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NEED FOR CONTINUED ECONOMIC REGULATION OF AIR TRANSPORT

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IN THE abstract, it is easy to be against government regulation. One of the most cherished concepts in the American economy is that of the free, competitive marketplace. Absent special circumstances, Government intervention into that marketplace is normally undesirable. Yet, it has long been recognized that certain industries (including particularly transportation) can best serve the public when regulation does influence the competitive environment.

Air transport was recognized to belong in this category early in its history; recent debate has challenged whether economic regulation of this industry is still needed. From many standpoints, one can sincerely wish that regulation were indeed no longer required. To an airline, there are many frustrations in not being able to fly freely wherever we'd like, in not being able to charge whatever prices we'd like, in having to get special approval for a variety of actions. The alternative to economic regulation of this industry, however, would be enormous economic waste. Both the airlines and the public would suffer. Hundreds of millions of gallons of fuel would be wasted each year. The public would get more air service than it needs on some popular routes and less than it needs (or none at all) on others. Airlines would lose even their present limited appeal to investors, and would be unable to raise capital for future progress.

Why would deregulation have these effects for the airlines, when most industries prosper without regulation? Simply because the airlines have unique elements in their supply-demand equation, such that unrestrained competition will lead inevitably to overcapacity. The airline industry does not conform to the classic eco-

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nomic theories under which the factors of supply and demand interact in a manner to produce a self-adjusting equilibrium. We have a built-in tendency toward overcapacity, and that tendency would be greatly intensified if competition were totally unrestrained.

The stakes are high. In 1974, the domestic trunks flew nearly two seats for every one passenger carried. If we could have eliminated even ten percent of the empty seats, that alone would have saved 300 million gallons of fuel, and $200 million of operating cost. Our excess empty seats resulted from the fact that we are *already* highly competitive. Nearly eighty percent of the city-pair routes already have directly paralleling competition. Indeed, a popular criticism of this industry is that we are *too* competitive in scheduling, *too* competitive in meals and in-flight amenities, *too* competitive in acquiring too many of the very latest aircraft types, etc. Thus, the issue is not whether there should be competition in air service; the issue is whether today's substantial but regulated competition should be replaced with even more substantial, unregulated competition.

I stated above that we don't conform to the normal laws of supply/demand equilibrium. Let's see why.

I. Special Aspects of Supply/Demand Equation in Scheduled Air Transport

There are several unique factors affecting airline capacity:

1. Our service must be produced at the very instant it is being consumed, with no ability whatever to store any surplus in inventory.
2. Schedule frequency in itself has great competitive value, creating strong marketing pressure for increased volume of output as an objective in its own right.
3. We have substantial "fixed" costs, creating pressure to add capacity on the basis of recovering just variable, out-of-pocket costs, without recovering fully allocated cost.

No other industry encounters all three factors in the same degree. We will discuss below how these factors generate overcapacity under competitive conditions.

A. Inseparable Linkage of Production and Consumption

For most industries, production and consumption are two distinct functions—separated by time and geography. A manufacturer turns out his product when, where, and at production rates that he finds most appropriate. His distribution pipeline then acts as the "valve" that adjusts the flow of that product to individual markets at rates related to varying local consumption. If a given community consumes one hundred units per day, the manufacturer does not have to ship two hundred each day.

In air transport, on the other hand, production and consumption occur inseparably at the very same instant of time. If we are to have *any* service between City A and City B on a given day, we must produce, on that day, the irreducible quantity of seats that is represented by a full plane-load of capacity. For most present trunk airline service, the minimum aircraft size is close to or over one hundred seats, and on some routes the competitive norm is a wide-body plane of 230 or more seats.

Perhaps we expect an average of only fifty passengers daily to fly from City A to City B in the month of October. Yet, if we are to maintain nonstop service on that route, we cannot slice a part of a plane; we cannot use a distribution "pipeline" to ship only part of a production run; we must fly our minimum plane-size of close to or over one hundred seats. And any seats that are unsold when that plane leaves the gate are permanently wasted; there is no inventory to which they can be assigned. Adam Smith was not dealing with a supply/demand situation with these substantial inflexibilities.

The difficulty of getting a close "fit" between the inflexible plane-load of seats, and the individual market size, is complicated by the competitive pressure to serve so many city-pairs on a direct point-to-point nonstop basis, with correspondingly diminished opportunity to use one-stop and multi-stop routings to build up "traffic flows." This creates a special problem for the airline capacity planner, unparalleled in surface transport, where it would be unthinkable to by-pass so many of the intermediate and connecting points that generate traffic flow. With only a few top exceptions, the point-to-point traffic moving locally between two cities is comparatively small in relation to the size of modern transport air-

craft. For example, the total industry O&D traffic between the second largest city in the east (Philadelphia) and the second largest city in the west (San Francisco) was only 208 passengers daily each way in 1974. A *single* daily 747 schedule could have handled this entire market, with forty-three percent of the seats left over.

The smaller the market size in relation to available aircraft size, the greater the difficulty of adjusting capacity so as to minimize the waste of empty seats. For example, when even one daily frequency provides more seats than are needed, a carrier has no opportunity to fine-tune its capacity level, since the seats on that one trip obviously cannot be "shaved" by five percent, or ten percent, or twenty percent to get some desired load factor.

In this context, one immediate effect of increasing the amount of competition on a route is to further subdivide the market size, so that the average market available to each carrier gets smaller and smaller in relation to aircraft size. And, as noted above, this renders more difficult the task of "fitting" supply to demand. But beyond this, competition in air service provides special pressures for more frequencies, as discussed in the following section.

B. Increased Competitive Output Means More Sales

In other industries, a supplier cannot increase the consumer appeal of his product merely by producing more of it. In air transportation he can. If, for example, TWA produces twice as many seats as our competitors betwen New York and Los Angeles, that increase in production will, in itself, generate more sales for TWA.

The competitive value of merely increasing production is inherent in the nature of our service. Our customers are not seeking transportation from City A to City B in the abstract. They have very definite preferences as to the time of day at which they want to leave. And, in metropolitan areas with more than one airport, passengers also have preferences as to the airport for their departure. A carrier that operates more schedule frequencies on a route can offer a wider choice of departure times, and/or more full coverage of the several metropolitan airports. This carrier will thus have competitive appeal to a larger part of the total market on that route. This fact has often been recognized. The Civil Aero-

nautics Board has stated that "[in] any given market, the carrier with the greatest number of schedules will normally carry the largest number of passengers."[1] Other experts in the aviation industry have acknowledged the relationship between schedule frequency and greater plane load by recognizing that "if a carrier unilaterally increases its schedule frequency, it can expect to divert passengers from other air carriers, if the other carriers do not match the increase."[2] Thus, the very nature of what we sell attaches a special competitive value to increased output *per se.*

Surveys of air passengers consistenlyt show thatthe single most important factor in selection of an airline is the availability of a schedule closest to the passenger's individual departure time preference. The competitive importance of departure time explains capacity actions which are common in air transport, and yet which would be inexplicable by the standards of other industries. For example, it would normally be unheard of for a supplier to increase his production rate if he is currently selling only a fraction of his present output. In air transportation this is common. Two carriers on a route may each have morning and evening departures, with only half of those existing seats now occupied. Yet if one of those carriers were to add a new trip at noon, he would expect to divert from his competitor those passengers who prefer to leave at that time of day. And so, even though there are already ample seats in the market, there will nevertheless be competitive pressure to add more.

This competitive pressure would not in itself lead to so much waste of capacity were it not for the inflexibilities of our production units as described in the preceding section. If the addition of a new trip at noon could simply be offset by a corresponding reduction of seats at other hours, this would not necessarily lead to excess capacity. But our planes cannot be shrunk in size. Therefore, the addition of seats at a new departure time cannot realistically be offset by shrinking the size of the units at other departure times. Hence, competitive pressure for frequency does lead to excess seats.

The above comments relate to the competitive value of flight fre-

[1] CAB, DECISION IN PHASE 6B OF DPFI, at 5 (1971).

[2] G. DOUGLAS & J. MILLER, ECONOMIC REGULATION OF DOMESTIC AIR TRANSPORT 44 (Brookings Inst., 1974).

quency as this leads to excess capacity. Since 1970, there has been another dimension to the competitive value of increased capacity—*i.e.*, the sales attraction of increased aircraft size with wide-body jets.

An L-1011 is not just a plane that provides twice as many seats as a 707. It is also a plane that is competitively more attractive than the 707. Under conditions of competition, this creates still another incentive to add seats at a faster rate than would be needed just to satisfy *quantitatively* the growth in the market. Often a carrier will double its seats on a route by upgrading to wide-body equipment—not because traffic has doubled to require that number of seats—but rather because the qualitative appeal of that equipment will attract passengers from competitors.

In short, competition in air service provides a definite pressure to increase production for its own sake. Whether it takes the form of more frequency, or wide-body planes, greater production means greater competitive sales. In this respect, we are quite different from other industries, and face this major distorting influence in our supply/demand equation.

C. Airline Cost Structure

The above factors explain the pressures for increasing capacity in competitive air transportation; they do not yet explain, however, why this pressure carries the industry to capacity levels beyond those which are economically sound. Even with competition, why does airline management stop short of that increment of capacity which would fail to cover its cost, and hence be unprofitable?

Pressure to add capacity beyond the point of economical soundness results from the nature of our cost structure. A substantial part of our total cost consists of fixed or overhead elements which are not materially affected by whether a particular schedule is or is not operated. These fixed costs include such elements as the investment in our overhaul base, the rent paid for airport terminal facilities, or the capital cost of our computerized reservation system. These costs (accounting in the aggregate for nearly forty percent of our overall costs) will not be significantly affected by the addition or deletion of any one trip. Therefore, a decision on the merits of adding that trip will usually be based upon the incre-

mental *variable* costs directly incurred by that trip—such out-of-pocket costs as fuel and oil, crew pay, landing fees, etc.

The decisional process for escalating frequency will usually go as follows:

- Carrier A sees an opportunity to move ahead of competitors with an added trip, and calculates that the incremental traffic (and revenue) diverted from competitors will more than cover the incremental variable costs of operating this new capacity.
- Sooner or later, Carrier B and/or Carrier C conclude that if they match the added trip of Carrier A, they will *regain* the traffic initially lost to the aggressive carrier, and that this retrieved revenue would incrementally more than cover the variable cost of *their* adding this new capacity.

Thus, the see-saw of capacity involves, first, initiation, and then competitive response, based upon variable cost breakeven. As this escalation goes on, the overall average load factor drops below the level needed to cover the full allocation of *all* costs, and drifts closer to mere variable cost breakeven. The aggregate effect of this chain reaction produces more capacity than is economically sound, since it produces a load factor inadequate to cover fully allocated cost.

A route like Chicago-Los Angeles provides graphic evidence of what this process produces. This is one of the few long-haul routes with high traffic density; indeed, it ranks third among such routes. In 1974, its average traffic flow amounted to 2050 passengers daily each way. This traffic density should have given it the inherent potential for favorable load factors. For reasons discussed earlier, the problem of getting a close "fit" between our capacity units and market demand should be eased where there is a high density of traffic.

The Chicago-Los Angeles is, however, also one of the most competitive routes—with four unrestricted carriers operating on it. And here is the recent record of capacity and load factors on this route:

- In the six months ended March 1975 the average four-carrier load factor was only forty-three percent.
- Despite those poor load factors, industry capacity in the sec-

ond quarter of 1975 was increased by six percent over the preceding year. In the third quarter it was increased by seven percent. And in the fourth quarter it was increased by eleven percent.

- As a result, prior to United's strike in December, the industry load factors stayed below forty-five percent during all but four months of 1975.
- Moreover, the individual airline with the lowest load factor on the route (less than thirty-three percent for the six months ended March 1975) implemented the largest increase in capacity (a thirty percent jump in seats in the fourth quarter of 1975).

There is no way that this type of capacity behavior can be reconciled with the simple, classical, theories of supply and demand. In any other industry, it would be unthinkable for a firm that had been selling only one-third of its output to then increase its rate of output by over thirty percent. But because of the factors discussed above, this is indeed the way in which competition generates pressures for over-capacity in air transport.

II. Evidence of Competitive Over-Capacity

More generalized evidence of the effect of competition is provided by Table 1, which shows the load factor results in 1972 for all significant non-stop routes, broken down by degree of competition. These data were developed by CAB staff in its study on the domestic route system.

Segments served by only one carrier had higher average load factors than segments with two carriers, and the latter had higher load factors than those with three or more carriers. But this in itself understates the impact of increasing competition. For Table 1 also indicates that the greater amounts of competition have been authorized on the routes with higher traffic volume. For example, the routes with three or more carriers have generally been those connecting the largest metropolitan areas. Table 1 indicates that the three-carrier markets have average traffic density seven times larger than the one-carrier markets. We have previously pointed out that greater traffic density provides the potential for better capacity-fit, and hence higher load factor. Yet, while enjoying

much larger traffic density, the three-carrier markets averaged *lower* load factors. The explanation, of course, is that their greater amounts of competition more than offset their density-related potential for better load factors.

TABLE 1

LOAD FACTOR EFFECT OF INCREASED COMPETITION

Number of Carriers in Market	*1972 Load Factor*	*Average Traffic Density per Market (Daily Passengers Each Way)*
One Carrier	55%	75
Two Carriers	52	237
Three or More Carriers	50	536

Source: *The Domestic Route System*, Staff Study of CAB Bureau of Operating Rights, October 1974, Pages 77 and 83.

Existing levels of authorized competition have made it chronically difficult for this industry to avoid excess capacity. The most recent proof is the industry's inability to achieve the CAB's load factor standard in over four years of effort to do so. This takes on special significance in view of the CAB's repeated warnings that fares would be set so that attainment of adequate earnings would be dependent upon achieving the Board's load factor standard. Yet, despite this strong financial incentive to avoid excess capacity, competitive pressures have continued to make this goal unattainable.

When the CAB approved a small domestic fare increase late in 1975, this was granted only after first disallowing the equivalent of almost one billion dollars in annual operating expenses, and just under nine hudred million dollars in capacity investment, as being excessive, because those costs related to capacity beyond that needed under the Board's standards. Obviously, if there were the meaningful option to do so, this industry would have cut back capacity to achieve the CAB standards, thus avoiding these high disallowances. The industry's inability to do so gets back to the preceding discussion as to capacity inflexibilities under competition conditions.

Interestingly, even those who argue for more competition do *not* challenge the fact that existing competition now leads to depressed load factors and wasted space. Thus:

> [T]he airlines tend to *compete on the basis of scheduling*, over which the Board does not exercise direct control. *The result is excess capacity* . . . (emphasis added).[3]

> Nonprice competition, *by causing unduly low load factors* and aircraft *configured to low density seating, has artificially raised the cost of air travel*" (emphasis added).[4]
> The deregulators claim that low avearage load factors . . . are a function of (i) demand-related rather than cost-determined fares and (ii) *the carriers' reliance on scheduling competition, which they [the deregulators] claim leads to excess capacity* (emphasis added).[5]

III. The Theory That Pricing Freedom Can Obviate Pressure for Scheduling Competition

Those who favor deregulation surely do not consciously seek to create still more excess capacity. Yet, simple logic would suggest that, if the existing level of competition has created too many seats, totally unrestrained competition would create still more empty seats. How do the advocates of deregulation resist this conclusion? How do they argue that *more* competition would mean *less* excess capacity?

Their position rests on the theory that present excess capacity has resulted, not from the existence of competition, but rather from the form that competition now takes. They claim that the present regulatory framework precludes price competition, and has forced competition into "non-price" channels, including particularly schedule capacity. Thus we find Messrs. Douglas and Miller stating:

> Essentially, therefore, airline firms rival each other primarily in non-price, quality dimensions . . . *of greatest importance in non-price rivalry is the tendency of firms to compete on scheduling and capacity* (emphasis added).[6]

From this basic proposition, this theory further argues that a deregulated environment would provide freedom for price competition, and that carriers would then no longer have to engage in such

[3] 1975 Coun. of Econ. Adv. Ann. Rep. 154.

[4] CAB, Staff Study on Regulation Reform 17 (1975).

[5] Harbridge House, Study on Deregulation Experiment 27 (1975).

[6] Douglas & Miller, *supra* note 2, at 43.

non-price forms of rivalry as schedule frequency wars. The CAB Special Staff study stated:

> [I]n the absence of entry and price regulation, a new firm with a limited schedule could compete with incumbent carriers on the basis of a lower price.[7]

This theory is the *only* one that attempts to overcome the logical dilemma of conceding that today's competition produces excess capacity, while claiming that tomorrow's deregulated competition would not. Thus a basic question is whether indeed one can realistically expect freedom of price competition to serve as a substitute for competing in the ways which are now familiar, including via schedule frequency.

We shall demonstrate that the above theory is invalid.

The advocates of deregulation obviously contemplate that pricing freedom would result in price *differentiation* between carriers —in other words, that rivalry in price would take the place of the present emphasis on rivalry in non-price matters. But this misses the point of *why* there is virtually no price differentiation among carriers today.

The present uniformity of fares is not the result of CAB regulatory fiat. For example, the CAB has never compelled carriers to match promotional discount fares initiated by their competitors. Yet, such promotional fares are almost always matched, *voluntarily*. The reason why airlines generally have uniform fares is not because the *CAB* tells us we must, but rather because the *marketplace* tells us we must. And this uniformity is a marketplace necessity because of the substantial similarity in the basic elements of the product offered by competing carriers.

Operating the same or similar aircraft, out of the same airports, over the same airways—airlines do not have many elements of visible, tangible, differentiation vis-a-vis competitors. One of the greatest challenges for any airline management is to establish such product differentiation in meaningful fashion. Many of the elements in which differences do exist are, by their nature, subjective and difficult to prove to a skeptical consumer (*e.g.*, the degree of friendliness and courtesy of personnel, or the superior quality of an in-flight meal). Almost in desperation, airlines sometimes resort

[7] CAB, *supra* note 4, at 116.

to so-called "frills" (such as free champagne) in an effort to find tangible elements of product differentiation.

In this marketing context, a fare difference of even a few dollars would become a highly visible and tangible sales advantage. For that very reason, no airline can afford to concede to its competitor this marketing advantage. To avoid this, carriers match competitors' fare reductions—*voluntarily*—even when they violently disagree with their basic economic rationale. (*Example*: Eastern and Delta strongly disagreed with the National "No Frills" fare, but nevertheless joined it.) A carrier usually finds it less costly to match an uneconomic fare, and thus remain competitive, rather than to forego such fare and lose the market.

Against this background, let us now consider the implications of the above-described deregulation theory of pricing freedom. It assumes that a carrier would be able to resist competing on schedule frequency by reducing its fare instead. For this to be a meaningful option, one must assume that the carrier with the more aggressive schedule would hold fast to the original fare level, and thus hand over to the schedule-restrained carrier the competitive advantage of an exclusively lower fare.

No one familiar with this industry would expect so unlikely a scenario. In the real world, the carrier that is sufficiently aggressive to operate more frequently on the route would also be aggressive enough to match its competitor's lower fare. And once matched, fares would be no more differentiated than they are today, and the importance of so-called "non-price" rivalry (including schedule frequency) would remain as great as it is today. Thus, the theory relied upon to avoid greater excess capacity under deregulation rests on quicksand. More competition *would* mean more pressure for more empty seats.

IV. Magnitude of Potential Waste Under Deregulation

The resources consumed in modern air transport operation are great. The operation of even one daily L-1011 coast-to-coast roundtrip consumes over nine million gallons of fuel per year, and incurs a fully allocated cost of nearly fourteen million dollars per year. The deregulation advocates have not provided any forecast

of what their proposed environment might generate in the way of added capacity.

Let us get at least an order-of-magnitude perspective by taking a conservative set of assumptions. Let us assume that under a deregulation environment, there were just one new carrier deciding to operate on each of the twenty-five leading segments in the country. Let us further assume that this one extra carrier on each of these routes chose to enter with a very restrained capacity level, *i.e.*, operating only half as much capacity as the leading incumbent carrier on the route.

This illustration is obviously conservative in several ways—by considering only twenty-five routes, by assuming only one new carrier on each route, and by assuming a restrained entry level of capacity. But even under these conservative assumptions, there would be great waste. This conservative scenario would involve fully allocated costs of $475 million per year, incremental variable costs of nearly $300 million, and added fuel consumption of 450 million gallons per year. Incidentally, to place the added fuel consumption in perspective—this would be enough to negate totally the conservation efforts of 6½ million motorists, if each curtailed his annual driving by ten percent.

V. Deregulation Would Destroy Any Chance for an Overall Rounded Air Transport Network

The impact of deregulation would not stop with the private interests of airlines' share-holders, but would just as surely affect adversely the interest of the general public in having a total, well-rounded air network of service.

A basic reason for economic regulation of *any* form of transportation is to help protect the stronger routes against undue competitive erosion of their strength so that their above-average earning potential can help support the more marginal routes, which are also needed by the public. This is a fundamental premise of regulation, whether it be for a local urban transit system, or a coast-to-coast airline.

The need for this economic regulation gets back to a basic characteristic previously described, *i.e.*, the inflexibilities growing out of the simultaneous consumption and production of our serv-

ice. Our market sizes vary enormously. While an average of 2341 passengers travel daily each way between New York and Chicago, there are only 213 travelling between New York and Phoenix, and only 81 between New York and Tulsa.

In other industries, market sizes also vary, of course, but there the separation of production and consumption makes it possible to ship to a given market the precise quantity desired, regardless of the size of an efficient "production run" at the factory. But in air transport, our minimum "production run" is a planeload of seats, and that is the quantity of seats that must be "shipped" to a given market, even if only a fraction of those seats are needed in that market on a given day.

When this inflexibility of our supply is applied to the enormous variety of our demand element, we unavoidably get wide variation in profitability. It is impossible in these circumstances to expect every route to be equally self-sufficient—or even to expect the very same route to be equally self-sufficient from one flight departure to the next, or from one day to the next, or from one season to the next. The fact that a given route at a given time is not fully profitable is no onus for that route, or for the communities involved. Nor does it imply that the passengers travelling over that route are "charity" cases, being unreasonably supported by the passengers on other, more profitable routes. Rather, as in the case of a local transit system that charges a flat fifty cent fare for all passengers, it simply recognizes that the total public has an interest in a total transport system, and that an averaging of the results of individual routes is a necessary condition for having adequate service on thin as well as strong routes.

In 1974, TWA's most profitable domestic route made a fully allocated *profit* of nine million dollars; but our least profitable route sustained a fully allocated *loss* of nine million dollars. In that same year, though our domestic system as a whole came close to breaking even, we had ninety-eight route segments which failed to cover full cost—offset by some fifty segments which more than covered full cost by a margin adequate to balance out the system at close to breakeven.

The deregulation theorists seek to belittle the need for "cross-subsidy" between strong and weak routes. They say in effect: "We

don't believe that you have so many unprofitable routes, for if you did, you'd be seeking to abandon them right now."

Why in fact, don't we just seek to drop the unprofitable segments? This gets back to the nature of our cost structure, previously discussed. Though failing to cover fully allocated costs, these marginal segments more than cover the variable cost directly associated with their operation. Even though they do not make their full contribution to supporting fixed and overhead costs, we are financially better off with them than we would be without them, since they make at least a partial contribution to fixed costs, most of which would not disappear even if we abandoned these services. The fact remains, however, that they do leave a financial shortfall in relation to fully allocated cost, which must be absorbed by extra strength somewhere else on our system, or we lack on-going corporate viability.

What would happen if there were no control over entry, and if every carrier were free to enter whatever routes it chose? The scenario is distressingly simple:

> Since every carrier has its share of segments which are providing only variable cost recovery, all carriers would immediately search out opportunities to shift their equipment from some of their lowest-returning segments, to new routes where the contribution over variable cost would be better than the most marginal on its present system.
>
> No carrier could long resist the pressure to move in this direction. As each carrier's own previously profitable segments were pulled down closer and closer to bare-bones variable-cost recovery, that carrier in turn would have to abandon its own weaker routes in the interest of redeploying its planes to any other routes where it might get even a somewhat better contribution over variable costs.

The result: wholesale deterioration of service on thinner routes, and concentration on the stronger routes to the point at which the latter would themselves become only marginal.

VI. The Issue of the Industry's "Maturity"

One of the reasons advanced for deregulation is the fact that this industry has matured substantially since the mid-thirties, when economic regulation was first adopted.

The degree of maturity of this industry would have relevance to the issue of deregulation *only* if those conditions which required regulation in the first place were strictly related to an "infant-industry" status. However, that is not so. Nobody suggests that the electric power industry should be deregulated just because it is mature.

The factors which make it necessary to restrain normal marketplace forces in air transportation are continuing characteristics of our service, and these factors have *not* diminished just because we are now larger. Indeed, in important respects, our greater "maturity" has made the need for economic regulation *more*, and not *less* important. For example, one characteristic of a maturing industry is a leveling off of growth rates. The airlines are indeed experiencing that aspect of a maturing status. In the first thirty years after passage of the Civil Aeronautics Act (*i.e.*, the thirty years ending in 1968), trunk air traffic grew at an average annual rate of eighteen percent. In the past seven years (since 1968), we have grown at an average annual rate of less than five percent. This in itself has considerable significance—not to justify elimination of economic regulation at this time, but instead to reinforce the continued need for such regulation.

Back in the 1950's and 1960's, when the CAB authorized large amounts of additional competition, a significant part of its rationale was the so-called "growth offset theory." That theory stated that the competitive diversion of traffic from incumbent carriers would not permanently impair those carriers because normal traffic growth would offset this diversion in a relatively few years. That cornerstone for rationalizing increased competition has surely become more difficult to rely upon at this time, in view of our "maturing," and, therefore, our presently less-dramatic growth rates. When this industry was growing at annual rates of twenty percent, and more, in the mid-1960's, industry traffic actually doubled itself in less than five years. In contrast with the average growth rate experienced between 1968 and 1975, it would take sixteen years for the industry to double its volume. The ability to rely on growth to offset the inroads of competitive diversion has thus been sharply diminished with our "maturing" status.

Our greater maturity has also been accompanied by much larger

aircraft unit size. When this is coupled with flattening growth rates, it again increases, rather than diminishes, the need for regulating the amount of competition. For example, with the annual traffic growth rate of the mid-1960's, and with the largest aircraft then in use, if each of the three competitors on New York-San Francisco had added one daily 707 schedule apiece on that route in 1967 the then-existing traffice growth would have filled that added capacity to a fifty-five percent load factor in little over one and a half years. In contrast, with recent traffic trends, if each carrier on this route were at this time to add an L-1011 or DC-10 schedule, and if this market's traffic continued to grow at the rate experienced betwen 1969 and 1974, it would take over fifteen years to fill this added capacity to the extent of a fifty-five percent load factor.

This means that our greater maturity in larger aircraft size, and in slower traffic growth, have reduced the "tolerance" for absorbing the impact of competitive capacity increases. In the mid-1960's, if competitive pressures led to the addition of new frequencies prematurely, there was at least the hope that traffic would grow into the added capacity in a relatively short time. With our present "more mature" status, the period of time it would take traffic to grow into added capacity has become substantially elongated—so much so that the industry can go "down the tube" while waiting for that growth.

VII. The Issue of Regulatory Over-Protection

One of the arguments of advocates of deregulation is that the CAB has been over-protective of this industry. As a related argument, they allege that this protective environment has blunted normal incentives for maximum efficiency.

Any allegation of CAB over-protection is rebutted by this industry's record of seriously inadequate earnings over several decades (see Table 2). In only two of the last 20 years did the industry earn the rate of return then deemed reasonable by the CAB. In most years, our return was less than half of the level held to be reasonable. One would scarcely find such poor earnings, over so sustained a period, if indeed we had been sheltered by an unduly benign regulatory force.

TABLE 2

DOMESTIC TRUNK RETURN ON INVESTMENT AND PROFIT MARGIN
1955-1974

Year	*Return On Investment*	*Profit Margin*[a]
1955	11.8%	5.6%
1956	9.4	4.6
1957	4.9	1.9
1958	6.3	3.0
1959	7.3	3.4
1960	2.8	0
1961	1.5	(1.7)
1962	4.1	0.4
1963	4.3	0.5
1964	10.0	4.8
1965	11.2	6.8
1966	9.7	6.5
1967	6.9	5.5
1968	4.9	2.5
1969	4.3	1.8
1970	1.4	(1.6)
1971	3.3	0.7
1972	5.1	2.4
1973	4.7	1.7
1974	7.8	3.3

[a] Net revenue as percent of operating revenue.

Source: Air Transport Association, Annual Reports
Data from 1969 on include 50-state data.

Equally fallacious is the charge that the regulatory climate has softened normal corporate incentives for efficiency. This allegation ignores the fact that this industry's environment is one of regulated *competition*, and not of regulated *monopoly*. On the great majority of the industry's system there are at least two parallel competitors, and on much of the system there are three or more. Each carrier knows that, for reasons already discussed, it must maintain prices that are fully competitive with those of other carriers on the route. Therefore, with prices the same, each carrier knows that if it can do a better job of marketing and/or of cost control than its competitors, any edge it gains in load factor or in cost efficiency will redound to its own profit and loss benefit.

This is a far different situation than the regulated *monopoly*

status of the classic public utility, such as an electric power company. In the latter situation, the rate level is set by the regulatory agency on the basis of the individual firm that in effect operates "the only game in town." That is essentially a cost-plus situation, with, understandably, some lingering question whether that type of rate setting may weaken normal efficiency incentives. But this most certainly is *not* the situation in air transport. In our case, any gain in efficiency will benefit the individual carrier that achieves it, and, therefore, there is not in fact any softening of normal efficiency incentives merely because we operate in a regulatory environment.

VIII. Effect of Deregulation on Ability to Raise Capital for Future Progress

If any industry is not to stagnate, it must maintain adequate investor confidence to raise the capital funds needed for investing in future growth and progress. This need is especially great in air transport, with its greater-than-average technological dynamics. Presently, the smallest plane of trunk line size costs approximately ten million dollars to replace, and if that replacement is with the more advanced wide-body technology, the cost runs to over twenty million dollars per replacement unit. Even in the inflation environment of the 1970's, $20 million for a single vehicle is an enormous investment.

For perspective, a single inter-city bus costs only about $80,000; a fleet of 250 buses could be acquired for the cost of just one L-1011. Every single day, the cost of just owning an L-1011 runs to over $7000, even if the plane if left idle on the ground. And if used at even moderate utilization, the fully allocated cost for operating this plane would be roughly ten million dollars per year.

Assume that one of these planes is acquired for a planned 16-year depreciable life, and that it must average a fifty-five percent load factor in order to provide an adequate return on the investment. If, because of a changed competitive environment or any other unforeseen development, this plane falls even five load factor points short of fifty-five percent over its useful life, this will translate into an aggregate revenue shortfall of $17 million over the sixteen-year period. With leverage such as this, any prudent inves-

tor must insist on more than a casual possibility of using this expensive asset at a profitable load factor before agreeing to lay out the funds for its acquisition.

As a result of years of inadequate earnings, investor confidence in the airlines is already at an all-time low. A recent tabulation by U.S. News and World Report, based upon a survey of investment brokers, placed airlines at the absolute bottom of a list of eighteen industries.[8] This indicates the low esteem accorded to this industry by investors *today*. Consider the impossibility of attracting capital for future investment if, in the face of the large sums and high leverage noted above, an investor faced the constant possibility of new competitors, in unknown numbers, coming onto the very route for which a newly-acquired twenty million dollar asset was planned to be used. As noted, if such new competitors reduced the prospective load factor by even a few percentage points, this would be enough to make that large investment unprofitable.

Superficially, it may seem of small consequence right now if further investment in this industry is indeed discouraged. After all, there seem to be more than enough planes around to handle the demand for several years into the future. But any such attitude would be short-sighted in the extreme. For any longer term period than just the next few years, this industry must have the ability reasonably to replace, modernize, and expand upon its present productive capacity. Present planes *will* wear out. Newer planes *will* offer greater fuel efficiency, and greater ecological benefits. Over time, markets *will* continue to grow.

Today's spectacular air transport development could not have occurred without the ivestment support of private citizens and financial institutions. And that progress will stagnate if investor confidence is not repaired above its present dismal level.

IX. Implications for the Future

This paper has not argued against competition in air transport; what it has argued against is the totally unrestrained competition that would exist with deregulation.

We have pointed out that substantial competition already exists. And, obviously, the existing regulatory framework provides the

[8] U.S. News & World Report, Dec. 15, 1975 at 29.

opportunity for the CAB to authorize still more competition in those specific cases in which the public benefit would more than balance the costs. We do not claim that the existing pattern of regulation is perfect. But the direction for needed improvement can be found only if one starts first with a willingness to understand the underlying forces that make this industry "tick."

Our "supply/demand" equation does not conform to the traditional concepts of classical economics. If free marketplace forces take over without regulatory constraint, they will inevitably lead to major over-capacity. The resulting waste would levy a heavy toll on scarce resources, including fuel. And the public would end up with massive dislocations of needed public service.

In the very essence of our service, schedule-frequency will always be a major competitive weapon. The more unrestrained the competition, the more the waste of side-by-side empty seats.

The stakes get higher each year. And our growing "maturity" is less forgiving of ill-considered over-expansion.

If the public wants assurance of the full range of needed air services, at lowest cost, it must accept the fact that our underlying economics are more those of a public utility than of the corner grocery store. And it must accept the consequent need for regulation of normal marketplace forces.