry, there is reason to believe that airlines are particularly sensitive to movements in the business cycle. However, while several of the traditional, legacy airlines were forced to seek bankruptcy court protection in recent years, a group of low-cost airline carriers have been able to stay competitive. The success of these low-cost carriers has been impressive, considering the extreme volatility the industry has endured in an era of deregulation.

The authors found that the legacy carriers reliance on price discrimination strategies relative to the low-cost carriers were in fact a major contributor to the large number of bankruptcies.

To explore price discrimina-

tion strategies at an airline, the authors developed a simple theoretical model of second-degree price discrimination and applied it to a relatively long panel data set of airline ticket prices that spanned almost two full business cycles.

Price discrimination in any empirical analysis tends to be difficult to identify and measure. The authors did not have access to data with enough information about consumer and airline ticket characteristics to identify precise instances of price discrimination and to directly study how price discrimination evolved over time. Instead, they adopted the strategy of the previous literature and used price dispersion at the airline-route level as a proxy for price discrimination.

In particular, they looked at how various measures of price dispersion are correlated with the business cycle, while controlling for the variation in price dispersion that was likely due to other factors, such as competition and cost.

Although the author's empirical analysis was limited to the airline industry, their model indicates that the procyclicality of markups is likely to occur in other industries as well. In general, procyclical markup variation should occur in industries in which firms have market power and can successfully price discriminate.

The paper is available on the BEA Web site.