

MACROECONOMICS

Steven Morrison,
Brookings Institution

This session is listed on the program under "other perspectives," but I would claim, particularly after what I heard today, that macroeconomics is the primary perspective used in forecasting -- tempered with intuition or judgment depending on your place on the career ladder. While I come from what I consider to be the perspective, I do not come from the forecasting perspective.

What I have been doing is just the opposite of forecasting -- assessing what has happened in the past. Cliff Winston (also from Brookings) and I have assessed the impact of airline deregulation on travelers and carriers. We are the sources of what you may have heard of as the famous "\$6 billion number" -- the annual benefits to travelers from airline deregulation. We are also the source of the not-so-famous "\$3 billion number", the annual benefits to carriers from deregulation. These figures are in 1977 dollars. When expressed in today's dollars the benefits to travelers and airlines from airline deregulation would be something on the order of \$15 billion benefits annually.

Today I am going to talk about the work that we have done to assess the impact of airline mergers, airport congestion, and Eastern's bankruptcy. We want to assess the effects of mergers on travellers' well-being because, after our book was published and our findings were greeted with general approval, a lot of things happened -- mergers in particular. We wanted to see how much they had affected the consumer net benefit.

For that, we developed a carrier/routing choice model where we took for granted that people were travelling by air and wanted to quantify the factors that influence whether they take, for instance, an American non-stop or a Delta connecting flight. We looked at such factors as fare, travel time, and connecting time. We also included accidents in the last six months, and a variable for capturing frequent flyer programs. We used that model of carrier/routing choice to assess the effect of mergers on route-by-route basis, which is where the forecasting aspect comes in. If you know that carriers are about to merge, you can say that on this route there will be some increased frequencies, or that fares will

go up here, fares will go down there, and get some idea of the likely impact of the merger.

We looked at mergers of American - AirCal, USAir - Piedmont, USAir - PSA, Delta - Western, Northwest - Republic, and TWA - Ozark.

The estimated effects of these mergers on travellers ranged from minus \$75 million to plus \$71 million annually. The aggregate effect of these six mergers amounted to plus \$67 million annually. Travelers, by our estimate, are better off in the aggregate because of these six mergers.

Our worst case scenario of the effect of these six mergers is minus \$335 million annually. We did not find that a great impact when measured against the \$15 billion of annual benefits that accrued from airline deregulation.

Another aspect of our work was to assess the impact on air travellers of congestion-based pricing of airport runways compared to the standard weight-based landing fee that is constant throughout the day. What if all airports in the country charged landing fees based on congestion? We looked at 30 airports and then extrapolated to get a figure for the country as a whole. We estimated that, if congestion-based landing fees were charged, net benefits would increase by \$3.8 billion. This figure is comprised of gains in airport revenues and in fares to consumers. Airport profits would increase by \$11.5 billion, minus a \$7.7 billion increase in air fares, leaving a net effect of about \$3.8 billion.

At four airports we examined in detail how imposing such prices would lower delay average over the whole day not just peak-hour delay. We estimated a reduction of four minutes at Washington, National, two minutes at Denver, 15 minutes at La Guardia, and two minutes at O'Hare. This would be accomplished, of course, by lowering aviation activity. We estimate an 8-percent reduction of operations by majors and nationals, a 33-percent reduction by commuters, and a 50-percent reduction by general aviation. Again, our goal is not to forecast the effects *per se* but to assess how good an idea congestion pricing would be.

The third thing that relates to our subject today is the effect of bankruptcy. We took our model/of mergers and looked at what happens

when N carriers on a route goes to N minus one for a reason other than a merger (i.e. bankruptcy) and estimated what effect that would have on consumer well being. Our worst case scenario, unrealistic as it may be, was Eastern goes out of business, never existing again, and nobody entering the markets that Eastern left. We found that travellers would be worse off by \$500 million annually. A more realistic scenario assumed that, where Eastern left a market, another carrier would enter and things would stay pretty much as before. A middle of the road scenario, which is the one that we took, was that on any route served by Eastern another carrier that already serves the origin and destination traffic (but not the route) would enter. That affects fares in our model a little bit, and we found a \$100 million annual loss to passengers if Eastern were to be gone forever. From a policy point of view, you need to balance that against the approximately one-million-dollar-a-day loss that Eastern was accruing in the latter days of 1988.

Comment: How do the benefits from congestion pricing relate to your earlier benefits that accrued to passengers from deregulation?

Mr. Morrison: There were two separate studies, but they can be pieced together. We did our study of the effects of airline deregulation by comparing 1977 with 1983. It is not that easy, but basically our model of the deregulated world looked at the 1983 world. Let us assume that there was no airport congestion in 1983 and all the congestion that we have now has developed since then.

We also calculated what the effect be if we priced airports efficiently under regulation. Traffic has grown, airports are more congested, therefore the benefits from pricing them are greater. We estimated that if airports were priced efficiently, the net benefits would be \$1.6 billion. If we priced them efficiently in a deregulated environment, the benefits would be \$3.8 billion because there is more traffic. So the failure to price efficiently under the deregulated system has led to a \$2 billion decrease in benefits, so subtract \$2 billion from the 1.5 billion deregulation number I gave you. But that is a worse case scenario.

Comment: How did you calculate the shadow price of congestion?

Mr. Morrison: We had aircraft operating cost data from FAA. We used our model of

carrier/route choice to estimate the value of passengers' time. It was very simplistic in essence. We looked at current airport usage hour by hour by commuters, general aviation, international, cargo, and everybody else, and assumed an overall price elasticity of 1.5.

Comment: You said that if Eastern goes bankrupt, and no other carrier replaces Eastern's service, passengers would be worse off by \$500 million annually. Did you take into account, for example, reduced congestion that would result? This would benefit airlines, and their yields would go up since there would be underutilized capacity.

Mr. Morrison: We did not attempt to measure any airline benefits. Fares would go up, which hurts consumers and helps airlines. And we did not take into account changes in congestion.

Comment: So reduced congestion could offset some of the public cost?

Mr. Morrison: Yes, \$500 million is the worst case. \$100 million is the more believable number.

Comment: With the \$11.5 billion gain to airports as a result of congestion-based pricing, did you find that airports would invest in new runway capacity?

Mr. Morrison: No, but that \$11.5 billion gain, was from a short-run model, assuming that prices (landing and take-off fees) were assessed to make best use of current capacity. That is the only number I mentioned today. We also had a long-run model. In the long run, if you rationally price a resource that cannot be expanded, you will have fees in excess of investment costs.

Comment: But you could use the money to subsidize off-peak operations.

Mr. Morrison: In a different scenario you could reduce the eight-percent ticket tax as well. The problem is that airports get increased landing fees, and the Federal Government gets the eight percent. In a different policy environment however, you could reduce off-peak fares. Of course, you would have to make sure that the rebates did not go back to the people who paid the higher peak-hour charges, or else the fees will have no effect. You would have to make sure that it went to different people or that it was distributed on a different basis than that on which it was assessed.