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## DEREGULATION, THE ADJUSTMENT PROCESS

WILLARD L. DEMORY\*

A LARGELY neglected issue in the regulatory reform debate is the adjustment process which would immediately follow the elimination of price and entry controls.<sup>1</sup> Proponents of deregulation argue, sometimes implicitly, that the adjustment process would be smooth or, at worst, that any disruption would be at an acceptable level when compared to eventual gains. This conclusion is derived from the well-established competitive nature of the industry—the existence of relatively low barriers to entry, the absence of significant economies of scale, and reasonably mobile resources assure acceptable industry performance in the long run. Accepting the proposition that a competitive structure will lead to competitive prices, order, and continuity of service in the long run, it has yet to be demonstrated that the adjustment process set into motion by the elimination of price and entry controls will not result in serious service disruptions in the short run. This gap may have created some uncertainty on the part of policy makers. For example, the administration's Aviation Act of 1975 proposes a phased liberalization of regulatory controls "so that short-run distortions will not occur."<sup>2</sup> Opponents of deregulation have also expressed the fear that the short-run consequences of deregulation may be unacceptable.<sup>3</sup>

This paper will concentrate on a consideration of the short-run

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<sup>1</sup> Since the Administration's bill proposes no immediate change in the subsidy program, these markets will not be considered in this discussion.

<sup>2</sup> *Aviation Act of 1975, Analysis of the Need for the Bill*, at 2.

<sup>3</sup> Statement of Dr. George W. James, Senior Vice President—Economics and Finance, Air Transport Association of America, in *Hearings on the Oversight of Civil Aeronautics Board Practices and Procedures Before the Subcomm. on Administrative Practice and Procedures of the Senate Comm. on the Judiciary*, 94th Cong., 1st Sess., at 26 (1975).

adjustment process. It will begin with a brief review of the analytics of an adjustment process using static equilibrium models. This will be followed by an effort to identify some factors which may influence the tenor of the adjustment. Finally, a summary of some empirical evidence from England and Australia will be presented. It might also be noted at the outset that the adjustment process can be viewed from both the consumer and producer side. Since all production is valued in terms of the satisfaction of consumer wants, however, the perspective taken here will be that of the consumer.

### THE ADJUSTMENT PROCESS

In the absence of economic regulation, new entry and price competition would function in their normal role of forcing firms to keep price down to the cost of production and the cost of production as low as possible. Assuming that critics are correct that regulation has resulted in inefficient production, then elimination of price and entry controls would increase efficiency and shift the industry equilibrium position. At the moment entry controls were lifted, however, knowledge of investment opportunities may be limited to only the most obvious markets. Furthermore, only those firms then providing air service, such as the trunk, local, supplemental, all-cargo, intrastate, and commuter carriers may be in a position to offer immediately scheduled passenger service. Thus at the moment of deregulation only a small change in price and service would occur. Over time, however, further adjustments would be possible. New entry would likely occur with price and service changes becoming more extensive. What would result is a series of intermediate equilibrium points that map an approach path to the final long-run equilibrium. In terms of the simple analytics of supply and demand, the adjustment process can be viewed as a series of shifts of the supply curve. This process is illustrated in Figure 1 where the demand curve, assumed to be linear, is represented by DD and the supply curve prior to deregulation by  $S_R S_R$ . Regulatory equilibrium exists at price  $P_R$  and output  $Q_R$ . After elimination of regulatory controls, the supply curve shifts through a series of steps  $S_1 S_1$ ,  $S_2 S_2$ , etc., to the final unregulated equilibrium position  $S_n S_n$ .

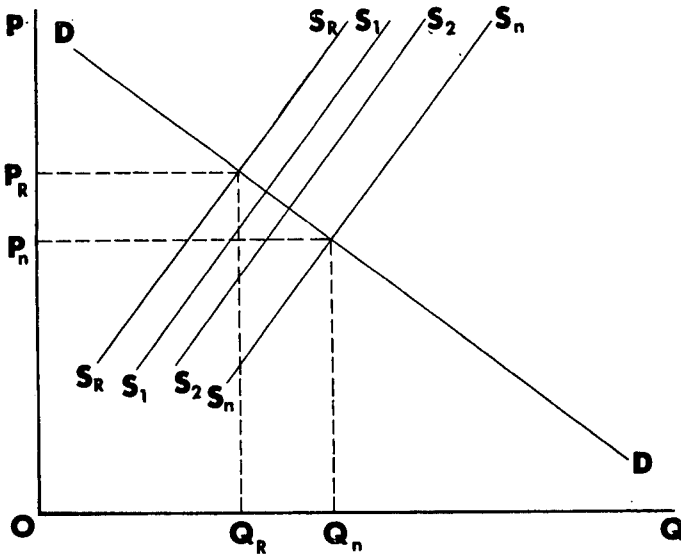


FIGURE 1

If the supply curve shifts at a steady rate until the final equilibrium is reached, then the adjustment process will be smooth and well-behaved, resembling that shown in Figure 2 where deregulation occurs at time  $T_0$  and the final equilibrium is reached at  $T_n$ .

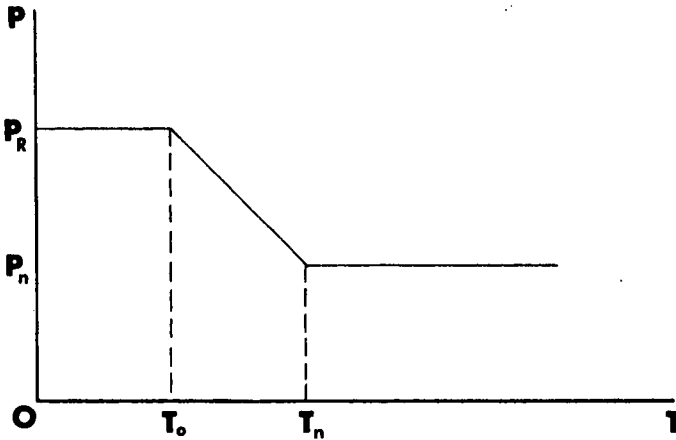


FIGURE 2

Technological advance which lowers operating cost, thus shifting the supply curve, provides a familiar illustration of such an adjustment process. Indeed, Figure 2 shows a remarkable resemblance to the adjustment process (shown in Figure 3) which followed the introduction of jet aircraft. At the time of introduction in the late 1950's only limited jet service was offered by a few trunks. Thus, initially there was very little impact on unit cost. Actually, as shown in Figure 3 industry unit costs continued at the level experienced during the late 1950's until 1961. Beginning in 1961, as jet service became more widespread, industry unit costs and fares began an unprecedented decline which came to an end around 1968 or 1969, the point at which domestic trunk service became one hundred percent turbine powered. It is also the point at which factor price increases began to outpace productivity, *i.e.*, the productivity gain provided by jet technology had been eliminated.

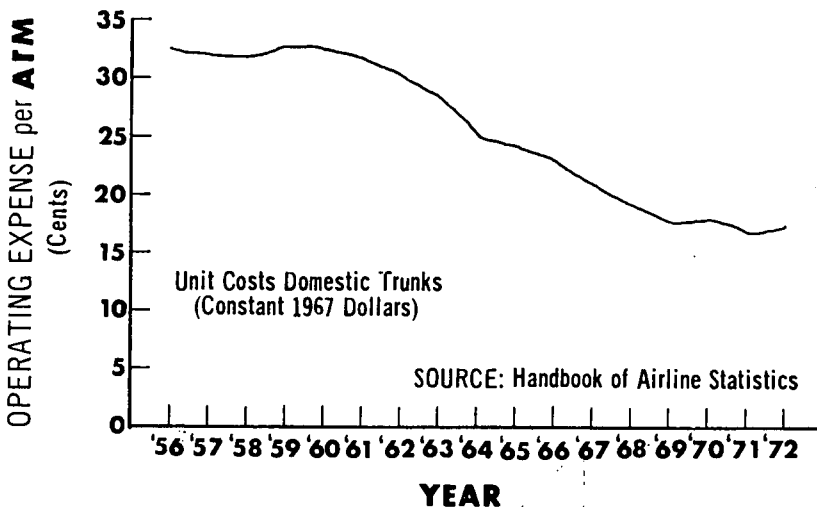


FIGURE 3

Adoption of the jet technology proceeded in an orderly fashion. No disruptions occurred and the supply curve did not shift erratically.<sup>4</sup> An adjustment process, however, need not be so well-be-

<sup>4</sup>Regulatory limitations on entry, route expansion, and deletion were partially responsible for the well-behaved adjustment process since integration of the new technology was limited to incumbent firms and the existing route network. The adjustment process set into motion by deregulation would not be so constrained.

haved. Indeed, in a world of imperfect knowledge, undershooting and overshooting are more common phenomena. Such a process may be depicted, as in Figure 4, as converging oscillations around the new long-run competitive equilibrium. There is at least some reason to believe this may be typical of the adjustment process which would follow the elimination of price and entry controls. Initially, deregulation would likely attract new firms whose output, when added to that of existing firms, would produce an excessive total supply. This would push price and output to unprofitable levels. Existing firms may also over-react to new opportunities. Through successive stages of trial and error knowledge of the new demand and supply conditions would develop and the system would move toward the new equilibrium.

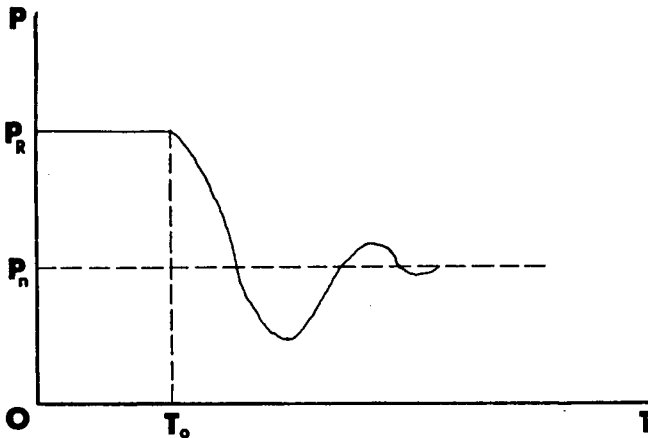


FIGURE 4

Viewed in terms of individual markets the analysis is more complex. This is because the unit of production, usually a single non-stop flight segment, is not always the unit of sale, a factor common to all modes of intercity commercial transportation. There is virtually unanimous agreement that those markets which are large enough to be served independently would suffer no disruption of service in the absence of regulatory controls. These are long-haul, and some short-haul, high-density markets in which the traffic that is O&D at either end of the city pair is large enough to independently support nonstop service. The adjustment process in these

markets presents no problem. Price and service would quickly settle to the new equilibrium level (although there may be some temporary oscillation similar to that shown in Figure 4 as the market searches out the new equilibrium).<sup>5</sup>

The controversy has centered on those city pairs which, viewed in isolation, appear unprofitable.<sup>6</sup> Here service is made possible by combining traffic flows in several city pairs, frequently on one multi-segment flight, but also through multi-flight connections. Looking at the system as a whole, approximately sixty-five percent of all flights include more than one nonstop segment. Normally, one segment of each flight will be "critical" to the success of the entire flight, *i.e.*, most segments will be operated at load factors below the break-even level but the traffic from these segments is flowed over the "critical" segment where the load factor is sufficiently above the break-even point to make the entire flight profitable.<sup>7</sup> Even monopoly route segments are influenced by operations in other city pairs since they are generally but one segment of a multi-segment flight itinerary.

Delta's use of Atlanta as a connecting hub is the outstanding example. Delta flows traffic in and out of Atlanta from many small—in terms of traffic generation—points. Some of these flights may not be profitable when viewed independently. But, when the revenue associated with those passengers who continue on Delta's system is considered, such flights become profitable and therefore possible.

To quantify the impact of deregulation on this integrated route structure, it would be necessary to model the system. Some work

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<sup>5</sup> Although large enough to be served independently, the present high level of service offered in these markets is, in some cases, made possible by flowing traffic from beyond points over these nonstop segments. In almost all cases this is voluntary on the part of the carriers and not a product of regulation. This is a clear indication of the economic advantages deriving from an integrated route network. It also indicates that, while a new carrier may gain successful entry by concentrating on the local market, a carrier with access to beyond traffic and an established route network would have at least a temporary advantage.

<sup>6</sup> See, *e.g.*, AIR TRANSPORT ASSOCIATION OF AMERICA, CONSEQUENCES OF DEREGULATION OF THE SCHEDULED AIR TRANSPORT INDUSTRY: AN ANALYTICAL APPROACH (1975) and CAB, REGULATORY REFORM: REPORT OF THE CAB SPECIAL STAFF (1975).

<sup>7</sup> Even this is an over simplification. It is possible that some flights are operated below breakeven but enough traffic continues on the carrier's system via an on-line connection to make such "feeder" flights worthwhile.

has been done in this area<sup>8</sup> and at least one effort has been made to simulate the consequences of deregulation.<sup>9</sup> However, these efforts have not been completely successful.

#### FACTORS INFLUENCING THE ADJUSTMENT PROCESS

Of course the extent to which deregulation created serious service disruptions would depend upon the extent of any contraction by incumbents and the time period over which the contraction occurred.<sup>10</sup> Considering a number of behavioral factors and the character of the present equilibrium, there is some basis for believing that the adjustment process would not be chaotic.

*1. Service Quality is an Important Determinant of Market Share:* As Jordan has shown in his extensive study of California, fares are not the only determinant of market share.

Probably the most important finding of this chapter is that lower prices alone were not enough to allow the intrastate carriers to become more effective rivals of the certificated carriers. While price differences (including taxes) in the order of \$12.77 (\$24.21 vs. \$11.44), such as existed between Los Angeles and San Francisco during 1949 and early 1950, were sufficient to account for large diversions of passengers to the intrastate carriers, once the certificated carriers obtained permission from the CAB to operate substantial day-coach service at comparable and then somewhat higher fares, the rapid growth of the intrastate carriers came to an end. . . . It was not until late 1959, when PSA greatly improved the quality of its service by introducing Electra aircraft, that the intrastate carriers once again began to encroach on the market shares of the certificated carriers in the Los Angeles-San Francisco and Los Angeles-San Diego markets. Thus, it appears that in order to become important participants in a major California market where the certificated carriers operated significant coach service, the intrastate carriers had to offer both sig-

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<sup>8</sup> See, e.g., R. MILLER, *DOMESTIC AIRLINE EFFICIENCY: AN APPLICATION OF LINEAR PROGRAMMING* (1963).

<sup>9</sup> AIR TRANSPORT ASSOCIATION OF AMERICA, *CONSEQUENCES OF DEREGULATION OF THE SCHEDULED AIR TRANSPORT INDUSTRY: AN ANALYTICAL APPROACH* (1975).

<sup>10</sup> The time span over which the adjustment process occurs will be an important determinant of the stability of the transition. Routes, equipment, costs, and traffic flow are less variable in a shorter than a longer interval. Consequently, the longer the opportunity for adjustment the less costly it will be for a carrier. Furthermore, the more gradually service changes occur the less likely they are to inconvenience the traveler.



nificantly lower prices and comparable or superior service quality.<sup>11</sup>

Given the emphasis which certificated carriers have placed on service quality, it would be surprising if deregulation were to result in any sudden shift in market share.

2. *Incumbent Carriers Have an Established Route, Network and Marketing Advantage:* The system is an integrated network of city pairs where, in many cases, traffic flow from one city pair is used to support service in another. Consequently, carriers having an extensive marketing network would have a temporary advantage over new entrants.<sup>12</sup> Limited initially to the local traffic in perhaps only a few markets, a new entrant could rarely threaten the existence of any certificated carrier. World Airways, in its recent application to the Civil Aeronautics Board to offer low-fare nonstop service between New York and Washington on the East Coast and Los Angeles and San Francisco on the West, described its plan to use the ticketing facilities of Ticketron. This may be an effective means of selling the local passenger, *i.e.*, the passenger whose air origin and destination coincide with World's service, and thus make World an effective competitor in the local markets but it is unlikely to threaten the existence of any certificated carrier. Nor is it likely to eliminate all services in these markets provided by a certificated carrier which offers through plane or connecting service to beyond points. The evidence from Texas provides considerable support for this conclusion. Southwest began operation in 1971 with service between Dallas, Houston, and San Antonio. Although Southwest obtained a large share of the local traffic, Braniff and Texas International continued to serve these markets through their access to beyond traffic flow, and their continued participation in the local markets in competition with Southwest. It was two years before Southwest firmly established itself and began to look toward further expansion.<sup>13</sup>

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<sup>11</sup> W. JORDAN, AIRLINE REGULATION IN AMERICA: EFFECTS AND IMPERFECTIONS 175-76 (1970).

<sup>12</sup> This advantage is derived from access to traffic flows, not economies of scale in marketing which appear nonexistent beyond a low threshold level. See COMMITTEE OF INQUIRY INTO CIVIL AIR TRANSPORT, BRITISH AIR TRANSPORT IN THE SEVENTIES (London 1975).

<sup>13</sup> Statement of M. Lamar Muse, President, Southwest Airlines Co., in *Hearings on the Oversight of Civil Aeronautics Board Practices and Procedures Before*

3. *Goodwill and the Phenomenon of Repeat Buying:* Accountants, when determining a firm's capital value will, frequently include among its assets the item "Goodwill." "Goodwill" is derived from a favorable reputation among customers and in economic theory equals the present value of expected future earnings over and above the earnings which would normally be realized. Viewed from the consumer's perspective, "Goodwill" results from the rational effort to minimize the cost of what Stigler calls "search."<sup>14</sup> A method frequently employed by consumers to minimize the cost of "search" is to return to those firms which, based upon past experience, have offered the most favorable combination of price and service. While a new entrant may offer lower price, the certificated carriers have a history of offering safe, reliable, and courteous service which provides a temporary competitive advantage for the incumbents.

4. *Service in a Large Majority of the City Pairs Now Receiving Trunkline Nonstop Service is Profitable:*<sup>15</sup> Considerable attention has focused on the impact of deregulation on the extent of the city-pair network. The consensus is that the Trunks provide service in perhaps a maximum of a few dozen city pairs which is not economically viable.<sup>16</sup> Of course, these are among the smallest city pairs in the system so that their loss of nonstop service would create no major disruption.<sup>17</sup> Thus, although deregulation would offer carriers the opportunity to rationalize their route system, there is an incentive for maintaining the present city-pair network.

While these factors suggest that instability and serious disruptions would not follow the elimination of price and entry controls, the adjustment process is nevertheless likely to be a period of vigorous competition. Certainly new entry will occur—some will be unsuccessful—and the supplemental and intrastate carriers will invade the scheduled markets of the interstate carriers. As noted ear-

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*the Subcomm. on Administrative Practice and Procedures of the Senate Comm. on the Judiciary, 94th Cong., 1st Sess., at 1244-45 (1975).*

<sup>14</sup> G. STIGLER, *THE ORGANIZATION OF INDUSTRY* 171 (1968).

<sup>15</sup> That is, the marginal revenue attributable to the service exceeds the marginal cost of providing it.

<sup>16</sup> See CAB, *REGULATORY REFORM: REPORT OF THE CAB SPECIAL STAFF APP. A*, at 8 (1975).

<sup>17</sup> In some cases the carriers have expressed the desire to delete the service so that the service may be terminated in any event.

lier, this may temporarily push fares and service in some markets to unprofitable levels.

#### EVIDENCE FROM ENGLAND AND AUSTRALIA

Perhaps the best evidence on the effects of deregulation is from England and Australia. Australia eliminated regulation in the trucking industry in the mid 1950's; England made a similar move in 1968. Stewart Joy, who has studied both cases, provides a useful summary of the ensuing adjustment process.

In Australia, the road haulage industry was very tightly regulated from the invention of motor truck up until 1954, when it was found that a section of the Constitution prevented any economic regulation of interstate road haulage. From that time onward, there has been no limitation on entry into the industry, there has been no regulation of rates, conditions of carriage, or anything else. By the time I entered the industry as a manager in 1958 and 1959, there had, therefore, been 5 years in which everyone would have predicted total chaos, but in fact the industry was fairly subdued. There were a number of fairly large firms that were providing nationwide comprehensive service.

There was a much larger number of middle size firms providing special service on particular routes, and there was an even larger number of very small firms often just providing service between one particular provincial city and the nearest State capital city. The industry went through two periods of vigorous price competition. Very early on, this occurred, because, of course, if you open an industry without any control, many people try to go into the industry. This happened, and lots of people bought motor-trucks, and in the first two or three years, there was a fairly high turnover of participants. . . . But then after three or four years, the thing settled down, and it has carried on on that basis since then.<sup>18</sup>

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[T]he 'instability' and 'destructive and wasteful' competition so frequently forecast by established road haulage interests as being the inevitable outcome of free entry have not been apparent. Whilst there is an inevitable turnover of haulers, the road haulage industry in its dealings with users is stable and efficient.<sup>19</sup>

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<sup>18</sup> *Hearings Before the Subcomm. on Transportation and Aeronautics of the House Comm. on Interstate and Foreign Commerce on the Transportation Act of 1972*, 92d Cong., 2d Sess., pt. 4, at 1386 (1972).

<sup>19</sup> Joy, *Unregulated Road Haulage: The Australian Experience*, 16 OXFORD ECON. PAPERS 275 (1964).

The experience we have in Britain has been even milder than we had in Australia. The end of regulation in 1968 has not meant any chaotic burst of price warfare. As far as we can see, the quantity or the frequency of bankruptcies in the road haulage industry has not changed with the end of regulation.<sup>20</sup>

The experience cited here is particularly revealing since, in terms of economic characteristics, the trucking industry is quite similar to the airline industry.

#### SUMMARY

A period of vigorous competition would likely follow the elimination of price and entry controls. As the market searches out the new equilibrium point, fares and service may be temporarily pushed to unprofitable levels in some markets. However, serious instability is unlikely to occur during this adjustment process. Only a small number of those city pairs now being served by the trunk carriers are not economically viable; consequently, carriers have an incentive to maintain the existing network. An established route network, market identity, and a history of high quality service may also give the certificated carriers an advantage during the adjustment period. Finally, the evidence from England and Australia, where regulation of the trucking industry was abruptly terminated, indicates that no serious instability would occur.

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<sup>20</sup> *Hearings Before the Subcomm. on Transportation and Aeronautics of the House Comm. on Interstate and Foreign Commerce on the Transportation Act of 1972*, 92d Cong., 2d Sess., pt. 4, at 1388 (1972).



# **Current Literature**

