DOES INDUSTRY CONCENTRATION MATTER?

John J. Phelan, University of New Haven

ABSTRACT

The Obama Administration has stepped up enforcement of merger activity based on the theory that when market concentration is high price and non-price competition, especially involving homogeneous products or services, will decrease.[1] The fear is that highly concentrated industries are more likely to engage in collusive behavior resulting in higher prices or restraints on output. In the present study, the history of the regulation of the US passenger airline industry between the years 1960 and 1979 reveals that even when markets contain only two or three firms, competition can be vigorous. More surprising though is that non-price competition broke out even when government blocked entry of new firms; set minimum ticket prices at the monopoly level and, would you believe, even encouraged airlines to sign flight restriction agreements to limit capacity.

During the period in which the airlines were regulated by the Civil Aeronautics Board (CAB) most city-paired markets could be characterized as being dominated by two or three airlines - and thus highly concentrated. There was growing industry demand; blocked entry; slow changing technology and fares set by the CAB above average total costs. All the necessary ingredients that would trigger a modern day "shared-monopoly" investigation by the Federal Trade Commission or the Antitrust Division of the Department of Justice were in place.

The Structure-Conduct-Performance (SCP) theories of antitrust, that dominated antitrust enforcement for most of the past thirty (30) years, is questioned. After a twenty year experiment in which the monopoly profits should have been achieved, the airline industry engaged in intense cost escalating non-price competition, until equilibrium was reached with most airlines earning only normal returns.

INTRODUCTION

Enforcement of antitrust policy, at least as it applies to horizontal mergers, is based upon the ideas and theories of the structural school of thought. Essentially, adherents of the structural school are skeptical of mergers which tend to cause post-merger industry output to be concentrated in the hands of a few major producers. They are particularly concerned when concentrated industries also have high barriers to entry.

The underlying behavioral assumption of the structural school is that when two or three large producers dominate industries, they are likely to engage in unhealthy behavior. It is argued that firms will be tempted to stifle competition by limiting output or engaging in conspiracies to raise prices to consumers and to earn economic rents over time. Most economists, at one point

or another in their lives, have probably subscribed to the structuralist view. It is reasonable to assume that if an industry is composed of three or fewer firms then we are more likely to observe cartel-like behavior, given that the cost of organizing would be fairly low with a minimal risk of detection. But this theory seems at odds with our experience from other major industry studies.

One of the dominate themes of the economics literature during the 1970's was the effort to develop empirical studies on the effects of regulation, particularly the domestic airline and trucking industries. As a result there is a rich body of literature concerning how these industries were organized and how the regulatory system operated. In reviewing these studies it is fascinating to compare the effects of regulation, in say, the airline industry with the current views of the structural school of antitrust. For example, the domestic airline industry was characterized by duopoly or oligopoly in most markets, high barriers to entry, growing industry demand, and prices set by government above average total costs. All the necessary conditions existed, one would think, for economic rents.

In what follows I examine the history of the regulation of the domestic airline industry in the US as it relates to current antitrust policy. Does the regulation of the airline industry provide a controlled experiment of the "shared- monopoly" model? Did economic rents occur in the airline industry and, if not, what was missing?

US DOMESTIC AIRLINE INDUSTRY AND ECONOMIC RENTS

The Civil Aeronautics Board (CAB) and its predecessors between the early 1930's through 1979 had regulated the airline industry in the United States. In 1979, Congress deregulated the industry with broad bipartisan support. The most significant piece of legislation establishing regulatory controls over domestic passenger service carriers was the 1938 Civil Aeronautics Act (CAA) which established the Civil Aeronautics Authority, which was changed to the Civil Aeronautics Board (CAB) in 1940. The CAB was given authority over entry into the inter-state airline passenger service and the authority to establish minimum and maximum fares.

No carrier under the CAA could operate in scheduled interstate service without first obtaining CAB permission and then only on those routes for which authority was granted. The Board could, and often did, attach restrictions, such as limiting nonstop service. The usual procedure was for the Board to hold "area investigations" during which carriers were invited to apply for extensions in their service. Carriers also could apply unilaterally. Since the Board controlled entry into paired city markets, it effectively controlled entry into the industry.

The original sixteen (16) major trunk carriers in operation in 1938 when the Act was passed received "certificates of public convenience and necessity" for all current pair city markets they operated in. However, not a single new trunk carrier had been certificated in the Board's history, although many of the local service carriers later were permitted to grow into miniature trunks[2].

The Board had considerable control over ticket prices. In fact the Board set ticket prices although technically the Act did not require the Board to do so and also the Act permitted the Board to set maximum or minimum rates if it wished.

The Act also established the conditions that were to be followed in establishing rates.

The CAB was required among other constraints to consider "the need of each air carrier for revenue sufficient to enable such air carrier, under honest, economical, and efficient management, to provide adequate and efficient air service."

This provision is consistent with the Act's requirement that the CAB promote the economic well being of the airline industry. In 1968, the then Board Chairman Charles S. Murphy said, "I wish to emphasize the fact that we are charged with responsibility to promote as well as regulate air transportation. We regard the promotional aspects of our work as very important."[3]

Finally, one of the most important areas affecting non-price competition, the CAB was prohibited by Section 401(e)(4) of the act to regulate scheduling of flights:

> *No term, condition, or limitation of a certificate shall restrict the right of an air carrier to add to or change schedules, equipment, accommodations, and facilities for performing the authorized transportation and service as the development of the business and the demands of the public shall require.*

Thus, carriers while they could not compete on price, they could, even if there were only two or three carriers in most city-paired markets, compete on flight scheduling. Of course, one might question why carriers would engage in non-price competition when this would reduce economic rents? This question will be visited later.

CAB ENFORCEMENT AND ADMINISTRATIVE PROCEDURES

The CAB basically followed the procedures utilized by the ICC to regulate the trucking and railroad industries. If a carrier wished to increase fares or enter a new city-paired market, the CAB would hold an administrative hearing and if another carrier opposed the rate change or the entry of a new competitor they could present evidence in opposition.

In the early history of industry regulation, the CAB viewed its role as assisting an infant industry. Broadly interpreted, the statute implied that the technology of the industry would be aided and advanced, and that the maintenance of service in markets with insufficient demand to make operations profitable. The CAB utilized two methods to elicit such profitable services: direct subsidy of airmail service, and indirect or cross-subsidy, wherein excess profits were maintained on some routes to subsidize losses in others.

It is commonplace in regulation that indirect subsidy is preferred to direct subsidy. Accordingly, the CAB developed a policy of restraining entry into monopoly markets in order that carriers might earn profits there to offset losses in markets where exit was restricted[4].

Over time, however air traffic grew at a rate many times that of GDP resulting from superior technology, lower costs, increased quality of air travel and the fact that air travel is a superior good. The structure of the industry also changed in the1960's, with local service carriers and commuter airlines inheriting the subsidized markets. Hence, with the trunk industry's maturation, the underlying need for direct subsidy and cross-subsidy disappeared. During the period 1960-1979, the CAB's policy goal was not clearly defined.

ECONOMIC EFFECTS OF REGULATION OF DOMESTIC AIR TRANSPORT

It will be more fully developed below but generally speaking, the economic consequences of the regulation of domestic air travel resulted not in economic rents to industry participants but normal rates of return. This occurred even though entry into city-paired markets was limited most instances to two to three carriers and rates were set by the CAB at levels significantly above long run average total per unit costs.

Fares Set Above Average Total Costs

Examination of the economic literature indicates that during the thirty (30) years of CAB regulation, most attempts to change rates, rather than being instances of price competition, were attempts by the industry or the Board to bring realized profits into line with the Board's estimated "fair" or "reasonable" return on investment. The important rate cases involved across-the-board fare adjustments with the avowed purpose of adjusting the industry profits. The cases in which competitive price reductions were sanctioned principally reflected the interests of the airline industry as a whole against competing modes of transport, such as buses or automobiles. Thus, coach service and fares had been established as well as a multiplicity of promotional fares. The Board manifested an interest in each of these developments, however, in seeing that the proposed reductions were not principally "diversionary," that is, "too competitive." Moreover, examination of the regulatory history provides numerous examples of the regulator's denying incipient, competitive price reductions[5].

The most importance evidence that fares were set above average per unit costs, however, is the significant differences in fares between California intrastate markets and those for trips of similar distance in interstate markets. Air carriers who operated wholly within a state were not subject to CAB regulation, and in California specialized carriers served the major intrastate markets with vigorous price competition during the 1950's and 1960's.

According to Jordan the regulation of air carriers on these routes by the California Public Utilities Commission set only upper limits on fares and this, in conjunction with free entry and exit, resulted in price competition. Some comparisons between fares in major California

intrastate markets and fares in eastern markets under CAB regulation are reported in Table 1 below.

Table 1. Comparison of Air Fares in California Intrastate Markets with Fares in Similar East Coast Interstate Markets, July 1970.

Markets	Distance (miles)	Annual passengers	Coach fare (dollars)	Fare per mile (cents)
California				
Los Angeles --San Francisco	340	3,023,341	16.20	4.76
San Diego –San Francisco	449	359,025	22.63	5.04
San Diego –Los Angeles	109	637,447	7.97	7.31
East Coast				
Boston-New York	186	1,985,680	21.60	11.61
Boston-Washington	413	435,920	35.64	8.63
New York – Washington	228	1,663,850	23.76	10.42

Sources: William A. Jordan, *Airline Regulation in America: Effects and Imperfections* (Johns Hopkins University Press, 1970), p. 105; and *Official Airline Guide: Quick Reference, North American Edition* (Reuben H. Donnelly, July 1, 1970)

It is instructive to note that prices (per mile) in the regulated markets were all significantly higher than in the unregulated market (California). For example, the fare between Boston and Washington, DC was approximately 71% higher than the San Diego/San Francisco fare with a similar volume of traffic.

Perhaps the difference in fares is a result of differences in operating costs or services provided to passengers in regulated vs. unregulated markets? Jordan found that carriers in California's major markets offered similar services to passengers, operated similar aircraft and served the same airports in California as the interstate carriers. In a comparison between the coach fares available in the major California intrastate markets in 1965 and fares that would have existed had CAB regulation applied to those markets, Jordan showed that coach fares for similar interstate markets would have been between 32 and 47 percent lower than the CAB-regulated fares then in effect. Miller points out that Jordan overestimates the difference in fares because carriers in California had higher load factors, and thus fewer flights per day and fewer discount fares compared to the regulated carriers. Miller agrees with Jordan however on the essential finding that fares in regulated markets were still higher than would have been the case if carriers were free to compete on price. Consumers in interstate travel did not have the same opportunity to purchase tickets at a lower price and to forego a little quality by having fewer flights available per day[6].

Oligopolistic Nature of Typical Paired City Markets

The CAB protected the original trunk carriers from new entry from 1938 up to 1979, the year of deregulation, despite the 250-fold increase in total traffic. All attempts to form new trunk

carriers were rebuffed by the CAB. For example, in 1967, World Airways applied for permission to offer nonstop direct service from Oakland/San Francisco and Ontario/Long Beach, CA on the one hand, and New York/Newark and Washington/Baltimore, MD., on the other and promised substantial reductions in fares. According to Miller, the Board refused to act on the petition and through a technicality years later dismissed it from the docket as being "stale"[7].

In city-paired markets, the truck carriers, at least during the 1960's and 1970's were not as lucky. Prior to 1960, the CAB often gave a carrier monopoly rights in many of their city-paired markets, (New York/Miami). This was consistent with the view of the CAB as a protector of an infant industry. However, when industry demand grew during the 1960's and 1970's, the CAB allowed increased competition in city-paired markets. While in the 1950's the typical carrier generated almost 50 percent of its traffic in monopoly markets it dropped to approximately 25 percent by 1971. However, in most markets a carrier faced no more than one competitor and in no market did a carrier face more than four competitors. (See Table 2 below.)

Table 2. Percentage Share of Revenue Passenger-Miles in Competitive Markets, by Carrier, 1955 vs. 1971.

Carrie	*1955*	*1971*
American Airlines	58.6	83.4
Eastern Air Lines	46.3	76.2
Trans World Airlines	62.9	89.3
United Air Lines	61.3	67.1
Big four share	n.a.	77.4
Braniff Airways	32.4	64.3
Continental Air Lines	12.5	79.8
Delta Air Lines	37.9	69.3
National Airlines	80.2	85.4
Northeast Airlines	8.7	87.2
Northwest Airlines	59.3	82.9
Western Air Lines	54.4	72.3
Other Trunks' Share	n.a.	75.9
All trunks	55.6	76.6

Sources: 1955, Richard J. Barber, "Airline Mergers, Monopoly, and the CAB," *Journal of Air Law and Commerce,* Vol. 28 (Summer 1961), p. 213; 1971 data from Douglas, George W. and James C. Miller III, Economic Regulation of Domestic Air Transport: Theory and Policy, (The Brookings Institution, Washington, DC), 1974.

While the Board reduced the number of monopoly city-paired markets between 1955 and 1971, the Board was reluctant to certificate entry when, in its view, the likely effect would be to impair financially and significantly either the incumbent or the potential entrants. As opposed to a regime of free entry, clearly these are important restraints.

The CAB permitted new entry in city-paired markets during the twenty (20) year period prior to deregulation but never lost sight of their perceived role as a protector of the economic

interests of the airline industry. According to Miller, the Board considered abnormally high load factors in monopoly markets as an indication that additional service was needed. However, the Board viewed the advantages of competition almost exclusively in terms of service adequacy and neglected price competition. In fact the Board looked very unfavorably on carriers who promised lower prices if permitted to enter a new city-paired market as mentioned above in the World Airway's application denial case.

To reiterate, while the CAB allowed entry of new carriers in city-paired markets in the 1960's and 1970s, no market contained more than four (4) carriers with most markets having only two (2) or three (3)[8].

Rates of Return

Given the market protection provided by the CAB, i.e., no more than three (3) firms in any city-paired market, prices set by the CAB above average total per unit co**,** and with growing industry demand one might expect to find economic rents accruing to investors in the US airline industry during the period 1960-1979. In fact, Douglas and Miller and others who have examined this issue in the 1970's found that airlines earned "normal" rates of return on investment as can be seen in Table 3 below:

Table 3. Rate of Return on Investment, Domestic Operations of Trunk Air Carriers, in Order of Increasing Carrier Size, 1965 – 70

Carrier	*Carrier size (measured by available ton-miles)1970 (millions)*	*Rate of Return (percent)*					
		1965	*1966*	*1967*	*1968*	*1969*	*1970*
Northeast Airlines	604		3.7	15.5	1.1	-66.8	-57.1
National Airlines	906	19.6	15.9	17.1	12.8	9.1	-1.8
Braniff Airways	1,027	14.1	15.9	2.2	5.0	5.9	3.4
Western Air Lines	1,180	14.7	15.9	10.2	6.2	-0.4	4.0
Northwest Airlines	1,217	20.4	16.0	14.2	10.4	7.7	3.8
Continental Air Lines	1,472	19.1	20.9	13.6	5.1	4.4	5.1
Delta Air Lines	2,636	23.6	28.7	18.7	14.6	12.8	11.5
Eastern Air Lines	3,139	11.5	6.0	6.5	0.8	3.0	3.6
Trans World Airlines	4,261	9.9	7.2	3.9	1.0	1.1	-4.8
American Airlines	5,307	9.4	9.8	6.6	6.1	6.4	-0.4
United Air Lines	7,337	8.9	6.7	6.9	5.0	5.8	0.7
Big Four trunks	9.7	7.6	6.1	3.7	4.4	-0.1	
Other trunks	. .	19.3	18.9	12.0	9.1	5.3	4.6
All trunks	. .	12.2	10.9	7.7	5.3	4.7	1.6

Source: Civil Aeronautics Board, *Handbook of Airline Statistics, 1971 Edition* (1972), pp. 120-31, 391.
Table 2-5 in Douglas and Miller.

According to Douglas and Miller and others[9], the average rate of return in the airline industry for the period 1955-1970 was only 6.42 percent. Only Delta Air Lines, long known for having the lowest operating costs, came close to earning above "normal" rates of return but even Delta experienced a substantial decline in earnings. Between 1965 and 1970 Delta's earnings went from 23.6 to 11.8 percent. What could explain the lack of high rates of return given that the regulatory environment in which the carriers operated?

Equilibrium and Nonprice Competition

Apparently the answer is that carriers were not satisfied with the economic rent potential and began to compete on nonprice variables. According to Douglas and Miller the airlines took price as a given and began to compete by offering consumers more flights:

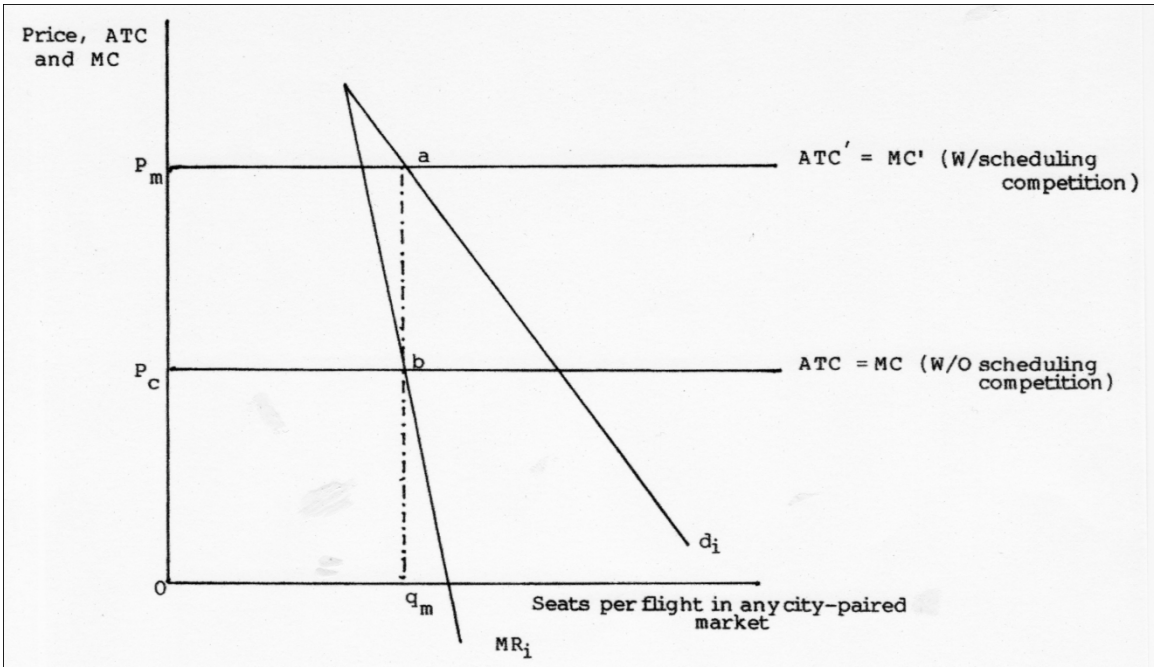
> . . . "since there are so few carriers in each market, it is consistent with typical oligopoly behavior that the airlines prefer to avoid price competition, realizing that most price cuts will be met, generally to their mutual detriment . . . Essentially, therefore, airline firms rival each other primarily in nonprice, quality dimensions. Since basic outputs are so homogenous, each firm tries to establish its identity through assorted gimmicks, some innovations, and extensive advertising.
>
> Of greatest importance in nonprice rivalry is the tendency of firms to compete on scheduling and capacity. More frequent flights and more capacity can increase air traffic, both by inducing additional travel and by diverting travelers from competing modes.[10]"

Douglas and Miller explain their findings of normal rates of return most clearly with the following statement:

> "Even though entry by firms into specific (city-paired) markets is strongly constrained, nonprice competition tends to raise or lower average cost per passenger carried so that in equilibrium it is equal to price.[11]"

Essentially, the carriers would add flights in each city-paired market until average load factors approached the break-even point. Break-even load factors for 1965, for example, were approximately 47 percent. Actual load factors for 1965 were significantly above the break-even point averaging 58 percent. As indicated in Table 3 above, high rates of return, averaging 12.2 percent, were consistent with high load factors observed in 1965. By 1973, however, while break-even load factors increased slightly to 49 percent, actual load factors declined to 52 percent and industry average rates of return (for 1970) had declined to 1.6 percent.

Figure 1 below describes what happened in terms of a typical firm operating in a shared monopoly market.



During the 1950's a typical airline operating in a city-paired market, say between Boston and Washington, DC, faced a downward sloping demand curve **d1.** The CAB set ticket prices at **pm** , which is substantially above **ATC** and **MC** of an efficiently run carrier in a constant cost industry and planes flying with 65 to 70 percent load factors. The carrier earned economic rents in the amount of **Pm,abPc,** selling **Oqm** seats per flight.

Come the 1960's and 1970's, as carriers engaged in nonprice competition by adding flights in each city-paired market, they raised their average total cost and marginal costs per available seat to **(ATC' and MC')** by adding flights but not by adding passengers. Thus, per available seat costs increased until the equilibrium was reached at the break-even load factor, of, say 49 percent. In the end, carriers were earning normal rates of return and consumers were paying the "monopoly" price of **pm** but enjoying the increased availability of flights and planes were flying half empty. Business travelers particularly benefited since they valued having more flights to choose from and were relatively indifferent to ticket prices.

THE HISTORY OF THE AIRLINE REGULATION AND CURRENT ANTITRUST POLICY

What is the relationship between the results of regulation of the US domestic passenger airline industry and modern antitrust enforcement activity? Since antitrust policy is predicated on the notion that firms in concentrated industries are likely to engage in anticompetitive behavior, the history of the regulation of the airline industry raises serious questions about modern antitrust policy – in particular the current merger policy guidelines being employed by the Obama Administration.

Empirical Economic Research Underlying Antitrust Policy

The structural school of antitrust dominated antitrust policy from the beginning of the Kennedy administration in 1960 up through the Carter administration ending in January of 1981. There was an eight (8) year break during the Reagan administration when the Chicago School was in control but the structural school regained marginally with the first Bush administration and completely dominated again during the Clinton administration and now in the Obama administration.

Based on the writings and research of Turner[12] and Bain[13] followed by a slew of empirical structure-conduct and performance (SCP) studies by economists such as Mann[14], Weiss[15], and F.M. Scherer[16], it was generally held during the 1960's, 1970's and 1990's that there was an identifiable and systematic link between indicators of market power and firm profitability.

Generally, these authors performed SCP studies where they statistically related industry concentration, using the eight-firm concentration ratio, and profits. In a survey of almost fifty (50) of the SCP studies published between Bain's first paper in 1951 and 1974, Weiss found that an over-whelming majority of these studies reported a significantly positive relationship between high concentration and industry profitability. Even Stigler, who was more closely affiliated with the Chicago School of thought, found that there appeared to be evidence of a positive relationship between concentration and profits for a small number of industries having Herfindahl-Hirschman indexes above 2,500 (out of a maximum of 10,000) or four-firm concentration ratios exceeding 80 percent[17].

During the 1970's the Chicago School began to publish studies that raised questions about the SCP theory and empirical works. Peltzman[18] reviewed 165 four-digit SIC consumer and producer goods industries over the 1947-67 period and found that cost reductions appeared to be significantly larger in industries with high concentration compared to industries characterized by low concentration levels. Peltzman examined whether monopoly elements in the industries characterized by rising concentration had caused prices to increase enough to offset the efficiency gains. He regressed changes in concentration, unit costs, and total revenues

on industry price indexes and reported that while less than the full amount of the realized cost reductions had been passed on to consumers in the form of lower prices, the net effect of higher concentration was to reduce prices substantially. Thus, Peltzman concluded that profits rise when concentration rises, not because prices rise, but because they fall more slowly than costs.

Merger Guidelines, Concentration and Antitrust Policy Enforcement

Despite the lack of consensus in the academic community over the relationship between market concentration and anticompetitive pricing, merger policy in the US is predicated on the notion that anticompetitive actions are likely to increase with market concentration, at least with concentration levels beyond some threshold. The most common accusation in this respect is that increased concentration of industry output will heighten the prospects for explicit or tacit collusion.

This view is enshrined in the principal guidepost to antitrust enforcement of the Clayton Act – the *Horizontal Merger Guidelines* issued by the Department of Justice (DOJ) and the Federal Trade Commission (FTC) in 1968 and most recently by the Obama administration[19]. After defining the relevant market by the DOJ or the FTC the *Guidelines* require the calculation of the pre and post-merger Herfindahl-Hirschman Index (HHI).

The HHI is the sum of the squared market shares of every firm in the market:

$$\text{HHI} = \sum_{i=1}^{n} S_i^2$$

where S^2 denotes the market share of the ith firm and **n** represents the number of firms in the market. The upper bound (pure monopoly) would be 10,000 (100^2). If the post-merger HHI is above 2,500, the agencies consider the market to be highly concentrated and if the merger contributes more than 200 points to the HHI, the *Guidelines* state the merger would "be presumed to likely enhance market power. The presumption may be rebutted by persuasive evidence showing that the merger is unlikely to enhance market power.[20]" As President Obama's antitrust chief recently stated when commenting on the new *Guidelines* " The HHI thresholds were thus best suited to evaluate concerns about collusion in markets for homogenous products.[21]"

The antitrust agencies would then proceed to examine entry conditions and if entry is found too difficult or expensive, it is presumed that the merged firms will be able to raise price and earn economic rents over time. The antitrust agencies will examine other aspects of the proposed merger such as the extent of excess capacity, growth and changing cost conditions in the industry as well as possible efficiencies that might arise. Firms in rapidly growing industries

and ones with changing cost conditions will find it difficult to establish and maintain a conspiracy to limit output or raise prices. Firms in industries with substantial amounts of excess capacity will discover the incentives to cheat too great to maintain cartel-like agreements.

It is difficult to know how much emphasis is placed on each portion of the *Guidelines* by the agencies when it comes to evaluation of a particular merger but it is believed that the extent of increase in concentration plays a major role. Consistent with Section 7 of the Clayton Act, the 2010 *Guidelines* state that the agencies "give weight to the merging parties' market shares in a relevant market, the level of concentration, and the change in concentration caused by the merger[22]" Thus, both the legal foundations of antitrust merger law and the enforcement standards are squarely in the camp of halting any tendency toward monopoly "in its incipiency." The level of concentration, as measured by the HHI, is the measure employed to predict the tendency toward monopoly.

Airline Regulation, Concentration and Profitability

Let us now connect the first section of the paper with the second. Earlier it was demonstrated that the regulation of the airline industry spanned a period of forty (40) years and that during the latter portion of this period, 1960's and 1970's, the CAB implemented regulatory policies resulting in the following market conditions:

- **Markets Highly Concentrated and Entry Blocked.** The CAB limited the number of airlines in each city-paired market to two to three carriers and in a few cases four. Assuming equal market shares, the HHI for each market ranged between 3,267 (three carriers) and 5,000 (two carriers). Thus, the minimum HHI in each city-paired market far exceeded what antitrust authorities would consider today to be highly concentrated (any HHI above 2,500). Not only would the DOJ or FTC challenge proposed mergers in markets with these HHI numbers but would probably consider it a shared-monopoly case under the Sherman Act.

- **Monopoly Level Fares.** The CAB set airline fares at the monopoly level – 32 to 47 percent higher than comparable fares in unregulated markets. The airlines did not have to conspire or engage in pricing practices that would produce the monopoly result. They did not have to worry about "cheating" by competitors as would be the case in an unregulated market.

- **Growing Industry Demand** without major changes in airline passenger transportation technology during the 1960' and 1970's. In other words, unlike the rapid changes that are occurring today in the information technology industry,

business conditions were fairly stable with moderately growing demand for airline travel.

- **Homogeneous Market.** Modern airline travel is considered by most passengers as a "commodity". Consumers now easily shop on the internet based on price and length of travel time thus market concentration would create the possibility for collusion.

Given the above market conditions it would seem we have the perfect environment for firms to earn economic rents without having to engage in any conspiracy or "conscience parallelism" to restrict output or raise prices. We also have the opportunity to observe the firms in this industry for a period of twenty (20) years, that is, we should be able to examine the long-run equilibrium conditions.

What happened? For some unknown reason, airlines engaged in **non-price competition**. Not satisfied with the potential to earn substantial profits over time, the airlines engaged in competitive conduct by adding capacity to their city-paired markets, which the CAB was not permitted to regulate without the consent of the airline industry, thus eroding their economic rents[23].

It should be stressed that according to the SCP school of antitrust policy the airline industry result would not likely occur. Those who hold the SCP view focus primarily on price as the measure of competition and social welfare rather than non-price competition and secondarily, have a view of business conduct or behavior that is apparently inconsistent with the reality of the business world. Apparently, the competitive forces are much stronger than anticipated by academic economists and the legal community[24].

Could it be that only a few firms in a few city-paired markets caused the unexpected findings of normal rates of return? It appears that all of the trunk airline carriers in all city-paired markets, where they did not have complete monopoly, engaged in capacity competition resulting in falling load-factors.

Apparently capacity competition became so great that the airlines attempted to find a way to put a stop to it and to improve their economic conditions. In 1971 United, American and TWA airlines requested permission from the CAB to come to an agreement to stem the flow of blood. They asked permission to reduce capacity on fifteen (15) long-haul markets by 10 to 15 percent.

Eventually the CAB agreed and the airlines reduced capacity but only on four (4) routes. They could not come to an agreement to reduce competition on the other eleven (11) long haul routes even though, for all practical purposes, the CAB suspended all antitrust constraints on the airlines. Miller characterizes the strength of the competitive spirit in the airline industry as follows:

> "As justification for their agreement, the three carriers argued that the temptation for carriers to add additional capacity [eroding economic profits] in attempting to increase market share is too great, and thus carrier system capacity and resulting load factors are beyond the control of individual carrier management. Accordingly, the industry is characterized by a hopeless spiral of excess capacity, the only solution being multilateral control, monitored by the Board.[25]"

In conclusion, the history of the regulation of the U.S. passenger airline industry provided an almost perfect experiment to test the theory that firms in very concentrated markets, selling a homogeneous product or services, will collude with respect to price or output resulting in monopoly. Even with the encouragement of the federal government and with exemption from the Sherman Act, the airlines continued to engage in vigorous non-price competition by adding flights until potential economic rents were eliminated. When the airlines were de-regulated in 1979 most were earning normal, and in some cases below normal, rates of return. Thus, I have serious doubts that taxpayers' money is being well spent by the Department of Justice and the Federal Trade Commission with regard to their efforts to enforce antitrust laws to prevent, or limit mergers in private markets where firms do not have legal barriers to entry like the airline industry had.

AUTHOR'S NOTE

John J. Phelan is an Associate Professor of Economics, University of New Haven. Formally, senior staff economist, Federal Trade Commission, 1968- 1981; Associate Executive Secretary (Regulatory Policy) Immediate Office of the Secretary, US Department of Health and Human Services, 1981-89.

ENDNOTES

1 See, e.g., Andrea Agathoklis, 'In Their Own Words: Predicting Enforcement Under Varney and Leibowitz' Summer (2009) Antitrust, 5, 12 (predicting that 'one should expect [federal regulators in the Obama administration] to enforce the antitrust laws aggressively at every opportunity'); Sean Gates, 'Obama's Antitrust Enforcers: What Can We Expect?' (April 2009) Antitrust Source, 1, http://www.abanet.org/antitrust/at-source/09/04-Gates-28f.pdf (predicting that '[i]f their records are an indication', new appointees to lead antitrust regulatory agencies 'will likely lead a resurgence of antitrust enforcement in both the conduct and merger areas'); John R. Wilke, 'Internet Law Expert is Nominated as Antitrust Chief' *Wall Street Journal* (23) Jan. 2009) A3 (stating that new appointees 'are known to favor aggressive enforcement and would mark a change from the Bush administration's approach').

2 George W. Douglas and James C. Miller III, Economic Regulation of Domestic Air Transport: Theory and Policy (The Brookings Institution, 1974), p. 189.

3 Ibid, p. 112

[4] Ibid

[5] Ibid. p. 41.
[a] Including tax.

[6] Ibid. p. 42-43.

[7] Ibid. p. 113.
[a] A market is considered competitive if no one carrier has over 90 percent of the traffic in that market.
[b] Fiscal year
[c] Northeast merged with Delta on August 1, 1972.

[8] Ibid. p. 91.
[a] Defined as net profit after taxes but before interest payment on debt as a percent of equity-plus-long term debt; excludes investment tax credits.
[b] Includes operations in Alaska and Hawaii as well as the other forty-eight states.
[c] Not computed due to smallness of base.
[d] Includes domestic operations of Pan American World Airways.

[9] There appears to have been an unusual amount of agreement among economists during this period, that market rivalry was significant and center on taking price as a given and competing via cost increasing scheduling of additional flights, all of which resulted in an equilibrium whereby airlines average load factors reached the break-even level. These studies and authors are as follows: Arthur De Vany, "The Economics of Quality Competition: Theory and Evidence on Airline Flight Scheduling" (University of California, Los Angeles, Department of Economics, c. 1969; Joseph V. Yance, "Nonprice Competition in Jet Aircraft Capacity," *Journal of Industrial Economics*, Vol. 21 (November 1972), pp. 55-71; George C. Eads, "Competition in the Domestic Trunk Airline Industry: Too Much or Too Little?" in Almarin Phillips (ed.), Competition and Regulation (Brookings Institution, 1974); Anthony H. Milward, "Wasted Seats in Air Transport: An Examination of the Importance of Load Factor," *Institute of Transport Journal* (May 1966), pp. 345-62; and Lawrence J. White, Quality Variation When Prices Are Regulated," *Bell Journal of Economics and Management Science,* Vol 3 (Autumn 1972), pp. 425-36.

[10] Douglas and Miller, pp. 42-44.

[11] Ibid, p. 44

[12] Donald F. Turner, "The Definition of Agreement under the Sherman Act: Conscious Parallelism and Refusals to Deal," Harvard Law Review 75 (February 1962).

[13] Joe S. Bain, "Relationship of Profit Rate to Industry Concentration: American Manufacturing, 1936-1940," *Quarterly Journal of Economics* 65 (August 1951, pp. 293-324.

[14] H. Michael Mann, "Seller Concentration, Barriers to Entry, and Rates of Return in Thirty Industries, 1950-1960," *Review of Economics and Statistics* 48 (August 1966), pp. 296-307.

[15] Leonard W. Weiss, "The Concentration-Profits Relationship and Antitrust," in Harvey J. Goldschmid, H. Michael Mann, and J. Fred Weston, eds., *Industrial Concentration: The New Learning* (Boston: Little, Brown, 1974), pp. 184-233

[16] F. M. Scherer, "The Causes and Consequences of Rising Industrial Concentration," Journal of Law and Economics 22 (Chicago: University of Chicago Press, April 1979), pp. 191-208.

[17] George J. Stigler, "A Theory of Oligopoly," *Journal of Political Economy* 72 (Chicago: University of Chicago Press, February, 1964), pp. 44-61.

[18] Sam Peltzman, "The Gains and Losses form Industrial Concentration," *Journal of Law and Economics* 20 (Chicago: University of Chicago Press, October 1977), pp 229-63.

[19] Horizontal Merger Guidelines, U.S. Department of Justice and the Federal Trade Commission, August 19, 2010.

[20] Ibid, p. 19

[21] Carl Shapiro, " Merger Guidelines: Hedgehog to Fox", *Antitrust Law Journal*, Vol 77, p. 705.

[22] Department of Justice and Federal Trade Commission Horizontal Merger Guidelines, Section 2.1.3, Types of Evidence, 2010.

[23] Normally firms that engage in behavior that does not maximize stockholder wealth (market share maximization in this case) would face the constraint of the market for corporate control. In the case of the domestic passenger airline industry the "take-over" market was short-circuited because non-airline firms were not permitted to purchase controlling interest in a regulated airline.

[24] It is interesting to note that the regulation of the common carrier trucking industry was very similar to the airline industry with blocked entry and price set above costs however they were earning economic profits prior to deregulation in 1980. Apparently the nonprice competition did not break out in this industry. Trucking firms were constrained by law from adding capacity by scheduling addition trucks between cities. Availability of service improved significantly in the trucking industry after deregulation indicating that trucking firms did not compete on this attribute of business prior to deregulation. See Thomas Gale Moore, "Rail and Trucking Deregulation," in Leonard W. Weiss and Michael W. Klass (eds.), Regulatory Reform: What Actually Happened (Boston: Little, Brown, 1986.)

[25] Douglas and Miller, *Supra* Note 12. P. 131.

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