

Airline Deregulation

airline deregulation. Canonical economic airline regulation embodies two critical elements. First, the government controls who may provide air service on any given route. The Civil Aeronautics Board (CAB) held this authority in the United States during the agency's forty years of strict airline regulation (1938–1978). Over this period, *de novo* entry was virtually impossible, consolidations reduced the number of active carriers in the industry over time, and expansions by incumbent carriers into new markets were relatively rare. Despite the existence of a dozen national airlines and almost as many regional airlines, generally only the largest routes were served by more than one or two carriers. Until the 1980s, most European and Asian countries vested national authority for scheduled flight operations in a single state-owned 'flag' carrier. International air service is governed by bilateral agreements negotiated between the two relevant governments. These typically restrict scheduled service to a single carrier from each country, often with capacity restrictions or revenue-sharing agreements that enshrine negotiated

market divisions between the two countries. Recent liberalization of some bilateral agreements has introduced greater competition.

Second, there is typically no price competition under regulation. In countries served by a single state-owned scheduled carrier, the airline usually sets prices to further political goals that include cross-subsidizing some service (usually high-cost service on low-density routes) and strengthening the carrier's finances. Even in multi-airline markets, price competition is suppressed under regulation. The CAB, for example, used the same distance-based pricing formula on all routes and allowed only limited price discounting during most of its history. On international routes, fares generally have been established jointly by the airlines themselves, under the auspices of the International Air Transport Association (IATA), subject to approval by each carrier's government.

Although one might expect entry restrictions combined with the suppression of price competition to lead to high profits, there is little evidence that this actually occurs in the airline industry. Even in countries with only one carrier, profits are usually dissipated through cross-subsidization of unprofitable routes. In markets with multiple airlines, carriers have often competed through service enhancements, such as increased flight frequency, larger aircraft, lower density seating and more flight attendants. High prices also reduce passenger volume. In European markets where nonscheduled airlines were exempt from most entry and price restrictions if their services were marketed in conjunction with package tours, a substantial share of leisure travel shifted from scheduled airlines to lower-price charter operations. A similar phenomenon occurred in the US just prior to deregulation of scheduled service in 1978.

Regulation affected airlines' efficiency as well as their revenues and services. Route networks in the US, for example, were largely artifacts of historical service patterns. Entry restrictions prevented airlines from optimizing their networks to reduce operation costs or increase passenger density as technology and travel patterns changed. State-owned airlines in Europe and Asia operate with much higher labour input, in line with a general tendency by state-owned enterprises to overhire labour relative to private enterprises. Thus, much of the gap between price and cost was closed by increasing the cost per revenue passenger-mile. This led to a system of relatively high fares, low passenger volumes and high operating costs throughout most of the worldwide airline industry.

From 1977 to the present, airline regulation has undergone a dramatic transformation worldwide (safety regulation, which is not the subject of this essay, continues; see Rose 1992 for a discussion). US reforms initiated by the CAB and extended by the Airline Deregulation Act of 1978 eliminated price and entry regulation of the domestic airline industry and disbanded the regulatory agency. Formal restraints on commercial aviation within Europe have been liberalized considerably over the past decade, culminating in the opening of intra-European Union (EU) aviation markets to any EU carrier in April 1997. Privatization efforts have transferred a number of Europe's state-owned airlines to private ownership, with others

slated for privatization in the near term. There also has been substantial relaxation of regulation in some international markets. The shift to markets has been less than complete, however. Restrictive bilateral agreements continue to limit competition in most international markets and, apart from the EU, carriers are prohibited from competing for passengers on flights entirely within another country.

The two decades of US experience with an unregulated airline market is of considerable interest not only in its own right, but also as an indicator of issues that may arise with increased market reliance elsewhere. Among the most striking and widely anticipated consequences of US deregulation were the dramatic drop in average fares and the substantial sustained growth in passenger traffic. Between 1976 and 1996, average yield per passenger mile declined by 42% in real terms and revenue passenger-miles increased more than 220%, according to statistics maintained by the Air Transport Association. This success, which conformed to the predictions of most deregulation advocates, has sparked considerable interest in replacing government intervention with increased market reliance elsewhere. Yet, the US experience since deregulation has raised a number of unanticipated issues, many of which remain unresolved.

The most critical unknown is how effective competition will be in ensuring that the low prices that followed deregulation will continue to characterize the industry. There was substantial *ex ante* disagreement among economists over the equilibrium number of airlines that would result from an unregulated market. Some forecast industry agglomeration into two or three 'megacarriers', while others predicted the coexistence of a dozen or more competitors. The outcome is likely to be crucial in determining price levels. A substantial body of research finds that fares are markedly higher on routes served by only one airline than they are on routes with a number of active competitors, and tend to decline significantly with entry of a second and third competitor (Borenstein 1989; Hurdle et al. 1989; Abramowitz and Brown 1993).

In the first five years following deregulation, it appeared that entry would play a dominant role in industry structure. The eleven trunk and nine local service carriers who were providing interstate jet service in 1978 were joined by 25 entrants to interstate service over the next six years. But exits have subsequently outpaced entries, with 26 carriers leaving the industry during the liquidation/merger wave of 1984-1987 alone. By 1997, only eight of the twenty once-regulated incumbents continued to serve the market, and of the two dozen carriers who entered prior to 1985, only two, Southwest and America West, remained. Reflecting these industry-level movements, carrier concentration at the route level fell considerably after 1978, to a 1986 low measured by an average Herfindahl index of 0.452 (2.21 equal-sized firm-equivalents per route). Concentration rose steadily after this, to an average Herfindahl of 0.533 (1.88 firm-equivalents) in 1995. How much of this reconsolidation was inevitable in an unregulated market and how much was the result of ancillary government policies continues to be debated. Both factors certainly played a role.

Two unanticipated developments in the deregulated

airline industry contributed substantially to industry consolidation: reconfiguration of airline route networks into hub-and-spoke systems, and strategic innovations that differentiated airlines' services and dampened competition. The economics of airline operations changed substantially with the restructuring of airline routes from the point-to-point systems created by the CAB entry policies into hub-and-spoke networks immediately following deregulation. These networks serve passengers travelling to and from the central hub airports with nonstop service, and passengers travelling between two points on the spokes with change-of-plane service through one or more hub airports. This development has generally increased flights for passengers travelling to and from hubs, reduced nonstop service for all but the densest non-hub routes, and increased connecting on-line (i.e., change-of-plane but not change-of-airline) service for most travel between non-hub airports (Morrison and Winston 1995). This network configuration is associated with both cost and demand advantages. Operating cost economies appear to arise from the increased density of operations. Because very few airports have the logistic or economic capacity to support more than one large-scale hub operation, competition at the hub airports is typically quite limited, yielding substantial market power for airlines at their own hubs. In addition, the frequent flights and extensive destinations available on the hub airline tend to give that airline a demand advantage *vis-à-vis* its competition on routes out of the hub (Borenstein 1991). These effects are reflected in constant or slightly higher concentration on short routes than there was under regulation. On the other hand, competition on routes served by change-of-plane service is enhanced by the availability of connecting service on a number of airlines, each through their own hub.

Market power has been further enhanced by a multitude of strategic innovations that serve to differentiate airlines' services and enhance the competitive advantage of dominant airlines. One of the most successful innovations has been the adoption of frequent flyer programmes (FFPs), which give travellers awards (most typically, free air travel) based on the number of miles or flights they take on the airline. Because the marginal value of these awards increases as the traveller accumulates flights on the airline, there is a strong incentive to consolidate travel on a single airline, usually the dominant airline in the traveller's home market. This can create strong product differentiation and brand loyalty, particularly among business travellers whose employers are paying for the ticket.

Other innovations target travel agents, who book more than 80% of air travel in the US. Prior to 1984, carrier-owned computer reservation systems (CRS) gave highest priority to display of the owning airline's flights in attempts to tilt travel agent bookings toward the carrier-owner. This practice was made illegal in the US in 1984. Still in widespread use are travel agent commission override (TACO) programmes, which reward agents who channel a disproportionately high share of their bookings to the participating airline, similar to the FFPs for passengers. Given the substantial discretion travel agents have in recommending bookings and the difficulty passengers have in verifying fare and flight availability information (given

the complexity and fluidity of fare structures and seat availability in airlines' bookings systems), these can introduce another significant source of market power for the dominant airline in a city.

A third innovation, which has both efficiency and market power effects, is the increasing complexity of fare structures and yield management systems among most airlines. These systems allow carriers to sell seats at high fares to those travellers with the highest valuation for the seats (usually thought of as the business traveller), and to fill many of the seats that might be expected otherwise to go unsold with lower valuation travellers who pay only a fraction of the fare paid by business travellers. While at its most simple this could be nothing more than a peak-load pricing device that responds to the perishability of airlines' product and the uncertainty in demand for a given flight, there is evidence that the extent of price dispersion is linked to the competitiveness of a route (Borenstein and Rose 1994). In recent antitrust actions, some new entrants have claimed that these pricing mechanisms allow incumbents to engage in predatory pricing by matching or undercutting entrants' prices to passengers who are likely to switch, while maintaining high prices to business travellers who are less inclined to switch.

Two sets of government policies have reinforced the anticompetitive effects of structural and strategic changes over the past twenty years. First, the consolidation of ownership in the industry has taken place in a period of unusually lenient antitrust and merger policy. Horizontal mergers in the US were less likely to be challenged by antitrust authorities during President Reagan's 1981-88 Administration than at any time in the previous three decades. During the 1985-87 airline merger wave, the Department of Transportation (DOT) was asked to approve thirteen mergers among jet carriers and did so in every case, including two cases in which the Department of Justice objected. Antitrust authorities have also shown little interest in the strategic marketing devices that some industry participants claim impede competition. The notable exceptions to this have been DOT concerns over CRS bias in 1984 and an antitrust case brought by the Department of Justice in 1992 in which most of the major airlines were charged with colluding on prices through computer reservation systems. That case was settled in 1994 with implementation of a number of changes in the way that airlines can post and change fares.

Second, public investments in industry infrastructure have failed to keep pace with the demand for services. At the time of deregulation, a few major airports were either formally slot-constrained (i.e., no additional service could be offered from these airports) or heavily congested.

The substantial increase in domestic passenger-miles over the past two decades, shift to hub systems with their concomitant lumpiness in scheduling flights, limited investment in new runway and gate capacity, and general reluctance of airport authorities to allocate access to scarce airport facilities with a price mechanism have substantially increased both the incidence of congestion and its associated costs. This congestion also tends to enshrine the position of incumbent carriers at congested airports, and sharply limits the potential for entry to increase competi-

tion. Costs at both the passenger and airline level have also been increased by delays due to congestion and suboptimal capacity in the air traffic control system, although this does not appear to have had a substantial direct effect on entry into the domestic market.

How have US airline fares remained so low, at least compared to other countries, in the presence of these impediments to competition? Two factors are frequently suggested. First, some industry participants have argued that financially distressed carriers have cut prices in an effort to raise short-term cash, depressing market prices below efficient levels and threatening the financial security of healthy carriers. A number of failing carriers (such as Pan American and Eastern) have been liquidated only after protracted hemorrhaging of investors' funds, and other carriers (such as TWA and Continental) have continued to operate under Chapter 11 bankruptcy protection for extended periods. Bankruptcy, and perhaps financial distress more generally, may reduce the profitability of the distressed carriers and induce them to lower fares, but there is scant evidence that this reduces the prices or profits of their healthier rivals (Borenstein and Rose 1995).

Second, and probably more relevant, airline competition has been relatively fluid over the past twenty years. Despite the failure of most entrants, investors continue to create new airlines. Twenty-one new US carriers initiated passenger jet service between 1992 and 1995 alone. There is substantial evidence that entry, particularly by low-cost, low-fare airlines, has a substantial effect in constraining fare levels in markets served by the new carriers (Whinston and Collins 1992). Continued entry acts as a significant counterweight to the consolidation of the industry, particularly since it is most likely to occur where fare levels are high. It remains to be seen, however, whether entry will effectively limit the exercise of market power by a few large carriers. The answer to this question will be heavily influenced by future infrastructure and competition policies.

Although the US is significantly ahead of others on the deregulation path, there has been substantial discussion and some actual movement toward more market-driven airline service elsewhere. Much of this may be due to the perception of a significant and increasing gap between the US and other countries in the price of air travel. In 1990, US average yields per revenue passenger mile were 23% below those for the rest of the world (Morrison and Winston 1995:15). Entry and fare liberalization have taken place in markets as diverse as Australia, Japan and the European Union. The impact of these liberalizations has varied across countries, but in general the gains in lower fares and greater service offerings have been less than the US experienced subsequent to deregulation.

The reality of liberalization has fallen short of the rhetoric in part due to infrastructure constraints and in part due to bias towards home-country carriers. Most of the major airports in the EU and Asia are already more congested than all but a few US airports. Slot constraints and congestion have sharply restricted entry or expansion, reducing the ability of new carriers to compete effectively with the dominant airline on routes out of those airports. The problem is exacerbated by the concentration of traffic on one or two carriers at most major airports, which

exceeds concentration at most US airports. Furthermore, member states of the EU retain the authority to manage congestion and other infrastructure constraints, authority that can easily be used to prop up a weak incumbent national carrier. The tension between national and EU interests is likely to be particularly strong as the EU implements its April 1997 policy of opening all EU markets to any EU carrier. There is substantial heterogeneity in the efficiency of carriers throughout the EU, and many of them have survived only through government subsidies and protectionist policies. The willingness of countries to allow their national carriers to be acquired or to fail will be critical in determining the extent to which markets rather than governments guide the European airline industry during the coming years. If the US experience is any guide, considerable reorganization of the industry is likely to accompany any real market reform.

Although deregulation may be accomplished in the US, and underway in many other domestic markets, relatively little reform has reached international markets other than intra-EU travel. Despite US pressure to open markets internationally, the very success of US carriers has proved to be an impediment to reaching this objective. The size of the US domestic market, the long history of private ownership of US airlines, and the pressures two decades of deregulation have created to improve operating efficiencies have led US carriers to substantial cost advantages over their international rivals. As a result, few other countries are yet willing to expose their carriers to unrestricted competition with US airlines. Moreover, while the US has been very active in pressing for open skies policies that give foreign airlines rights to pick up domestic passengers bound for a third country, it has thus far been unwilling to negotiate cabotage rights (rights to serve two points entirely within a foreign country) within the US. Moreover, in addition to restrictions on service by foreign airlines, virtually all countries continue to maintain substantial restrictions on foreign ownership and control of domestic airlines.

The most recent trend in international airline competition has been towards airline alliances. 'Code-sharing', the policy under which one airline sells a seat under its own name on another's flight, has become increasingly common between airlines with different geographical areas of strength. Reciprocal code-sharing, coordination of flight schedules, joint advertising, and integration of frequent-flyer and TACO programmes are the most common features of these alliances. Since 1992, more than twenty alliances have formed including Northwest/KLM, United/Lufthansa, Delta/Swiss Air, and USAir/British Airways (which has since been dissolved). American Airlines currently awaits government approval of alliances with British Airways and the TACA group of Central American carriers. These alliances often raise competition concerns, because the carriers are usually direct competitors on routes between their areas of dominance. The carriers applying for an alliance tout the benefits of integration to consumers: greater network integration, more efficient aircraft use, and 'single-carrier' service between points that previously required transfer between airlines that have no affiliation. Whether these benefits outweigh

the loss of potential and actual competition remains an open question.

Beyond the movement towards alliances, the immediate prospects for broad liberalization of international service appear limited. It may be that a positive experience within the EU, and perhaps extension of the EU liberalization to other countries within Central and Eastern Europe, will improve these prospects over time. No doubt, the US experience with deregulation of airline passenger service, as it continues to evolve after twenty years, will continue to affect the pace of reform worldwide.

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