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W. M. Wallace

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THE INFLUENCE OF PRICE ON THE NORTH ATLANTIC AIRLINE MARKET

BY DR. W. M. WALLACE†

RECENT International Air Transport Association (hereinafter IATA) fare negotiations will result in a substantial North Atlantic fare reduction. The purpose of this study is to estimate the consequences of this reduction on North Atlantic traffic. The approach is based on demand curve analysis, and past traffic trends are examined with a view of isolating the effect of such historical fare reductions as the introduction of tourist and economy classes from other variables such as better equipment and improving economic conditions.

Figure I depicts the historical growth of the so-called North Atlantic market which includes traffic between all of the United States and Canada and Europe, including the West Coast United States polar flights. North Atlantic airline traffic began in 1939 with the introduction by Pan American of the Boeing 314. Because of World War II, however, a better beginning point is 1946, at which time the four engine land-based aircraft replaced the slow and obsolescent flying boats.

Initially only first class scheduled service was offered, but in 1952 tourist class service was introduced with an immediate and pronounced apparent traffic response. Charter traffic, between 12,000 and 16,000 passengers from 1948 to 1953, doubled to 30,000 in 1954 and, except for 1960, has grown rapidly. Economy class was introduced in 1958 and, unlike the United States domestic market, no "growth pause" occurred during that year. Instead a twenty-six per cent increase was recorded.

During the post war period first class traffic has erratically declined in absolute importance and steadily declined in relative importance, as new and less expensive services have been introduced. First class traffic now stands below ten per cent of the total. The first class trend, nonetheless, warrants examination. As Figure I shows, first class traffic during the 1946-1951 period developed a stabilized growth trend of about ten to eleven per cent. This trend, extrapolated on a gradually diminishing basis, appears to be the growth likely to have been experienced in the absence of effective fare reductions. To this "first class only" trend can be assigned the approximate influence of improved equipment (divorced from lower fares), the rapidly improving European economy as well as the growth in the United States and Canadian economies. Such a trend would have produced about 750,000 1962 passengers plus perhaps 50,000 or so additional charter passengers. It is interesting to note that in 1954, when first class traffic hit a low point, it resumed growth at about the same previous rate. In 1960, when economy class service almost completely supplanted tourist

† D.B.A., M.B.A., University of Washington, B.B.A., College of Puget Sound. Dr. Wallace is a consultant with The Emerson Consultants, Ltd., London, England, and was formerly a market research analyst for the Boeing Company.

class and heavy jet scheduling became established, first class traffic again declined. The greater price spread, combined with much faster jet schedules, appears to have made first class travel even less attractive. Possibly the new lower first class fare may, to some extent, halt the decline of first class travel.

It appears that by 1962 about 750,000 people would have been willing to fly at first class fares over the North Atlantic. Only 210,000 in fact did, indicating that the airlines "diluted their revenues" by about 540,000 passengers. Offsetting this, it appears that 1,800,000 new passengers were "induced" to fly because of the lower rates. If one assumes a 4,000 mile average one way trip length, a 9.5¢ first class yield vs. a 6.0¢ economy plus charter yield, there was a "revenue loss" of \$205,200,000 compared to a "revenue gain" of \$432,000,000 for the year 1962. Gains offset losses therefore, by about \$226,800,000. Because seat-mile costs continued to decline during this time the net result was favorable.

In 1963 traffic, scheduled traffic grew at about six per cent, total traffic somewhat more. It is interesting to note that fares were slightly increased in 1963, a year of comparatively modest growth. This is also evidence of price sensitivity in the North Atlantic market. Such evidence conforms to standard economic theory which holds luxury goods and services to be price elastic while essential goods and services tend to be inelastic. From seventy to ninety per cent of the North Atlantic market is pleasure travel, according to most estimates, and can therefore be regarded as a luxury.

Given the early character of the North Atlantic traffic curve, it is reasonable to presume that non-price stimulants exerted relatively greater effect in the early years compared to the present. While price has declined substantially, the improvements in such factors as speed, safety, comfort and convenience have been relatively much greater. Then too, the growth of Europe's economy, from 1947 to the present, is certainly greater than can be presumed for a similar future period. Thus, non-price traffic stimulants very likely have a declining impact on traffic, while price, on the other hand, appears likely to exert an ever growing impact.

Non-price forces have the effect of moving or shifting a demand curve, to the right if positive, to the left if negative. The "shift forces" are approximately defined by the "first class only" trend shown in Figure I.

Time Period	ANNUAL AVERAGE	
	Rate of Shift	Total 5 yr. Shift Factor
1946-1951	15%	2.01
1951-1956	10%	1.61
1956-1961	8%	1.47
1961-1966	7%	1.34

Given these shift factors it is possible to calculate the isolated influence of price over time. Figure II is a summary of these calculations. The demand curves are shown for the last year of each five year period since 1946 and labeled by year. The 1946 curve is arbitrary. The actual traffic achieved at the actual 1962 constant dollar yield is indicated by the encircled data plots at the lower end of each year's curve. The dotted line moving to the right from an actual point indicates what the traffic would

have been had no price change occurred during the following five years. For example, in 1956 a yield slightly under nine cents produced about 3.4 billion revenue passenger miles, as shown by the enclosed circle point near the bottom of the 1956 demand curve. The dotted line moving directly to the right indicates the effect of non-price factors which shift demand to the right. Thus about 5.1 billion revenue passenger miles might have been expected by 1961 with no change in real price. In fact over 8.5 billion revenue passenger miles were produced at a yield of slightly under seven cents, indicated by the encircled data point at the lower end of the 1961 demand curve.

The incremental growth of price-stimulated traffic for the final year of each five year period is shown in Figure III. Note the almost perfect linear function on ratio scale. An extrapolation for one additional period to 1966 produced about eleven billion revenue passenger miles. Presumably, however, this trend like most semi-log trends, will diminish in rate. Accordingly, a lower value appears somewhat more reasonable. The lower curve produces 7.8 billion additional passenger miles with a yield of slightly under five cents.

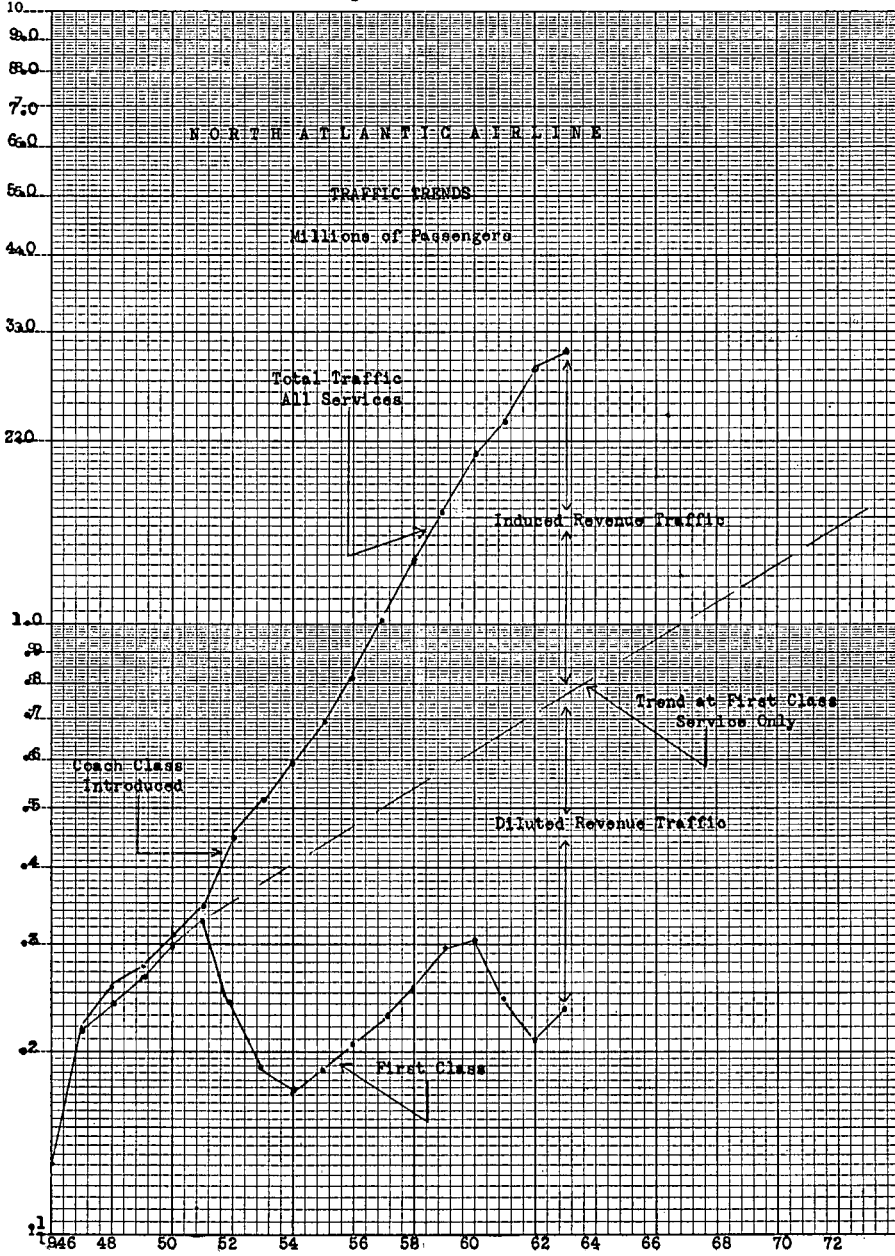
A major monopoly carrier has, based upon its experience, theorized that two years, or the biennium, is a better unit of time over which to assess the growth of the air travel market. If North Atlantic historical traffic data are placed on a biennium basis, a very interesting trend emerges, as Figure IV shows. Biennial growth has held at a constant rate of about eighteen per cent during the past seventeen years with almost no deviation. Projected to the 1966/67 biennium, North Atlantic traffic attains a volume of about 44.00 billion. This trend tends to confirm the demand analysis presented above. The growing impact of price appears to be compensating for the diminishing impact of non-price factors, leaving a constant growth rate.

Based on the foregoing analysis, it is estimated that the current IATA fare reductions will stimulate substantial traffic growth in the North Atlantic market until about 1966. The growth rate after 1966 may decline sharply to about five to six per cent if no further fare reductions are made, but should continue at a much higher rate if further fare reductions can be made.

The economics of the aircraft themselves as well as the system within which they operate will determine the practical level to which yield should fall to maximize revenues and profits.

It is obvious, however, the optimum yield has been decreasing over time as seat mile costs decline. No doubt there will come a point below which seat mile costs are not apt to decline. An optimum yield with respect to this point might then emerge, which could, other things remaining normal, be the cause of the final large spurt of North Atlantic traffic growth. Further growth would probably be erratic, assuming the character of an upward drift at low average annual rates.

Figure I



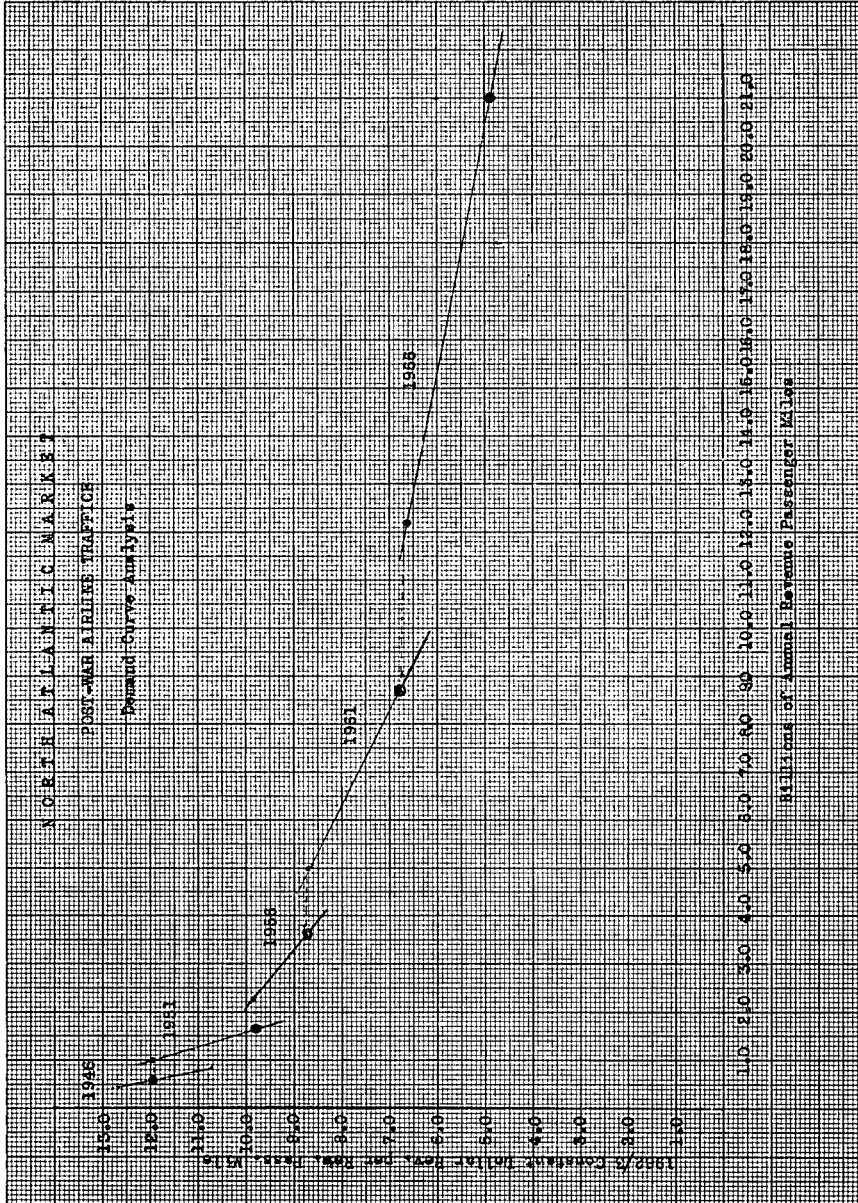


Figure II

Figure III

