THE BROOKINGS INSTITUTION
FALK AUDITORIUM

40 YEARS AFTER DEREGULATION, REMAINING CHALLENGES FOR AIRLINES AND PUBLIC POLICY

Washington, D.C.
Tuesday, October 30, 2018

Opening Remarks:

ADAM LOONEY
Senior Fellow and Director, Center on Regulation and Markets,
The Brookings Institution

Introduction and Remarks - Forty Years of Airline Deregulation: Successes and Surprises:

NANCY ROSE
Department Head, MIT Economics

Panel Discussion and Q&A: What's Left Undone? Regulation and Competition in Today's Airline Industry:

MODERATOR: JOSHUA GOTBAUM
Guest Scholar, Economic Studies, The Brookings Institution

KATHY O'NEILL
Chief, Transportation, Energy, and Agriculture, U.S. Department of Justice

DOROTHY ROBYN
Senior Fellow, Institute for Sustainable Energy, Boston University

NANCY ROSE
Department Head, MIT Economics

Keynote: The Future of Airlines in a Semi-Deregulated World:

RICHARD ANDERSON
Chief Executive Officer, Amtrak
Former Chief Executive Officer, Delta Airlines
Former Chief Executive Officer, Northwest Airlines

MODERATOR: JOSHUA GOTBAUM
Guest Scholar, Economic Studies, The Brookings Institution

* * * * *

P R O C E E D I N G S

MR. LOONEY: Good morning. Welcome to Brookings. My name is Adam Looney. I'm the director of the Center on Regulation and Markets at Brookings. Our center provides independent, nonpartisan research on regulatory policy, and we seek to promote the efficient functioning of economic markets.

That's why it's very appropriate that we're here to commemorate the 40th anniversary of the deregulation of the airline industry, and to discuss its ongoing effects on the aviation market. But I'm very glad you've joined us, and we have a very interesting program.

To go through in reverse order very quickly, today's program will conclude with remarks by Richardson, the CEO of Amtrak, and the former CEO of Delta and Northwest Airlines.

And a conversation between Mr. Anderson and the Honorable Joshua Gotbaum, who is a guest scholar here at Brookings, and who has extensive experience in government, in business and in the non-profit world. I will mention only one element of that experience, which is that he was the bankruptcy trustee of Hawaiian Airlines, and successfully brought it out of bankruptcy, and ran it from 2003 to 2005.

Mr. Gotbaum will also moderate the discussion on: "Regulation and Competition in Today's Airline Industry" between Nancy Rose, professor of economics at MIT; Kathy O'Neill from the U.S. Department of Justice; and Dorothy Robyn, senior fellow at Boston University's Institute for Sustainable Energy.

Our program will start off with remarks from Nancy Rose, who will discuss forty years of airline deregulation, its successes and surprises.

Nancy Rose is the department head & Charles P. Kindleberger professor of applied economics. Professor Rose is an expert in the economics of industrial organization and of regulation. She has made many important contributions to the analysis of firm behavior in a wide range of industries. And from 2014 to 2016 she was the deputy assistant attorney general for economic analysis in the Antitrust Division of the U.S. Department of Justice, directing the analysis of prospective transactions and other issues of competition policy, including within the airline industry.

So, with no further ado, I will turn it over to her. Thank you.

MS. ROSE: Good morning. I'm delighted to have been asked to speak to you this morning on airline deregulation, and particularly to do so at Brookings which has had a role to play throughout the history of airline regulation and deregulation, including some very important studies during the regulated era; and then ongoing work looking at the experience of the industry, following deregulation. I'm particularly thinking of work by Cliff Winston and his collaborators.

So I thought I would start today by reminding us, or looking at some of you who are much too young to be reminded, to talk a little bit about what regulation of the U.S. airline industry looked like.

So, regulation began in earnest in the late-'30s, 1940, and the good aspects of it, what I will describe as the good, U.S. air travel was safe, comfortable, innovative. There was a large set of U.S. carriers, by the time we got to deregulation we were down to 11 of the 16 original, what were called trunk carriers, think of those as -- now we call those legacy carriers, including two international flag carriers, TWA and Pan Am, and there were 12, what were called local service or regional carriers.

There had been no new entry, so this number had started with the airlines that were grandfathered when regulation was put into effect, and then whittled down through exit.

Prices were set by the Civil Aeronautics Board, which at the time of airline deregulation had set a target, 55 percent load factor. For those of you who have flown recently, just think about what that means; and a 12 percent rate of return, and then set prices that would, through their model, with those assumptions generate the 12 percent rate of return. That was the good.

There was the not so good, but you might call the bad and the ugly. The first was that we had an administratively determined route and network structure, so if you wanted to serve a new market, one that you weren't serving when the airline regulation went into effect in 1940, you had to apply for authority to the CAB, you had to show that your entry into that market was in the public interest, and public interest included what the interest of the incumbent carriers on that route were, and the CAB would decide whether or not you could enter.

Mostly, would decide not, you couldn’t enter, and they had a sense of trying to kind of, either you could think of it as spreading the wealth, sometimes described as cross subsidies, but if you were serving a market that really seemed not to have a lot of traffic, it was probably not a very profitable market, maybe they'd give you an edge when the next profitable-looking route opened up.

There was, as I said, no new airline entry after regulation, there was an informal route moratorium that had been imposed in 1969, most routes had only one or two airlines, apart from a very small handful of the highest density routes, which might have as many as three. And I think less than 10 percent of the top 100 routes had more than three carriers, or the top three accounted for about 90 percent of the traffic.

Prices were high and rising, with little or no discounting. There've been some experiment with discount fares, like a See America discount fare, but the CAB wasn’t very comfortable with that, so at the time of deregulation we had basically a single fare in the market.

And of course part of the rising prices were due to the fuel shocks that had taken place with the OPEC embargo, and subsequent increase in oil prices in the mid-1970s.

We had some metric to compare those prices to, and those were the unregulated intra-state routes, particularly the route for Pacific Southwest Airlines, PSA, in California between San Francisco and Los Angeles, which might be compared to, say, the New York/Washington, or Boston/Washington route.

And what we saw in the unregulated intra-state routes -- there were some in Texas as well -- was that prices were much lower than the comparable length routes that were subject to CAB Regulation.

That doesn't mean there was no competition, airlines where there were two or more carriers on a route were competing for market share in kind of a zero-sum game; so very little demand expansion, but a lot of trying to get customers to fly on their airlines.

That took the form of flight frequency, so the CAB didn't determine how many flights you could operate on a route, just whether you could operate that route, but not just flight frequency, that's what gave raise to these low load factors. New aircraft were quick to move into markets, so we could think of that as a plus for innovation, but there was a lot of competition in ways that we might think probably didn't create a lot of social values. So designer, flight attendant uniforms, piano bars are the classic in the international space, airline food didn't have quite the same connotation in those days, and so forth.

Interestingly enough while we think of the good old days, as some people argue that we should, airlines were still losing money. So, airlines routinely went back to the CAB and said, you've got this target, we're not making our 12 percent return, we need higher fares, and that gave rise to what Douglas and Miller, in a really path-breaking study from here at Brookings, reported as sort of the death spiral in load factors.

So prices would go up, that meant that the marginal passenger was more profitable, airlines competed for that passenger by increasing flight frequency, that reduced load factors, that reduced the return, airlines went back and said prices need to be higher, we're not making our return, and we had this kind of collapsing load factor of higher and higher prices.

And finally, there were regulatory evasion efforts, as there are when there are profits to be made, and incentives to get around a very rigid regulatory structure. And so I called out here, for example, Freddie Laker which was operating in an international market, he couldn't get in as a scheduled carrier, so he came in as a charter operator. But there were similar ways of trying to get around this regulatory structure that was very rigid, and that created opportunities for increasing availability of service to passengers.

All right, so we went to deregulation in 1978, and I'm not going to go through a history of that, I will just say I lived it, it was very exciting. I think we'll hear a little bit more perhaps from Joshua, who really lived it, was here in the trenches.

But I would say some of the successes of airline deregulation that I'd like to call attention to first, is its role as a demonstration project, as we might think of it. So, Stephen Breyer, Advisor to Ted Kennedy, convinced Senator Kennedy to take this issue on, told him that the effect of this would be to likely reduce consumer prices, that consumers would like, that Kennedy initiated a set of hearings to put airline deregulation on the agenda, and push it forward.

Roughly the same time we had Fred Kahn being appointed to the Civil Aeronautics Board, Fred, an economist, a regulatory economist, had experience in the New York Public Service Commission. And Fred instituted a series of steps within the CAB that, to my mind, created enough discomfort among those in the industry that it started to weaken what had been to then, a pretty uniform block by legacy, particularly trunk carriers, to maintain the regulatory system.

And we ended up with airline deregulation in 1978. Trucking deregulation followed a couple of years later, railroad deregulation in various phases started in 1980 and forward. Stuff we don't hear about as much these days, natural gas deregulation which had created enormous dislocation in energy markets; and as lot more followed.

What are some of the specific airline successes? I think the first one that's really important for us to realize, although we may not always like what it does, is that markets replaced administrative decision-making.

And I think that's important because one of the things that markets allow for, is a variety of different approaches or strategies, and then sorting out what consumers like among that, and what consumers don't like, replacing the judgment of a set of government civil servants in the Civil Aeronautics Board.

Sometimes we like the outcomes, sometimes we don't, but at least we're getting signals about which ones consumer seem to value and which ones they don't.

Air travel access experience, prices fall, productivity rises. I have a footnote here which should not be a footnote, we are not going to talk today about air cargo deregulation, but in some ways that was even more historic -- not some ways -- in most ways that was probably even more historic and more important than passenger deregulation. The benefits of that have been extraordinary, and to my mind, understudied by economists.

Now, I'll show you few pictures. I do want to say, I'm going to tell you things like, air travel expands, so these are various measures of departures, revenue passenger miles which were passengers flown one mile, available seat miles, which is the measure of capacity, all of those are moving up.

Economists like measure effects by counterfactuals, you know, what would have happened in the absence of deregulation? It's a little hard to pick out from these graphs, right? So this is starting from way back in 1937, this is airline deregulation, this is the deregulated era, and you're sort of seeing an upward movement with some variability because the industry is very cyclical kind of throughout the entire time period.

What I think maybe is more informative is a chart that I pulled out of the presentation by the Airlines Association, A4A, which takes a snapshot of polls of the American public, and asks: what fraction of the U.S. adult population has flown? And the blue bars on the left: in the last 12 months, and the yellow bars on the right: in their lifetime.

And what you're seeing is in the pre-deregulation era, 1971, 1977; a relatively limited number of people in the U.S. are experiencing air travel. I think in my first 20 years, I took two airline flights, one when I was 2, and one when I was 17. In the next two years, I think I took four, and then once I got an income, many more.

But you can see sort of as we move through the deregulation era, that many, many more people are being exposed to air travel. I think that measure of access is an important way of thinking about the benefits of aviation deregulation.

Productivity is also rising. Remember I told you about that problem with load factors which you can see is that sort of dip and flat area in the middle of the graph. They're now quite high, upwards of 85 percent, maybe too high for some of us who are frequent flyers, we'd much rather have that empty seat next to us, but we're probably not willing to pay for it, in the sense of buying two tickets, which is kind of what we were doing in the regulated era.

I should also mention that not only are load factor increasing the productivity of the airline industry, they also have an important environmental benefit, by reducing the amount of empty seats that were flying, and we know that airlines are an important contributor, particularly to the greenhouse gases, or to climate change effects of greenhouse gases.

And finally then, real fares have declined, Severin Borenstein and I have tried to do a little bit of work to measure a counterfactual, this is comparing actual yields which is the price per mile, average price per mile, in constant dollars, to the SIFL, which is the Standard Industry Fare Level, which was a formula that was adopted by the Civil Aeronautics Board to determine regulatory fares.

Now, if you thought that that formula wouldn't change over time, it's a good measure of the what-if, or but-for airline fare level if we hadn't deregulated. And as you can see in the post-deregulation period, the gap between the SIFL and the yield continues to expand and yield is below. So we've got lower fares than what we might have expected deregulatory fares to be.

I will say there are many caveats to that, and if you're interested, I can refer you to a lengthy discussion of it in the work that I've done with Severin.

The other thing I want to mention, because it's been really important is the expansion by Southwest and other low-cost carriers, kind of over the last 20 years. So, if I move this start to 1995, if I move this further back, you would've seen an enormous hump in the mid-1980s, when we had entry by a lot of low-cost carriers, which unfortunately led to exit by a lot of low-cost carriers, many through acquisitions.

But we see now, over the last -- kind of sustained over the last 20 years is an expansion of LCC activity, and I think that's really important to be maintained for us to continue to realize the benefits of aviation deregulation.

Some surprises, we didn't expect everything that we saw. Hub-and-spoke networks sort of immediately took off, that was one of the consequences of not having a network that was determined by the CAB. That's got benefits and costs, some of the costs are increased congestion, and maybe some increased market power at those hubs.

One thing we discovered as the industry moved forward, that that was the importance of domestic fees for international travel, and the integration of those two networks, domestic and international. We might come back to talk a little bit about that with respect to some of the open skies discussions that are taking place.

There's been a proliferation of pricing strategies, I would highlight loyalty programs as a way that airlines developed ways to hold on to passenger loyalty, reduce their price elasticity, and maybe enable airlines to earn higher revenue off of passengers.

Price dispersion has increased, and ancillary fees. So, here's an example of Delta's network chosen for one of the predecessor companies to the one Richard ran. Under 1974 on the left, 2015 on the right, you can see some clustering because airlines had more service out of large cities, even under the regulated era, but much more connectivity as we went to hub-and-spoke system.

As I said, congestion is a problem. I think we'll come back and talk about that more with respect to infrastructure development, while congestion and flight delays are something that we struggle with, it's not clear how much of that is the airline's fault, and how much of that is a failure of infrastructure to keep pace.

Price dispersion has increase a lot. Some people think that's a negative. I would say the flip side of price dispersion is that you have seats available for business travelers who want to show up last minute and get on a plane, and you have low fares available to fill the empty seats, those 45 percent of the seats that were flying under regulation, that are available to leisure travelers, and enabling the average fare, overall, to be low, because you're filling more of those seats.

So, at least from an economist's perspective, I don't want to suggest that price dispersion is a negative, it just might have been a surprise.

Ancillary fees may be a little bit, different story, so these are all of those tack-on fees that, particularly if you fly some discount airlines, and you're not prepared in advance, you end up paying baggage fees, ticket-change fees, now increasingly seat reservation feels, and so forth, rising considerably since the mid-2000s, and maybe a little less transparent to customers.

In closing, I just want to mention a few ongoing challenges, the first I think is consolidation in terms of not just mergers, but also alliances among carriers which, particularly, when they're immunized from antitrust prosecution as many of the international alliances are, leads to carriers acting as if they were combined in a single firm.

So, questions about what should be the standard there? Should we be looking more aggressively at conduct of carriers to see if carriers are behaving as though they're cooperators rather than competitors? Pricing transparency I think is an ongoing issue that's got implications for the market and the operation of the market; and finally, infrastructure investments and access.

And with that, I'll close. And say, thank you very much. (Applause)

MR. GOTBAUM: A month or so ago Adam Looney came to me and said, we're doing a panel on the history of airline deregulation, and I understand that you had something to do with Hawaiian Airlines. Could you help?

And so at that point I said, yes, and didn't bother to tell him that this is a subject that I've been following, working on since I was graduate school. And you've already met Nancy, and her background. Calling Dorothy Robyn a non-resident senior Fellow with the Institute for Sustainable Energy is, in my view, a gross injustice. (Laughter)

I had my first discussion with Dorothy about whether air traffic control systems were better done within government or within a private thing, in 1993, and she has served with distinction in the White House in the National Economic Council, and the Department of Defense, and has dealt with transportation issues of various kinds in the airline system ever since.

Kathy runs the part of the Antitrust Division that worries about transportation competition, that gives her both extraordinary leverage and some important limitations, and one of the things I want to be very explicit about is, because Kathy is a sitting government official who is actively involved in any determination that the government makes with regard to anything in the airline sector, we're not going to ask her about who shot John, when American was allowed to merge with US Airways, we're not going to ask her what's currently on the schedule, et cetera. And so you'll have to draw whatever inferences you can from her discussion in general about this.

I'd like to start, if I may, by letting Dorothy and Kathy amplify the question that Nancy already started with which is: looking back at deregulation, how do you evaluate it, what surprised you, et cetera?

MS. ROBYN: Let me start by saying that I did my dissertation on trucking deregulation, and so I came along about a year after airline deregulation had past and was a fly on the wall, watching to see whether this incredibly good idea, namely trucking deregulation which economists had been pushing, could actually get through Congress.

In the course of that, doing my dissertation I discovered Nancy's senior thesis at Harvard on trucking deregulation in the Harvard Library. And so we met many, many years ago. And so I look at airline deregulation through that lens as well.

I think I very much agree, I thought Nancy was subdued in her comments; I am more, maybe because I'm used to talking to nonacademic audiences, and because there's controversy about it, I am more exuberant.

I think it has been a resounding success for consumers. The decline in price, the increase in service, in flights, and options, the criticism, and many Democrats who supported deregulation, and consumer groups, I hope we'll talk about this later, have recanted, and I think that has to do with the decline in quality of service that is predictable. It's due largely to the increase in load factor from 55 percent to 80, 85 percent.

Overall, I think airlines are giving passengers what they consistently indicate that they want, which is lower fares at the expense of service. So, I think it is not too much of an exaggeration to say that the back of the plane is brought to you by airline deregulation. It's that 45 percent of the seats that were sitting empty.

I think if, for passengers who complain about the quality of the service, you can pay business fare and you will be paying -- you can get the comforts of flying pre-1978, and you'll be paying about what you would have paid to fly coach absent deregulation. So, can we talk about surprises separately? I'd rather --

MR. GOTBAUM: Sure.

MS. ROBYN: Okay. All right, why don't you introduce yourself.

MS. O'NEILL: Sure. Good morning. My name is Kathy O'Neil. Thanks very much for the nice introduction. I just need to start off by saying that the views that I share this morning are really my views, and don't necessarily represent the views of the Antitrust Division.

Probably as the most junior panelist, I did not bear witness to the regulated air in the same way as some of my fellow panelists, but just to say that having been at DOJ for 12 years, and practiced in Antitrust before that, I'm obviously a huge fan of competition, unfettered competition, and I love to see how competition evolves in the airline sector in general.

MR. GOTBAUM: So, talk about the surprises. I mean this was a good, generic idea, i.e. allow access, lower fares et cetera, but the responses of the industry were not anything that, as far as I can tell, anyone anticipated at the time. They thought that fares would go down, they didn't predict hubs, they didn't predict frequent-flyer programs, they didn't predict the disruption of unions, or extensive consolidation in the industry, et cetera. So, what's the surprise?

MS. ROBYN: Well, I want to answer that question a slightly different way. I will leave it to Nancy to talk about the business operational kinds of things that price elasticity of demand was higher than the CAB had always assumed than it was, the fare dispersion was unexpectedly high, all those kinds of things.

I want to talk about two other. I think looking back on it, spillover benefits that people didn't expect or expect the magnitude of the impact. One is international. Deregulation enabled or forced airlines to be more competitive, that positioned them better for international competition.

And the U.S. Government officials very quickly began negotiating away bilateral restrictions, capitalizing on the advantage of U.S. airlines. And that began a whole new thrust in airline competition, and foreign carriers were forced to privatize, most of them, almost all of them were state-owned, they began to privatize with British Airways in 1983, and so the whole push in the international area was, I think, to some degree an unexpected surprise of airline deregulation.

Also following up on what Nancy said, the deregulation in trucking paved the way or laid the groundwork for deregulation of a whole series of other transportation and non-transportation industries.

Trucking deregulation would not have happened absent airline deregulation. It was a conscious strategy by the Carter administration to take on airline deregulation first because trucking, the most obvious other candidate, had even fiercer political opposition.

I don't think you mentioned this, but airline deregulation is remarkable because it was done over the opposition of the regulated airline industry, and the trade unions. That's normally a formula for political defeat of policy reform.

So, the idea was that trucking deregulation, where you're going up against the even more powerful trucking industry and the Teamsters would be even harder, so let's try to do airlines first. If we succeed there then let's take on trucking. And then, as Nancy said, railroads followed, inner city buses, natural gas, brokerage fees, telecommunications evolved much more slowly.

It began with airlines. When Alfred Kahn was -- when he got the call from the White House asking him if he would Chair the Civil Aeronautics Board, he said -- he asked if he could Chair the FCC, the Federal Communications Commission instead. That was the job that he really wanted. He had been chairing the New York Public Service Commission, he knew a lot about telecommunications, he didn’t know anything about airlines.

He once referred to airlines as marginal costs with wings, and he didn’t view it as his highest aspiration for rich to be able to fly around the world at lower fares on airplanes, given the energy crisis.

So, he wanted to be Chairman of the FCC. And Jimmy Carter said, I want you at the CAB because it is going to start here. It's going to start with airlines, and indeed that is where it began, this huge movement.

MR. GOTBAUM: Let's talk about, before we get to international questions let's talk about the state of competition now. In other words, airline deregulation allowed fair flexibility, allowed access; there have been lots of changes in the structure of the industry, hub and spoke, some consolidation, some new entries, et cetera.

So, I'd like to start, Kathy, by asking you to extent that you can without violating the Department's guidelines, to talk a little bit about, what's the current role of Antitrust, how do you think about competitive questions? Are they limited to mergers versus not? Or are there other practices that you can undertake to spur competition?

MS. O'NEILL: Sure. I'd be happy to talk to that. Starting first with just a little bit of an overview of how we analyze mergers, recognizing that each transaction, you know, presents its own set of facts and idiosyncratic problems for us to analyze. In general, let me look at airline mergers. We look first for overlaps, we look at whether the merger, and where the merger is likely to eliminate, had competition between the carriers, on nonstop routes, on connecting routes.

We look at how the merger is likely to affect concentration at congested airports, for instance, in American US Air we were very concerned about how the merger might impact concentration levels at DCA.

We also look at system-wide theories of harm, so for instance, we examine whether the merger would result in the elimination of a particular disruptive air carrier. You know, what we, in the antitrust lingo, like to call them maverick. Would it involve the elimination of an airline that's more likely to discount, or less likely to follow a fare increase? That's something that we would study, and that would give us pause.

We also look at whether there's likely to be increased coordination through enhanced multimarket contacts. So, what I'm thinking about here, just a general idea is that firms that interact in multiple markets are more likely to pull their competitive punches and accommodate each other on price and on capacity, rather than engage in full-throated competition.

And if a merger has the potential to enhance the overlaps, and here I'm thinking about, or enhance the context, here I'm thinking about the context, not between the two merging parties, but either of the merging parties and their other -- the remaining competitors in the market.

If it's likely to align incentives in a way that the merged firm is more likely to accommodate rather than to compete with the remaining carriers, that's something that we're going to look at, and that could give us pause.

We also look at whether the merger is likely to enhance coordination on ancillary fees, as Nancy was saying earlier, there's been a real proliferation in those fees. They're often set at the system level, and so we're thinking about whether one of the airlines has been historically more disruptive and not following or imposing fees, and how the merger might change the incentives.

So, that's a little bit how we look at mergers. We also look at conduct, so just under Sherman Act, Section 1 and Section 2, Section 1 we're looking at any competitive agreements, Section 2 we're looking for exclusionary conduct or monopolization. But to just take up any competitive agreements, one area of focus, more recently, is public signaling behavior, so in certain industries and I think airlines is an example of this, we're seeing an uptick in public statements, in earnings calls, and other public speeches, that appear to be aimed more at competitors and less at investors.

And there's a concern that market participants may be using their public statements, or the public dialogue, or combination of public and private communication to reach an agreement on capacity or price. This is obviously concerning to us, and just because these statements are being made publicly, doesn't mean that we can't pursue them under the antitrust laws.

Courts have recognized that public statements and announcements can serve as circumstantial evidence of an anticompetitive agreement that's actionable under Section 1, Antitrust scholars have made similar observations, and so that's sort of one area of focus.

You know, another feature of many industries in the airline industry is no exception to this, extensive common ownership across the market participants can be a flag for us, and cause us to look a bit more closely.

So, common ownership in an industry will raise the possibility of active efforts, to coordinate the actions of competitors by or through the common owners. The concern is that the common owners could be playing a role and facilitating an anti-competitive agreement on price, or capacity.

So, there's an increased focus on that type of public signaling behavior. At the same time, I need to acknowledge that those types of Antitrust cases are challenging to put together from an evidentiary standpoint, those types of cases because I don't have the direct communication between the CEOs of the company setting price or setting capacity, rely more on circumstantial evidence. But we are concerned about it, and we will be scrutinizing it.

I think, you know, just to follow up on that, for this type of behavior I would offer some thoughts about how you can, as a market participant, or an investor, or industry analyst, avoid sort of stepping over the line.

Firms, you know, just generally, should be very cautious about making public statements about future capacity levels or pricing. In particular, public statements urging the industry or other competitors to exercise capacity restraint or offering something that could be viewed as a quid pro quo, so I'd be willing to reduce capacity, if you would, I'm amenable to this if others follow. That type of contingency articulated publicly, is the type of thing that is going to raise red flags for regulators, and for those of us in the Antitrust Division.

You know, obviously, firms need to be careful about sharing non-public information about capacity or pricing with investors and industry analysts, because there's a temptation then to share that -- for those common owners, to share that information across firms, and that could result in liability, not only for the market participants, but for the common owners themselves. There hasn’t been a case on that, but there's definitely scrutiny of it.

MR. GOTBAUM: Kathy, can I add?

MS. O'NEILL: Yes.

MR. GOTBAUM: In 2003 I was appointed Trustee and ran Hawaiian Airlines, and Hawaiian Airlines and the other major domestic carrier, which was Aloha -- it no longer exists -- had engaged in basically price competition that it turned out neither of them could afford. So, one of the challenges I had was: how do we raise prices?

I didn’t have to talk to anyone at Aloha. I just went around Hawaii making speeches that unless fares went up Hawaiian Airlines was going to disappear. That's all I did. And then we raised prices, and watched and saw what the other folks did, which is, they raised prices too.

These days all prices we can get online. So, in a world in which every carrier knows every current fare from every other carrier, how do you think about price competition in that kind of situation?

MS. O'NEILL: So, one of the reasons that we worry about these statements, and airlines in particular, is an industry that has characteristics that lend itself to coordination, it's just because there is so much transparency on price and capacity that already exists, so we are -- you can make the argument that you don't have to get together the CEOs in the smoke-filled room to reach the collusive agreement, because there's a lot of information out there, and with some additional public dialogue that offer some sort of a contingency, I'll do this if you do this, you do this and I'll do that.

It's possible to reach a collusive outcome without actually having the traditional cartel setting, but the result from a competition standpoint is still troubling, notwithstanding the fact that the dialog played out in part, publicly. Is that helpful?

MR. GOTBAUM: Yeah.

MS. ROSE: My recollection, but you lived it so you can tell me. There was a very interesting paper on the Hawaiian experience, that first started with the exemption from the Antitrust Laws after 9/11 for intra-Hawaiian traffic, where the carriers were allowed to not just -- were legally allowed to do what Kathy is worried about.

MR. GOTBAUM: Yes.

MS. ROSE: Sit down, talk about capacity, talk about pricing, and then that evaporated, and the fares stayed very high.

MR. GOTBAUM: No. They went up.

MS. ROSE: You're right, they went up because of that -- and also because of the elimination of the coupons, right?

MR. GOTBAUM: No. Because we raised them, in other words --

MS. ROSE: But you eliminated -- I thought there was an elimination of discounts.

MR. GOTBAUM: Yes.

MS. ROSE: Yes. Yes, okay. Until there was an entrant, right. So, at some point, two or three years later a new entrant came into the market.

MR. GOTBAUM: No. This gets to the nub of the difficulty that Kathy is talking about, which is in an industry in which the product prices are public, you don't have to meet in a room, you can engage in signaling behavior publicly. So, I arrived at Hawaiian when the antitrust exemption was ending.

MS. ROSE: Right.

MR. GOTBAUM: And so the question was: what would prices be? My response was, they were currently losing -- they were losing money at the current price levels, with the current price structure. And so I knew that prices had to go up, the question was without the ability to coordinate capacity, what would happen? Hence, making a lot of speeches, and then I can't remember whether it was the day after the antitrust exemption ended, I wanted to be very clear that this was not about -- this was not being done under an antitrust exemption, we raised prices.

We raised prices according to the old structure, which was, basically if you flew from Honolulu to the next island over, which was a 30-mile hop; or if you flew from Honolulu to the big island which was a 300-mile hop, it was the same price.

The pricing system was developed on a bus system model, et cetera. So one of the things we did is, we raised prices and then we started price differentiating, and that was gradually adopted by the other major carriers, which, by the way, was also in financial distress, also went into bankruptcy, and ultimately died, because they didn't succeed in this --

MS. ROSE: Right. But Joshua that was post-9/11, when there was this dramatic falloff in tourism. So, like you can say the airlines in Hawaii were hurting, but how much of that was suddenly it had become an industry that couldn't sustain itself, and how much was -- the industry is very susceptible to demand fluctuations; GDP level, or tourism fluctuations in an area like Hawaii.

MR. GOTBAUM: We should bring that question back when Richard Anderson is on, because in my experience what businesses have to do is, they have to figure out how to maintain some level of profitability when demand goes up and down, and they have some costs which were fixed, and some costs which were not fixed, et cetera. And they do so. The challenge that Kathy has is that part of the pricing is so public that --

MS. ROSE: Well, and Kathy didn't mention that, but the Division had a collusion case based on communication through the Airline Tariff Publishing Bureau.

MR. GOTBAUM: Yes.

MS. ROSE: Which is where the airlines would submit their basis codes and their fares, and use that to communicate, hey, this price war is just because Josh has done something I don't like, don't respond to it. Or, Kathy is really out of line, I'm going to put Kathy's airline at the end of my fare, and we're all going to lower fares against her until she comes back in line. So, the industry has got a history of this.

MR. GOTBAUM: Now, let me ask you a question, Dorothy. I don't think I can ask it of Kathy. But what do you assess -- how do you assess the quality of competition in the industry, in the domestic industry right now? In other words, we have fewer than a couple of dozen carriers than we had 30 years ago. So we've had some consolidation, we have the price signaling conundrum that we've just talked about, in your view --

MS. ROBYN: You're asking me? Yeah?

MR. GOTBAUM: I'm asking you, and I'm asking Nancy.

MS. ROBYN: I think it, it looks strong, so I have not -- I'm not tracking airlines day-to-day the way I did for a long time, but looking at the studies that have been done at the industry, charts, and so forth, it looks strong.

And I'll cite maybe the single-best piece of evidence. The guy who should be here today on this panel is Cliff Winston who sits upstairs, and has been upstairs for 35 years doing the definitive work on airline deregulation. I mean, just absolutely phenomenal work, and he's having back surgery today. So even though he planned this, and has been looking forward to it for months, couldn’t be here.

So Cliff has long thought that we should allow cabotage, is one way to increase competition; that is to allow a foreign carrier to carry traffic, purely domestic traffics. So when Norwegian Air brings passengers from Bergen to Minneapolis they should then be allowed to carry traffic from Minneapolis to Des Moines. And that is not possible, cabotage is not possible anywhere.

So, Cliff did his usual very elaborate econometric study of what would be the benefits from cabotage if you allowed any -- and if you looked carefully at the impact of low-cost carriers in Europe, and the impact of low-cost carriers in the United States, and the impact on fares, and concluded it was around 25 percent reduction in fares here, and you know, something similar in Europe.

So what if you let European low-cost carriers into all the routes that don't have low-cost competition, competition from Southwest or another low-cost carrier in the United States? That number turned out to be, surprisingly small, Cliff was surprised, the benefits to consumers 1.6 billion a year. Why? Because on 80 percent of the routes you had competition from Southwest, or another low-cost carrier, that has been the key to the success of the airline deregulation all along.

For a long time it was Southwest, the Southwest effect, now you’ve got Frontier, Spirit, Allegiant. David Neeleman who created JetBlue is coming along with something else. So I think it is good, I think the key is maintaining low-cost competition, and the FAA froze after the ValuJet crash in the mi'90s.

I was in the White House then, Mark Downey was at DOT, horrible crash, the FAA stopped letting in new entrants, and you could, within three or four years, you could see the effects. You did not have as much low-cost competition, and you began to have pricing issues with the legacy carriers.

So, I think it's strong, but it depends -- competition is strong but it depends on the continued growth of low-cost carriers.

MR. GOTBAUM: Nancy?

MS. ROSE: Yes. So, I just wanted to echo that. You saw that, you know, when I showed you the expansion of market share by low-cost carriers, which took a long time to get up to the level that it's at now. I said that was super important to the industry, and I totally agree with Dorothy, I think that that is fundamental to the competitiveness of airline markets.

I think what goes along with that are a couple of other things. One is access to particularly capacity-constrained airports. Right now we have a system where particularly at slot-constrained airports, operations-constrained airports, but also some others with respect to gate access, it can be very difficult if not impossible for a new entrant to come in and get a toehold. And the FAA operates the system that's got a lot of incumbency inertia in it, which further makes it more difficult. I think that that's an incredibly important thing to worry about.

Kathy and I worked together on the United slots case at Newark, and maybe she'd like to talk about that, but I think it's not just enough to say low-cost carriers are good, we've got to actively do what we can to promote their access to enter new markets, and I would also say, to take a pretty skeptical view at this point forward of any additional consolidation, particularly if it should involve a carrier that its business model is more low price.

MS. O'NEILL: So, just to pick up, Nancy, on one of your points. And Nancy is right. We worked on a case together back in 2015. United was proposing to acquire additional slots from Delta at Newark Airport, at the time United already the dominant position by far at the airport. They held 73 percent of the slots, they were seeking to acquire additional slots from Delta, and we brought a lawsuit seeking to enjoin that transaction.

We actually alleged the monopolization claim as part of our lawsuit. You know, they had 73 percent of the share, United not only sat on the bigger share, but they were under-utilizing and hoarding what they had, so one data point that we've had in our complaint was that on any given day, United chose not to use as many as 82 slots which is more than any other airline had the ability to fly at the airport.

And our concern was that allowing United to acquire even more slots would have further fortified their monopoly position at that airport. So, I mention this because, you know, to pick up on Nancy's point, we are at the Antitrust Division very focused on these slot-controlled and gate-constrained airports, LCCs have been a really important component of competition in the deregulated era, but there are these intractable entry barriers.

So I'm looking for ways, through antitrust enforcement in the case of the slots case at Newark Airport, but also, you know, regulatory reform that focuses on reducing those, or removing those entry barriers so that LCCs can get in there and actually compete.

And just to, you know, briefly tap the benefits of that one case, so we sued them, and on the eve of trial, the FAA actually announced that it was going to lift slot controls at the airport, which was an amazing thing. So, they did lift slot controls, and I think it was October 2016 and, you know, it's been a really -- that's been really impactful for low-cost carriers, and for preparing for consumers flying in and out of Newark.

I saw one metric recently that the average fare at Newark Airport is down on order of 12 percent -- was down on the order of 12 percent in quarter one of 2017 as compared to quarter one of 2016, and that's across the airport. It was down more significantly on the routes where LCCs actually were able to enter and begin providing service.

So, just that decision has actually unleashed meaningful competition at the airport and, you know, I think at the Division we definitely are looking at the slot transactions, and focusing especially at airports like Newark where you have a very dominant carrier seeking to enhance its position.

MR. GOTBAUM: This provides the perfect segue for a discussion about the effect of this on the rest of the system. In other words, Nancy, you put up the slide that shows that ASMs increased -- sorry -- available seat miles, departures increased, passenger increased, et cetera, so this unleashed a lot of demand.

MS. ROSE: Yes.

MR. GOTBAUM: And then the question is -- Dorothy, yes?

MS. ROBYN: So, I want to invoke Fred Kahn again.

MR. GOTBAUM: But let me just lay out the question --

MS. ROBYN: Yeah, okay.

MR. GOTBAUM: -- for those who don't know how long you’ve been working at this. Once we allow for more demand that puts strains on the system.

MS. ROBYN: Right.

MR. GOTBAUM: In terms of airport capacity, in terms of air traffic capacity, et cetera. And even though, Dorothy, you want to talk, I know about the air traffic control system, et cetera, et cetera.

MS. ROBYN: No, no, no. I'm going to talk about airports, at first, yeah.

MR. GOTBAUM: Yes, but let us start with: what's the effect of this on airports?

MS. ROBYN: Yes. I'm going to invoke Fred Kahn, again, many times this morning, but on the eve of deregulation, March of 1978, Fred spoke at an FAA Conference, he had been talking frequently, corresponding with the FAA about what was going on, and the FAA, he was already starting to deregulate administratively, traffic was starting to go up, and the FAA was freaking out, and they were saying, whoa, whoa, we don't know how to handle all this traffic.

Can't you do something about this? Can't you, you know, coordinate the flow, can't you let the carriers get together and coordinate?

MR. GOTBAUM: Absolutely!

MS. ROBYN: And he gave this speech, and he said, we're trying to introduce market principles, market forces in this industry, and the last thing I'm going to do is rely on an administrative mechanism to reduce traffic.

We're unleashing enormous demand for air travel, and indirectly for infrastructure, and you guys need to respond on the supply side, the infrastructure supply side, and specifically what he meant was, you need to abandon your policy which he considered perverse, and I agree, of weight-based landing fees.

So, charging for landing, aircraft landing, based on the weight of the aircraft, and replacing that with congestion pricing with a charge that recognize that there will be times of day when the runways are in great demand, and aircraft should have to pay more at that time of day than off-peak periods.

And he said, he said at that conference, "What if we priced everything that comes out of the cow at a uniformed price per pound?" And he said, he said at another point later, "We have no hesitation in other markets about letting price rise to equate supply and demand of scarce goods, why should runway capacity be any different. Supposed we charge for oil paintings by the pound, you'd have not just congestion, but riots at the art dealers selling Van Gogh paintings so --"

MR. GOTBAUM: And Fred's suggestion became the uniformed practice in the nation?

MS. ROBYN: Yes. So the FAA completely ignored his recommendation, which he later expanded to included efficient pricing of airways and also spinning the air traffic control system off. So, we are in -- we still use -- DOT in 2008 did allow for a limited form of congestion pricing. No airport has taken advantage of that new policy.

And I honestly don't know to what degree that is because the policy is actually not that liberal, because there is a lot of airline resistance to congestion pricing, the airlines capture the scarcity rents, from flights at congested periods, so if you impose congestion pricing, that shifts some of those rents from airline to the airport. So there has been long-standing resistance from airlines to congestion pricing.

When I was here as a Guest Scholar I wrote and op-ed in favor of congestion pricing and got attacked by the Airline Trade Association --

MR. GOTBAUM: So, in addition to pricing?

MS. ROBYN: Yes.

MR. GOTBAUM: Did the airports increase capacity?

MS. ROBYN: Yes -- no. No. I mean we're kind of stuck where we are, and so we have very irrational, from an economic standpoint, pricing of this very -- of the scarce resource in the aviation industry, runways and airways, and I think gates are now almost as much of an issue as runways, and that has been a real limitation on the growth -- under deregulation.

MR. GOTBAUM: Talk a little bit about capacity and airports, and capacity and the air traffic control system. At some point you can advertise your --

MS. ROBYN: Yes. Josh is referring to this, we had this conversation 35 years ago -- 25 years ago, about spinning off air traffic control, and I worked on this, and we tried to do this in the Clinton administration. The air traffic control system is not inherently governmental, the regulatory part of the FAA that's inherently governmental, that safety regulation.

The bulk of what the FAA does, 35,000 employees, 500 towers, et cetera, is key playing safely separated. That is not inherently governmental. We tried in the Clinton administration to spin that off as a government corporation, the rest of the world -- we were one of the few at the time, looking at that policy option, the rest of the world has no gone that way, we have not. We were defeated and even more serious effort to do this, last year was defeated.

So we're laggards when it comes to infrastructure, the infrastructure policy accompanying airline deregulation; airline deregulation, the part that has been governed by the private sector, very successful, the part that the government controls, infrastructure, has been a laggard.

MR. GOTBAUM: Are there comments, or should we -- I want to go back to a point that you made, Nancy. I want to talk in general about consumer protection. The old Civil Aeronautics Board protected consumers against low prices and against overcrowding, that problem has been solved, the question is, we now have a new generation of consumer complaints.

The Congress of the United States legislated and said that in the future United Airlines could not deplane a passenger after that person had been put in. There are complaints, even from, ironically, non-economist Brookings Fellows, that the current system, because of its pricing, is abusive of consumers that -- so talk a little bit, it would be interesting, about consumer, what degree of consumer protection, if any, is needed beyond what is currently there.

MS. ROSE: So, this is in an area that I have followed particularly closely, I would say I think airlines have kind of shot themselves in the foot, and many times with respect to some of these issues, they are fundamentally a consumer service, or a company. You know, they're providing transportation, but they’ve got this very close interface with consumers who seed a lot of autonomy -- autonomy and control when they basically, walk through the TSA screen.

And that, I think, also research has shown suggests that people get more tense and fraught when you don't feel you’ve got much agency and control.

So, I think some of the issues that we've seen, and that now get amplified in social media, or ones that the companies, it's in the companies' self-interest to have avoided those, I'm not quite sure why it seems to take them so long to get to it.

I'm thinking about things like forcibly deplaning passengers, or some of the other aspects of that. I'm more interested in some of the stuff that's come under the consumer protection rubric, but is more focused on pricing with respect to ancillary fees, where I think that's less consumer -- it's consumer protection I suppose in a way, but I'm concerned that what we're seeing is a suppression of competition by pushing more of the revenue into the these various fees.

You know, it started with cancellation fees which I think are really just a way of enforcing the price discrimination regime, and I don't have a tremendous amount of problem with that, per se, as long as you what you're getting.

Moving into the baggage fees, again, maybe not a lot of concern about the checked bag fees if they're disclosed, but there's this pushback by the industry to prevent transparency or disclosure, that I think should immediately get you asking why, and my concern is that the why is, we compete a little too aggressively if it's clear to passengers that this low ticket price that we're advertising isn't really what it's going to cost them to fly.

MR. GOTBAUM: Let me pushback a little bit.

MS. ROSE: Yeah.

MR. GOTBAUM: A couple years ago, I bought a car, you have some nominal transparency about what various models will cost, and then you go in, and they talk about options. And there are dozens of options, there are so many options in fact, that people have gotten confused, and there are options, packages, so you have low, medium and high option, roughly equivalent to, say, economy, business, first, et cetera.

But the point is, there are lots of choices, it is not at all transparent, because you don't see what the various options cost until you are sitting in the showroom and they've already picked a car. So, at least, as regards airlines, when I click and say, I want to go from Washington to Chicago, on airline X, I get the price, they then say, do you want to pay for bags, et cetera; it seems to me that that is more transparent than what's going on in the auto industry.

MS. ROSE: I'm not sure we're going to hope up the (inaudible) pricing of automobiles as a model, right, and in part because they may tell you what those options are priced at, but I think relatively few people are expecting they're going to pay the list of price of the options on a car. So, there's a whole other layer of complexity there.

As I said, I don't know that I'd want to hold that up as a model of -- as a standard for the rest of the economy. I think the issue with air travel is in part, right, you're purchasing a contract for carriage, and that contract is coming with a lot of pieces that you're not perhaps -- aren't apparent to you, and is less that, whether the airline wants to disclose it or not, if the airlines are actively -- my sense is -- actively discouraging, or in some cases impeding, say, search engines from disclosing that information, or not providing them with the access to it.

And so, you know, just if you think about a car purchase, and my husband recently purchased a new car, he went online and got all of the information online about what the various option packages were at dealer cost, at list, and so forth. I think if you had a situation where companies, let's just take airlines, are impeding access to that information, we might be concerned about its implication for competition.

MR. GOTBAUM: Okay. Let's accept that for purposes of discussion. Who should do it? We no longer have a Civil Aeronautics Board, we have a Department of Transportation, we have an --

MS. ROSE: Who should do what? Set the standard?

MR. GOTBAUM: In other words, if you're saying that the standard of transparency on airline service pricing is in adequate, who would do the regulation in your view? Do you leave it Congress?

MS. ROSE: Well, DOT had a rulemaking which got postponed, and postpone, and postponed until I think it's now been withdrawn. They've got authority to issue those rules.

MR. GOTBAUM: You're saying the authority is there, the will isn't?

MS. ROSE: That was my sense. I don't know; others?

MR. GOTBAUM: We can't ask Kathy this question.

MS. ROSE: No.

MR. GOTBAUM: Dorothy do you have a view?

MS. ROBYN: I don't know. I think you have to be wary of unintended consequences. When you -- first of all, I think -- you know, I always worry that the discussion of these issues becomes a distraction from the more fundamental issue of infrastructure, and other more -- what I view as more serious limitations on competition.

But I think you have to be aware of unintended consequences, and the classy example in this context is DOT regulation, or tracking of on time performance, so that the airlines are now, their on-time performance records are very good, but they pad their schedules as a way to ensure that their on-time arrival is good. Yes.

MS. ROSE: So, I don't see that as a problem. I see that as truth in advertising. So, I understand that the incentives that it creates, and we can call it padding, but what it's saying is, if I want to know that I'm going to be at my destination by time for a 9:00 a.m. conference to start, then I want to know really what the airline thinks that its likely arrival rate will guarantee me as the time to arrive.

And if I'm early, that's great, but if I'm late it's a problem. And so I'd much rather have them schedule it that way. I thought you were going to say what they sometimes seem to do is game right around that 15-minute mark, which there's some interesting economics work that suggests that goes on.

MS. ROBYN: Yes. I think schedule padding is not -- I mean, if it leads them to be more accurate, but padding implies they're building in some inaccuracy. Extra time that they don't think they will need, but they're just in case. And so this is why it is not uncommon now, to arrive at an airport and have the pilot tell you our gate is not ready.

And then you sit on the tarmac for 15 minutes waiting for your gate to be ready. That's a function of schedule padding. So I don't think that's --

MS. ROSE: It's partially, it's a function of, I think, gate capacity being very, very tight, right?

MS. ROBYN: Well, yes.

MS. ROSE: So, to go to your other point, I think if the gate capacity were not so valuable, the gate would be ready.

MS. ROBYN: Yes. Both true --

MS. ROSE: But could I just emphasize. I take your point, we should worry a lot about unintended consequences, and I will take an example of this, which is less ancillary fees, but just this pricing transparency, which is my understanding that some airlines are either actively withholding or considering withholding access to their fare schedule to some of these search engines.

And that something that makes it more difficult for consumers to search, to discover who's offering the lowest fare. I think part of it is this effort, and I think of these structures the same way, to drive consumers directly to the airline site, and reduce search which reduces price competition. And I just -- all I'm saying is I think we should be wary of that. Just as we expand infrastructure so that we can ensure access to new entrants, we should be wary of something that's designed to reduce -- there may be arguments for it, but we should be wary of it.

MR. GOTBAUM: There's no way we have enough time, and I'm not sure I have the intellectual capacity to get into the relative economics of a platform like Expedia versus an airline's website. It's a discussion to be --

MS. ROSE: Understood.

MR. GOTBAUM: Yes. Yes. I want to raise a couple of more issues for you. You both made the point that one effective airline deregulation in the United States was a change in the competitive structure outside the United States. However, that change is a long way from as complete as in the United States.

So, how do you think about the negotiation of open skies agreements? To what extent do you think the government should -- and I'll warn you, Richard, this is a question obviously that's also for you. What should, put aside the deregulatory role domestically, how do you encourage competition internationally?

Do you take the point that Cliff was thinking about, which is to negotiate cabotage, open skies agreements? Do you think about changes in ownership limitations? How should we get the benefits of competition internationally that we're getting domestically?

MS. ROBYN: Well, I would put, invest most of my political capital in open skies agreements, because much as I think we should eliminate ownership restrictions, and restrictions on cabotage, I think they fall in the category of a high degree of political difficulty for the U.S. limits ownership by foreign entities to 25 percent of equity ownership, and foreign entity cannot control -- have control over the airline.

So when Richard Bronson wanted to create Virgin America, he could not control it. He had to give up control in order for that to be established and when the decision -- Virgin America decided to merge with Alaska Air. He opposed that, but he couldn’t do anything about it, because he wasn’t -- he had no control over it.

I think that's crazy, we've gone and fought that for a long time, we don't have flagged chemical companies, we don't have flagged steel companies, why do we need flagged airlines. I mean, I can answer the question, but there's --

And then cabotage, there is no political constituency for elimination of restriction on foreign ownership, the best opportunity was at the point in 2007 where we negotiated the US-EU Open Skies Agreement had the EU held out for that, but that did not happen. And so I see no opportunity for that, similarly, cabotage, I just don't see any -- open skies agreements have been tremendously successful, Cliff in the study of cabotage says they’ve reduced fares -- open skies agreements have reduced fares by 20 to 30 percent.

I think they’ve been tremendously successful. So, that's where I would put the emphasis. We made it a huge push in the Clinton administration, the first open skies agreement, with the Netherlands had been negotiated at the tail end of the Bush administration. We made the decision that the airline industry key to the economy, big push on open skies agreements. And I think every administration since then has kept up the pressure.

MS. ROSE: I could not agree more with that. I would say with respect to what we mean by that, and sort of the current political climate is, I'd say two things worry me a lot. One is, kind of backdoor effort that I see among the Legacy carriers, to cabin in, and I'm thinking particularly of the stuff we keep reading in the newspaper about the Gulf carries' action, which I think is not just about the Gulf carriers, but I think it's about legacy carriers cabining in the remaining domestic airlines that aren't part of these three international alliances to reduce their competition.

And I mentioned the problem of domestic fees in international operations, and how those two networks are connected in the success of an airline, or the failure as in the case of TWA and Pan Am. So I think that's a lesson we should learn.

The other thing that I think perhaps it's time to reexamine is that in exchange for open skies, the Department of Transportation granted antitrust immunity to a lot of these international alliances. There are now basically three groups that almost everybody is in one of them.

Three, it's not a lot competition if you kind of think that the antitrust immunity is basically turning it into three competitors. I think it's time, from a policy perspective to reexamine that immunity. I don't know that there's the political appetite for it, but I think if we were trying to think about what's the next frontier for competition internationally, that would be my pitch.

MR. GOTBAUM: Okay.

MS. ROBYN: I think just the -- I think the really, bright light on the horizon in terms of international, is the long-distance point to point competition. Companies like Norwegian Air that are doing in the long distance point-to-point market, and the international market, what's self-listed domestically. Now, you know, they may run into problems over time, but that's a function as so many developments of technology, of new aircraft that allow -- for smaller aircraft that allow for that sort of long-distance point-to-point competition.

But that's hugely important. Those markets have been ripe for disruption, and that is now happening in a big way.

MR. GOTBAUM: I'm going to ask one more question, and then I want to warn you in the audience that you will, following the Brookings tradition, think about a question to ask, but before we open it up to general questions.

I was a junior staffer in the Carter administration, which was famous for not getting things done, even though, in fact, as Dorothy pointed out, he had got a lot done. My question is, maybe to Dorothy, but could airline deregulation be enacted today?

MS. ROBYN: Yes. I hadn't thought about that till I got your question this morning at 8:30. At first I want -- an advertisement for Stu Eizenstat's terrific new book on the Carter presidency, which has a long chapter as Carter as consumer populist, but it's mostly about deregulation, and mostly about airline deregulation.

I don't think it could happen today. First of all, there was an unusual confluence of circumstances, macroeconomic ones, very high inflation, high interest rates, and airline deregulation was an answer to that. But I think politically, you're getting more at the politics of it. Airline deregulation, a friend of mine, Jeff Shane, a leading light in the international aviation, has referred to it as the public policy equivalent of the bumble bee flying.

Just as the bumble bee should not be able to fly according to the laws of physics, airline deregulation should not have happened according to the laws of politics. As I said earlier, you had strong opportunity by the regulated industry, and the trade unions, and the public interest as reflected in this amazing coalition, conservatives Ralph Nader, American conservative, but their interest was diffused.

And somehow the public interest defeated the entrenched interests, and I am not sure it had a lot to do with the role of economists, with economists both in the role of academics and actually in the policy realm. I think it was a high watermark for the impact of microeconomics and the policy debate. I'm don't think --

MR. GOTBAUM: I'm going to step out of the Moderator's role, and say I think it had as much to do with the fact that Senator Edward Moore Kennedy, a Liberal Democratic icon --

MS. ROBYN: Yes. Yes.

MR. GOTBAUM: -- was convinced by his then Counsel that this was something which would actually benefit consumers, and it happened to come up at a time when there was galloping inflation.

MS. ROBYN: Yes. Yes.

MR. GOTBAUM: And so it --

MS. ROSE: Yes. Well, galloping inflation and very high energy prices which are an important component of the airlines.

MS. ROBYN: Yes

MR. GOTBAUM: Of airline costs, yes.

MS. ROSE: And of trucking, and I think that was not irrelevant to that pressure as well.

MR. GOTBAUM: I agree.

MS. ROSE: I agree, I've always thought that a pivotal, but I've also thought at some level, that Fred Kahn, by starting to change the rules of the game inside the CAB using the flexibility he had, made it less comfortable for some of the players to sort of continue in that mode, or maybe a flip of it is to say, made some of the incumbent airlines think: do you know, I might make more money if I played this game as opposed to the regulation game.

MS. ROBYN: That's a very good point, and Darius Gaskins did the same thing at the ICC, the FAA did not do that when it came to air traffic control reform. I think they could have, they did not. The Trump administration, the FAA did not do that.

MR. GOTBAUM: Okay. Let's open it up to questions. This is Brookings. Brookings believes that everyone has the right to interrogate experts. However, you start by saying who you are, you ask a question. A question is a statement generally never more than 30 seconds in length that ends with a question mark. (Laughter)

QUESTIONER: Mark Downey, a veteran of both Carter and Clinton, worked on deregulation. One of the arguments that was constantly raise with us when we were trying to sell the concept was: it won't be safe. And frankly we said, yes it will, the FAA will be on the job.

Then I came back 12 years later, and we looked around at what was going on, notably the event that Dorothy mentioned, ValuJet and said, this is a problem. Then we heard from the FAA, no it's not, the system is safe.

At which we said, we need to relook; and in fact they did relook, it took a couple of years, it is not much safer than it was before, but how do we do that ahead of time. I don't think we can let the market deal with the safety, I think we have to have some assurance for the public. How do we do that well?

MR. GOTBAUM: How do we do?

QUESTIONER: Not just true of aviation, I think about natural gas?

MR. GOTBAUM: Yes. So what do we think about safety regulation as opposed to access regulation?

MS. ROBYN: Well, I agree. That is an inherently governmental function. I think getting the FAA out of the business of air traffic control it allowed them to focus on being a safety regulatory agency. I don't know how to answer the question more generally, I mean, the safety record under airline deregulation has been extraordinary.

I think a lot of that has -- I mean it has to do with the FAA, I think it has maybe more to do with the improvement in equipment, particularly engines, also aircraft. I mean it reflects a lot of things, and I think the same is true in any other sector.

MR. GOTBAUM: Yes, sir, in the back?

MS. ROSE: Can I just take a --

MR. GOTBAUM: Oh, sure. Go ahead.

MS. ROSE: I've done some work in my distant past, on airline safety, and I don't think there was indication in any of the statistics, that there was a systematic decrease in safety. In fact if anything increased, it seems as though. And I just want to highlight that, as Dorothy said, safety regulation didn’t change, maybe FAA attention sort of slipped, and I don't know enough about the ValuJet -- I know about the ValuJet crash, I don't know about the FAA investigation of it.

But I would say in other industries so, for example, in electric utilities with respect to nuclear power plants, we've seen an increased safety record as the market, sale of electricity has been deregulated. So don't think there should be any presumption that because a product market is competitive the safety function is impaired, the government's regulatory safety function is impaired.

MR. MOAK: Hi. I'm Lee Moak, I'm the Former President of the Airline Pilots Association, a big fan of deregulation, it's provided a competition, we really need it, and if we didn’t --

MR. GOTBAUM: Can you talk louder or into the microphone?

MR. MOAK: Lee Moak, Former President of Airline Pilots Association. I'm a fan of deregulation, without it we wouldn't have healthy, competitive airlines like we have today. But for the panel, how do you reconcile your views on celebrating 40 years of deregulation, when during that period of time we've had over 200 bankruptcies, and liquidations in that period?

And now it seems like what we're hearing is an advocacy for regulation in the format that you would be picking winners and losers. So how do you reconcile your views on that?

MS. ROSE: I'm not sure I understand the last part of your question, of the advocacy for picking winners and losers.

MR. MOAT: In regards to you want to regulate slots at airports, you used the term, the labels, legacy, low-cost, ultra-low-cost, when in reality fuel is a constant, and that relates to costs related to labor or new startups. So, how would you reconcile your views on picking winners and losers, because you seem to come across that way, in advocating for that?

MS. ROSE: So, I do not mean to be choosing for wins or loses, I'm merely saying that I think that access to airport infrastructure is really important. I think that if the -- I will say, and I guess I could use network, and non-network carriers, and not all LCCs are actually low cost, or low fare. I don't think there's any problem with that, I think what we've got is the market is going to pick the winners and losers, as long as we have a level playing field.

Also with respect to bankruptcies, I have a student, a former student who's a Professor of Finance at Northwestern University, who's done some interesting work on the intersection between capital market structures and labor, and in part this work came out of discussions that he and I had about the airline industry.

And the question as to whether some airlines were using high degrees of leverage to give themselves an advantage in bargaining with their unions, suggesting that the bankruptcies may be, in fact, an outcome that they're willing to tolerate, because it lets them squeeze more out of labor.

That's not something that I'm advocating as a strategy, or that I would necessarily weigh in on it all, but I think it's an interesting hypothesis, and he finds at least some suggested evidence across industries, that where unions are strong companies may be leveraging up as a way of saying to their labor, we can't pay higher wages, we don't have free cash. So, I don't know if that's an interaction with some of the labor issues or not, but it's an interesting hypothesis.

MR. GOTBAUM: This gentleman?

MR. LEOCHA: Hi. I'm Charlie Leocha, I run Travelers United. To your question that you asked: who would take care of ancillary fees in regulating that kind of material? It clearly falls under the Department of Transportation, and it's under the category of Unfair and Deceptive Practices.

I think that a lot of what we end up with is, there are two different says for deregulation, where deregulation only works when we have transparency, and by eliminating ancillary fees from all of the pricing, we don't have anything going on. That's answering your question. And then when we look at the overall section, we've got someone from Antitrust as well here, and we got to the discussion about the airline slots, how does DOJ fit into the question of airline slots, outside of a merger?

And do you see them, because we've got big problems in New York and DCA, we had a merger that fixed a lot of those. But do you that DOJ has a role to play in dealing with airline slots? Or do you think that DOJ has any role to play in dealing with ATI, with international sites?

MS. O'NEILL: Sure. On the question about airline slots, I think I could point you to both mergers where we have, as a remedial tool, sought divestiture of airline slots in part to remedy the anticipated and the competitive effects of a merger, so we might -- there can be a role for soft divestitures in connection with transactions.

We were talking a bit before about the case that Nancy and I worked on together at Newark Airport, which was a slot transaction, and we have the ability to challenge the slot transaction. And so we're in that case, and in other cases where there's a dominant carrier at the airport and the transaction promises to entrench or fortify that that dominant carrier's position, there's the ability to sue to enjoin that under the antitrust laws, and we've done that in the past, and I imagine that we would, in the right circumstances, be willing to do that in the future.

Of course we don't regulate slots, and so, you know, FAA, DOT, they're really the regulators here, but there is, you know, setting aside antitrust enforcement, there is room it would seem for some regulatory reform, but could encourage more efficient slot usage, and gate usage, frankly.

MR. GOTBAUM: Great.

MS. O'NEILL: I don't know if that's helpful.

MR. GOTBAUM: We have time for one more; the gentleman -- Yes.

MR. GOTBAUM: Before we started this, I said to Anna, you're giving us an awful long time to talk. I was wrong. I just want to say that for the record.

QUESTIONER: Thank you. I'm Alex Rolf, a frequent traveler between Atlanta and the New York area. I am into LaGuardia because of its historical placement from the 1920s. I know we can't change locations of the airports typically, but I'm very cognizant that my flight often is faster than the time it takes me to get into city centers where I travel.

And also where that, in the '60s, and '70s, where it's much more robust, helicopter transportation between these points at a reasonable price. Is there any interest or history of the airline industry investing in some of the emergent technologies to take away friction in that process? And one of those being replacements for helicopters, drones, that can carry passengers from these locations, a la, the Pan Am Building in Midtown Manhattan, which is no longer an option for consumers.

MR. GOTBAUM: Anybody wants to?

MS. ROSE: Did you know about that?

MS. ROBYN: I don't. Richard is nodding, so, I may take this -- but it does prompt me to say something that I didn’t get a chance to say. And that is I think, you know, technology is a game changer, and it's why I'm always (inaudible) to lock in on particular policy solutions. I mean, we worried a whole lot about computer reservation systems, and so did DOJ back -- I mean, who even uses that term any longer.

I was talking to somebody, an airport consultant yesterday who said, the biggest problem airports face now is that all this new parking they’ve built is sitting empty, because everybody turns in an Uber or a Lyft, so that is -- there is now a service Kiwi.com that allows you to do your own international interline fare in their airports that will provide insurance.

So if you miss a flight you're guaranteed a seat on -- I mean, the technology is bringing on new solutions, and so we need to be careful whether it's airport planning, or public policy about assuming that current technology is going to persist.

MS. ROSE: So, I thought what you were going to say is, it's not just airport and air traffic control infrastructure that we've underinvested in.

MS. ROBYN: Yes, that's right.

MS. ROSE: I completely share your experience particularly in the New York area. I think it's symptomatic of an under-investment in infrastructure for surface transportation as well. Or as you're more imaginatively suggesting perhaps it's not surface, but I think it's part of just a generic problem that we have in this country with having under-invested in infrastructure.

MR. GOTBAUM: All right. Let us move to hear the people who actually do provide the services' view of this. Let us thank the panel, please.

(Applause)

MR. GOTBAUM: My primary contribution to this event today was in answering Adam's question of, shouldn't there be someone from the industry who talk about regulation. I'm pleased to say (no audio) for me was Richard Anderson. Richard has a long, very distinguished history in the aviation industry. I first met him when he was at Northwest but he had experience before that. Then he moved to Delta and was the Chief Executive at both of those airlines and as a result, he has experienced with all the adjustments of the industry in the last 30 years. That was benefit one and two and three and four. Benefit number five is that for reasons that are known only to him, he left the industry and accepted the job as Chief Executive of Amtrak. And as a result, we can ask him questions without his worrying about the effect on Delta stock. So without further ado, Richard Anderson.

MR. ANDERSON: Thanks Josh. It's a privilege to be here today and if I were going to acknowledge someone in my remarks it would be Mike Lavine. So, I had the good and distinct pleasure of working for Mike being the brunt of Mike's anger from time to time but also had the opportunity to learn a lot from him about deregulation. I started in the industry in 1987. I'm from the Criminal Courts building in Houston, Texas to the Continental Headquarters just west of downtown. In there, I met Mike and Ben Hurst and Phil Banks and Barry Simon and Frank Lorenzo, a lot of players that had a significant role in the deregulated world.

So, by all measures, I agree with Dorothy. It may have some messy aspects but by all measures, deregulation has been a real success. And if you think about the industrial organization, we've evolved to four large U.S. carriers, two strong national carriers, one on the west coast, one on the east coast and four low fare no-frills low-cost carriers with Spirit, Frontier, Legion and Sun Country. Domestic fares if you just look at the data and the institution was kind enough to go do research for me because we just track trains at Amtrak. I should say that I'm going to be very objective about what I say. I have no affiliation at all with Delta and haven't for a couple of years. Even though I in essence report to Amtrak, I am not paid at Amtrak. So, I'm an unpaid volunteer at Amtrak. I sort of approach this and only did it because I can be pretty unabashed.

So, fares sort of domestic air fares and you've got to be careful about fare data. Averages are what they are, they're averages. A lot of times they don't always fully tell a complete story but down about 46 percent. If you looked at open skies markets internationally basically, I think it is more than what Dr. Winston discovered. I actually think that you'll find an open skies markets that you're going to go to probably 50 percent at the deep discounted end of the fair spectrum. Particularly given that international travel for a leisure traveler is much more advanced purchase. People tend to really plan out ahead of time.

So, if you look at the purposes behind the Deregulation Act, the first was the maintenance of safety as a highest priority. I would offer that the industry has gotten much more safer as a result of deregulation. A little bit of anecdote and a little bit of data. If we go back and look at the data, in 1960 there were 31 fatal accidents per 10 million departures, so a pretty high number. If you go from 1960 through full deregulation in 1982 you see a precipitous decline. Part of this is, and Dr. Rose was right, these are consumer companies. This is a business to consumer company. If you are not safe you are out of business. If you look back in the late eighties and nineties, three carriers had kind of a tough go of it. I was working at one of them, Continental, we had a couple of accidents. Delta had a series of accidents and U.S. Air had a series of accidents and it basically takes your business away.

So, at a core, the core product in a deregulated market first and foremost is safe operations. And the industry actually evolved significantly with flight operations quality assurance programs, aviation safety action programs and then in the last three or four years, the SMS programs. The ValuJet accident resulted in because one of the big shifts that occurred in aviation was airframe maintenance has essentially been completely outsourced now. In 1978, carriers maintained their own airframes. Now, most all wide bodies are done in Singapore or Hong Kong or China and narrow bodies are done south of the border.

But what happened was, our regulatory regime didn’t keep up with the substantial maintenance provider which is a set of regulations that came out after the ValuJet accident. So, I would submit that actually in a consumer business and you’re seeing the tech companies go through this right now, you can’t lose the confidence of your customers. And I would actually argue that if you looked at the data and how the industry has evolved with SMS programs and adjust culture approach, deregulation has actually done a really good job of compelling investment where it should be which is in making the operations safer.

If we keep moving, slightly different view than the panelists on infrastructure investment. Infrastructure investment is actually a huge number. If you looked at the 30 largest hub airports in the U.S. since 2008, over $120 billion of investment has either been put in the ground or in terminals or is planned. Let’s just go down. Seattle added another runway and right now is rebuilding its international terminal. Los Angeles is going through a complete revamp of all of its terminals and building a second addition to the Tom Bradley terminal. Salt Lake City is demolishing its entire terminal and building a $2 billion new terminal facility. I can keep going down the list. We added Denver Stapleton Airport. It's going through a huge rehab right now. Minneapolis, we did $1.8 billion -- in 1995, we adopted the 2010 plan and put almost $ 2 billion including a new runway and completely rebuilding all the terminals and building an LLC terminal. Because at Northwest, we never had enough gate capacity in the Lindberg terminal. We supported the construction of the Humphrey terminal which is now where Southwest, Spirit and all those -- those carriers have their own terminal.

You can go around the United States and you can pick whatever airport, Miami, well it may have taken 20 years. They did completely rebuild the facility. Washington National got rebuilt. Atlanta before I retired, I signed a $6 billion 20-year commitment to add a sixth parallel runway, had already built a fifth. If you look around the U.S. it's probably the one area of infrastructure that's funded. The main constraint that you suffer in infrastructure in the country is in the northeast corridor. And that's because we're not going to put a runway in the Potomac and no congressman wants to drive to Dulles. We found that out after 9/11, right? What airport got closed and opened really fast. Because if you think about a 180 degree turn at 500 feet onto a short runway, there is a lot of accommodation that's made here.

Newark is a one runway operation. LaGuardia really is a one runway operation. Teterboro interferes with both of them, Philly is nearby. We have a location and congestion problem in the northeast that tends to cascade to the rest of the industry. But I would submit if you just looked at the data from AEEE and the individual airports there has been a massive bolus of investment in airports in the United States. The investment has been in the favor of the consumer. Because what we've done is put really high-end restaurants and high-end facilities all over the United States and moved the food off the airplane into good restaurants at airports.

If we keep moving through the other indicators and Dr. Rose had a good stat on this. 1978 there were 275 million in plane passengers. 2033 we're projecting the most recent FAA forecast 1.2 billion in plane passengers. So, tremendous growth and tremendous demand. Product. Now this is interesting. I tended to do things based on data and probably the best indication of looking at how consumers view the industry is one, the tremendous growth in enplanements. But number two, let's look at J.D. Power data. They do the most statistically significant and comprehensive surveys of passenger satisfaction. In 2006, the J.D. Power survey, it's 1 to 800, 800 being perfect. We were at 692 all in U.S. airline industry and in 2018, the number was 762.

So, the last decade or so have allowed carriers to pour enormous amounts of investment into new airplanes, entertainment on airplanes, clubs, technology because there is a real battle that goes on in the marketplace around customers. I can just tell you as a one-time competitor, the marketplace decides if you pull somebody off of an airplane against their will. Whether you're going to still have as high a unit revenue or sell as many tickets. So, the marketplace might be a little bit messy but there is a lot of variety out there. Southwest won't let Expedia have any of their data. You've got to go to Southwest.com. JetBlue has more room. American Airlines tried more room in coach in the early 2000's. They took tens of thousands of seats off their airplanes on the theory that they would be able to take market share. They took no market share. They couldn't get paid for that because consumers tell you what they want to get paid for. And how pricing has evolved is evolved the same way that all consumer pricing in America is evolved.

iPhone is now out with a low discount model. Marriot has Courtyard, J.W. Marriot and the Saint Regis. The challenge you have in an airline is consumer segmentation has to happen on the same piece of real estate so the segmentation piece gets more difficult. But the marketplace is going to decide whether United Airlines is penalized for how it treats its passengers or pets, whatever the subject is. Of all the industries, the airline industry seems to get covered more than just about any other industry. So, there is great information in the marketplace for good carriers.

I can just tell you that my view always was, even back long ago, is that you're flying to the same airports in an airplane made by either Airbus or Boeing. So, if you wanted to win in the marketplace you had to distinguish yourself with your customers and you had to win in the marketplace.

So, let's talk about what deregulation brought. First the hub and spokes system. Actually, the airlines did not invent the hub and spokes system. The hub and spokes system was invented by railroads and before railroads by shipping companies. So, the notion that you would get indivisibilities which is something I learned from Mike Lavine that the airplane that was going from Minot, North Dakota to Minneapolis carried every passenger that was going to Amsterdam, London, Ft. Meyers and Oklahoma City. They all got on one airplane in Minot or Fargo and those indivisibilities are what make hub airports so efficient. So, hub and spoke both domestically and internationally have made a really big difference.

And I give one anecdote there. I did get to know Mr. Nirop who was sort of legendary at Northwest. It was the one carrier that was always financially successful. I got to know him and I got to know Mr. Garret and they were both regulated era CEO's and they both independently at different points in time told me that when the industry got deregulated, they didn't know what to do. They had spent all their time in a world of the CAB setting rates, routes and services and didn't really know how to evolve to a new world of free entry and free exit.

And what hub and spoke did, maybe not to a perfect extent but hub and spoke really made one stop competitive with non-stops. Carriers act those activities in the marketplace have some product or a significant amount of product substitutability. That's what the hub versus the linear route system gave the marketplace. So, that the one stop has product substitutability with the nonstop in many, many markets and acts as a pricing discipline in the marketplace.

International antitrust immunity. I was fortunate to be involved in that.

You'll notice that the first open skies agreement was between the United States and Netherlands. That was because KLM and actually the technical foreign ownership is 25 percent voting control but 49 percent total equity. So, KLM had 25 percent voting control, three board seats and had a preferred equity in Northwest. At that time, Northwest flew, I think we had four DC-10's worth of flying to Europe. They were DC-10 40's, even worse. So, KLM made this big investment in Northwest, what were you going to get for your $500 million. We came up with the very first co-chair flight under open skies. Three days a week a combi, a KLM combi between Minneapolis and Amsterdam. We had half the airplane on a block space agreement, they had half. We started it and it connected in Amsterdam and pretty soon it started growing like wildfire.

Before we were done, about seven years later, we were flying five a day, Detroit Amsterdam and four a day Minneapolis Amsterdam connecting the two hubs. And it is funny how an unregulated market, you have those kinds of discoveries. We've got the first antitrust immunity with the Dutch and we had really no network at all at Northwest. That was at a time when American and United were opposed to alliances. You may not remember that but there was a time when they opposed to the Northwest KLM alliance. United would come to meetings in Detroit and Minneapolis to try to block our ability to build our FIS facilities directly in the center of our domestic operation. Because you wanted to have minimum connect times of less than 90 minutes on both the U.S. side and the European side.

The application of technology, particularly RM, Revenue Management, has been really significant and those systems grow in complexity every day. Frequent flyer programs, credit card agreements, Dr. Rose has documented this in several of her writings that you can link to on the Brookings Institution web page. There have been a lot of other innovations but let me move on to the future really quick.

One, there is a lot going on in technology to Dorothy's point and I agree with Dorothy. There was one really significant purchase by Google that probably escaped everyone and that was ITA. So, ITA was started by Northwest, United and American when we started Orbitz. So, Orbitz was started by the U.S. carriers. Jeff Katz was the CEO and we funded the MIT professors that built the ITA search engine. It sold to Google for $700 million. I wanted to buy it. I'll just be clear, I wanted to buy it but we didn't have two nickels to rub together at the time.

So, the point of it is there is going to be a lot of innovation. And by the way, CRS's are still quite relevant. CRS's still are the engine, the IBM TPF mainframe is still the engine behind all the reservations you make on Expedia or anywhere else. I do believe there should be very clear transparency rules and that's not just for airlines that ought to be for Apple and Facebook and Google and Amtrak and Dell computers. Consumers do need good, clear information about what they're buying. I think DOT has done some good rulemaking in that regard.

But with that said, I don't think that the government should mandate content for Google. Google has everybody's content today because ITA is the search engine behind most websites, not Expedia, but airline websites. And in order to get their technology, you're forced to license all your data to them. They are in a search war right now to be the first on a web page just like Apollo and Sabre did the architectural bias that led to the CRS rules in '92. Same fight is going on right now and I just think that there will be different technology players and that the government shouldn't come in and mandate that every Silicon Valley startup that wants to get into airline distribution has the right to all your content. That doesn't mean that carriers shouldn't be completely transparent to Nancy's point, Kathy's point.

I actually think that gets back a consumer attribute. You're not going to be a trusted partner to your corporate partners and your consumer partners if you're not fully transparent and completely clear. And look, I'm doing that today at Amtrak. We're putting a lot of investment in right now at Amtrak to put everything on mobile apps so that when you get on the Acela and there is a delay at Buoy because of a trespasser crossing, you're going to know exactly what is going on on the railroad.

I think that is really important to let all this technology evolve. You have Southwest that won't let anyone have any of their data ever and then you've got the big carriers that distribute enormous amount of their product through these third-party sites but they do it through an arm's length negotiation.

International bilaterals, obviously I was fairly controversial about a lot of these. I'll just give you, maybe some of you would criticize it as a bit myopic. When we went into the open skies policy in '91 '92 and we were involved in that very first one with the Netherlands, the idea was you were going to open the skies and you were going to have these equal commercial relationships. You have to understand that a lot of our bilateral partners do not view it that way. They're flag carriers and in Asia, there is only one non-government carrier and that's Café. Pretty much all the rest are either government owned or government occupied and they're arms of a broader economic policy in these countries. Whether it's Chi Bon in Korea or the state-owned carriers in China or Japan Airlines in and Al Nippon Airways. These are all arms of a broader economic policy and candidly, we do not do a very good job in those negotiations.

I'll just use two negotiations that were really big. One was "open skies" to Japan where we ended up in a route case fighting over frequencies in the middle of the night. Normally, that's not open skies. But we called it open skies but we didn't get much out of that deal. Japan Airlines and Al Nippon Airways had open access to wherever they wanted to fly whenever they wanted to fly in the U.S. but the U.S. carriers didn't get that.

The second one I make reference to is London and getting into Heathrow. Carriers like Northwest, if you weren't TWA and Pan AM you had to Gatwick for decades and decades and decades. Then we get an "open skies" agreement and a slot is $100 million and you can't find any of them at Heathrow. Now, eventually we figured out ways through alliance partners. So, the way most carriers that weren't a Pan AM or TWA descendent, that's United and American, the way you got in was through alliance partners. We got in through KLM and Air France because they had slots.

So, the point of it is I used those two examples that I don't think that our intentions in bilaterals are the same as what our counterparties are. And I think we proved in the Middle East carrier case beyond any doubt that they were in violation of the clauses in our treaties. But you ended up in this kind of what I'll call a regulatory soup where you got acknowledgement that they're violations of the bilateral but, oh you're making enough money. Really, that's what our regulatory policy is going to be? Oh yeah there is probably some violations there of the stated terms of the bilateral when we had proof of it, certified financial statements that we found in Singapore. Our government didn't find them we found them. But oh, it's okay even though the face of the bilateral was in violations.

Other trends that are out there and then we'll be right here into the Q&A. What's happened because we don't have foreign ownership is you have ATI and open skies. I think ATI and open skies have provided a lot of benefits and continue to provide a lot of benefits. Because I've got to tell you, it's really hard to connect traffic in a hub in the U.S. and in a hub to a foreign carrier in another country. It's just hard. It's hard and I could put on a full day seminar on why it's so hard and trying to get a consistent product. But what the alliances allow you to do is make really big technology investments that allow the smooth transit of passengers and baggage around the world across networks. And it is hard to do because everybody has a different reservation system and airport control system and a flight dispatch system.

I think the 1500-hour rule that got passed in the wake of the Buffalo accident is causing an undo constraint on pilots. I think it was a terrible accident. I would note that the two pilots that were involved in that terrible accident had over 5000 hours a piece and it had to do with qualification and training and checking and the other sorts of things that a good operator will undertake. But that we're going to really constrain a demand for pilots.

I think that the major airlines, all four of them including Southwest, are taking on too much debt and I think their costs are rising rapidly. There will ultimately be some sort of reconciliation of that in the marketplace. You just saw that Southwest expressed disappointment in its failure to remain a low-cost carrier. We see this trend. My personal view is, these businesses don't like leverage. Leverage is hard in a business but I guess I probably spent so much time, my time in the industry trying to make payroll that I just don't like leverage. I don't think that these assets -- that it's a good trade to buyback stock with debt. I think that carriers are rightly investing a lot in their products in their fleets and you'll remember that one of the purposes of deregulation was to have carriers that have a good return on capital and that are efficient and well-run. I think there are going to be some challenges as cost spaces grows and leverage grows in this industry.

I think the real challenge in the network is in the Pacific. That over the long run it is very difficult for a U.S. carrier to have a return on capital in the Pacific because it takes two airplanes. Wide bodied airplane with all the discounts and everything is about $150 million so it takes two of those because they don't fly fast enough. At Northwest when we ran our network, our hub in Tokyo, Fugu, all of our airplanes crossed over the elusions. All the 7-4's that were coming back to the U.S. crossed the ones that were heading to Asia because you can't do it in 24 hours. So, it takes $250 million of capital to do a daily non-stop to an Asian country. And you see a lot of entry and exit in a lot of these markets because the carriers on the other end tend to be government owned and government subsidized. So, they're not going to be as focused on a return. And you've seen that happen in India with the Middle East carriers. The U.S. has essentially exited India and India has no viable Indian flag carriers.

I think that rural areas have lost out in deregulation a bit. If you look at the number of regional airplanes in the U.S. and the BTS data at DOT, those numbers have been declining on a pretty steady basis. A whole lot of the EAS piece of it didn't work. It's one of the things we're trying to work on at Amtrak is how can our national network provide much more support to rural America. Because demographics have changed in our country and people have moved to the cities but we shouldn't forget about rural areas. And the EAS, many of the EAS markets are no longer served. I shut down 28 EAS markets in the Northwest Delta system because the losses were just staggering and the load factors were in the 40's on 34 seat airplanes. So, you were on average, carrying 15 or 16 people.

I think the consolidation of the OEM's is one that is going to ultimately translate into higher cost to consumers. So, if you look at the single biggest increase in cost in the industry it is the OEM's. It is BF Goodrich, General Electric, Rolls, Pratt & Whitney. It's been sort of untouched from a regulatory perspective. They use IP and intellectual property to erect very high barriers at a time when added manufacturing should be taking down costs. So, it is one area that has never been looked at.

I had an anti-trust regulator tell me one time that when I was opposed to the Boeing Douglas merger. I was always a big fan of Douglas airplanes. But I was essentially told that when it comes to the Department of Defense, they kind of get to do their own thing. But fortunately, Air Bus has grown up in the midst of that but I do think that that's a place where there are a lot of really big premiums taken by OEM's.

The technology piece of this I just want to touch on. The narrow body airplane flying Transatlantic is a huge innovation. It started with a 757 but as technology evolves and the geared turbo fan that Pratt & Whitney has manufactured. Louis Chenevert was really the genius behind the geared turbo fan when Pratt lost all of its market share to GE. It's going to be a real innovation that is going to open up many more markets, longer haul markets to a narrow body airplane. A narrow body airplane has such better economics in that long haul than a two-aisle airplane. That innovation is going to be important and the geared turbo fan, very important.

Maybe this is just my pet peeve but I wish we would be as transparent about taxes as we are about ancillary fees. I was actually involved in the TWA vs. Morales case. Morales was the Attorney General of Texas and I was at continental as a lawyer at the time, which is the advertising case and the preemption. And then DOT went about making consolidation of all the taxes and fees and they've grown precipitously. It's about 25 percent, consumers pay about a 25 percent tax on a typical domestic ticket. Understand all the reasons behind that but it ought to be just as transparent as all the ancillary fees.

Okay, I think I've probably touched on and hopefully proved my thesis and now we can have a few questions and end on time.

MR. GOTBAUM: Since I have been proven so colossally wrong in my argument with Anna over that we would run out of things to say, I'm only going to ask one question and then I'm going to open it up for the time we've got left. Dorothy mentioned at the end that technology has changed lots of things. Speculate a little bit. How do you see technology changing the industry prospectively?

MR. ANDERSON: I think unmanned, that's not the right word, unpersonned, autonomous. I think autonomous (inaudible) but ultimately autonomous vehicles are going to play a very large role. I think it will start in cargo. I wouldn't be surprised if Federal Express isn't working on it right now and that we will see a real impact. And once you move to autonomous vehicles and like I said, I probably won't be around for this but autonomous vehicles may change the way people travel. I know for sure that as we think about it at Amtrak because we really serve a lot of rural America, I think about a 12-person autonomous van that could connect Devils Lake to Minot and how we would be able to use a network like that that subsists on top of the interstate highway system. So, you've got to think about that in the context of aviation, autonomous vehicles.

The second thing is there is going to be a breakthrough at some point on distribution. I just can't imagine that IBM TPF mainframes are going to continue to be the backbone of distribution in this industry. When did we sunset the CRS rules, 2002, 2003 and the CRS rules were sunsetted because the internet was going to take it all away. Well, it still hasn't and it is still a very traditional distribution model. I think over time it is going to evolve in ways that we do not yet know and I cannot figure out but certainly as we're sitting here, that's going to happen.

The third thing is I think the engine technology is going to continue to evolve rapidly. The engine technology, the geared turbo fan is a really massive innovation. The large fan turning at a slower speed. Because today, the shaft low compressor, high compressor, burner cans turbine and it all turns. The blades turn and this has a differential, if you will, on the big fan up front. That is going to bring massive innovation. That plus the change in the noise footprint is going to be big. Because when the noise footprint changes, we can fix New York airspace and not have the kind of part one 50 problems that noise creates in communities. So, really quiet airplanes that are incredibly efficient in terms of range are going to give us many more permutations of the route system and could go a long way towards solving some of the noise issues that prevent us from dealing with congestion in places like New York.

MR. GOTBAUM: Questions. Gentleman in the back.

MR. KAPLAN: Hello, I'm Seth Kaplan, editor of *Airline Weekly* and author of a book about Delta.

MR. ANDERSON: You wrote a book about Delta? I really didn't know that.

MR. KAPLAN: Okay yeah. It was, (inaudible) sort of kind of called post 9/11.

MR. ANDERSON: I didn't realize there was such a book.

MR. KAPLAN: Yeah, your corps com people kept you at a safe distance from us when we were working on that. I want to pick up on a piece you talked about at the end there and it is the disclosure of pricing. Several years back, airlines fought the current state now where the price that's advertised has to be a price that's actually possible to travel at. It might not include the extras but if you see $29, that includes the taxes and fees. It seems one thing that is different about this industry and airlines said what you said, it's not fair that the taxes aren't disclosed whereas other industries, you know, restaurants add on sales tax afterwards. What is different here is that the taxes are so substantial and some of the mandatory fees are substantial. How do you get the balance right there in terms of giving consumers what they want which is, it's now nice to know that if you see an advertised price you can travel at that price? But on the other hand, not hurting airlines and consumers by sort of perhaps encouraging the inflation of taxes because they're not transparent.

MR. ANDERSON: Look, the answer is always what is best for the consumer. That ought to be the rule. Now, there may be differences among policymakers about how you get to that best but in terms of transparency, the consumer should have perfect transparency to what they buy. That just to me is the given in like a geometric equation that when you're thinking about the regulatory landscape, the consumer ought to absolutely have perfect information about what they're buying, what they're going pay, what their taxes are, what the PFC is, all the pieces of it. Because that's how a free market economy has to work. The individual consumer has got to have perfect information; however you get that.

MR. WHITT: Barry Whitt, RTHK in Hong Kong. What about over capacity in terms of the number of aircraft that are crossing the Atlantic every night? Is this something that the free market should solve? And what about the carbon footprint that is increasing with the explosive growth of the airline industry at the sales of more and more aircraft.

MR. ANDERSON: I don't think there is a capacity issue because about 15 years ago, reduced RVSM was implemented in the tracks over the Atlantic. Remember, there is lots of space out there. It's just you fly these tracks to get the highest fuel efficiency. It's not a capacity issue it's trying to fly the most carbon efficient route. When Atlantic RVSM, Reduced Vertical Separation Minimums was implemented, I think, in the mid-nineties or late-nineties, I think the capacity issue goes away.

Second, certainly the carbon footprint is important. Aviation is a little less than 3 percent of emissions. The tough thing is, it's hard to find six pounds of anything that has as many BTU's so you've got a physics problem. There's a lot of work going on but biofuels are arguably use more carbon, I'll probably get in trouble for saying that. Growing a bunch of corn and I mean facts are facts. You use carbon from those. I actually think that where the innovation is coming from is going to be the geared turbo fan and continued innovation. Boeing did a phenomenal job on the 787 with lighter weight composites. So, lighter weight equipment with more efficient technology while the world works on whether cellulose based fuels can be efficient enough.

MR. KOGAN: Charlie Kogan. Can I ask you, years ago when we had all of the airline priced ancillary priced transparency debates going way back to 2010. Delta always was one of the leaders pushing back against transparency. And hearing you speak today that we should have total transparency for consumers kind of surprises me. I love it, maybe you can work with us. What do you think or why are the airlines so against open transparency in terms of ancillary fees? The GDS's can't get the information, ITA can't get the information and I work with both of them to try and do that. What is holding this up right now for consumers?

MR. ANDERSON: Well you and I have a different view of history. We had a complete approach to transparency it's just do I want to give my information to a leveraged buyout at Sabre or a leveraged buyout by Blackstone and Travelport or to Google? They want my data. It is no different than when I ran the commercial businesses at United Health Group. Everybody wanted our claims data. No, you don't get our claims data, that's valuable. So, the issue you have in all those situations is what they want to do is earn a bunch of money on your data. It is not an eleemosynary institution that's asking to get your data. They're going to use it in ways that may be inimical to your brand and inimical to the way you run your business. The classic example is selling illegal connections with carriers that you don't have an airline agreement with and then somebody loses a bag and then somebody gets mad at you because you can't serve as the PNR.

So, you and I have a different view of history but I do think we agree completely that there ought to be perfect transparency. The question is, are you going to continue to let the GDS's do what the GDS's have done to carriers for a long time. I started in this industry in the monopoly leveraging cases against Apollo and Sabre. I saw first hand what happened with the GDS's. So, I think there is a legitimate and I'm out of it now.

I'll be pleased to report that at Amtrak, we sell 90 percent of all of our own product on our website. We don't participate with OTA's, at least not yet for that reason that we want to control our brand. It would be no different than forcing Apple to let third-party distributors advertise their phones or Buick being required to let the complete independent third-party seller control their brand. So, there is a legitimate commercial tension there about what the motives of those organizations are.

MR. GOTBAUM: One more, this gentleman.

QUESTIONER: (Inaudible). Since you have worked on both the railroad transportation as well as airline transportation, why is airline transportation so discreet on these things comparing to the model in Europe, the U.S. doesn't have as much rail traffic for passengers.

MR. ANDERSON: Now you're going to start me off on a whole other -- this is sort of my passion about rail transportation in America. We absolutely have to do it. It is the most efficient way to do 300 miles between cities in America. We do it really well in the corridor, that is between Washington and Boston and then some points north and then actually we do very well from here down to Virginia and into North Carolina. But we are one fundamentally a car country. President Eisenhower built the interstate highway systems and Henry Ford brought us middle class America with cars. So, we are very car oriented.

But it is not going to be sustainable because our population is going double in the next 30 years but our lane miles on the interstate highway system are still going to be about 18,500 lane miles. So, anybody that drives I 95 on a regular basis sees what I'm talking about. The problem is that we made that choice for interstate highways whereas in Europe because of closer proximity and closer densities, they have dedicated passenger rail. Except for the northeast corridor, 98 percent of Amtrak is on freight rail.

So, we are hosted by UP, Burlington Northern, Santa Fe, CSX, Norfolk Southern and a host, I think we have 22. We're in the midst of putting in positive train control. We have 22 host railroads that we're integrating with and we're to run positive train control. We do not own or control the tracks that we run on except in the corridor. It's a challenge but there is a way through it. We've been thinking hard about how to do it because we can do it really efficiently with European style train sets. The lightweight DMU multimode train sets we could make a really big difference and we do in a lot of places. San Diego to LA, we carry over 3 million people a day. Milwaukee to Chicago, the Hiawatha is one of our most successful routes. It's how everybody gets to Chicago from Milwaukee. And then, of course, the Acela in the corridor and all of our service up into New York and into New England and down into Virginia have been really, really successful. But it's the result of the fact that people just can't drive anymore. It's going to continue to evolve that way over time in urban areas in the U.S. Thanks for giving me a chance to give an Amtrak pitch.

MR. GOTBAUM: So, one effective deregulation is that surplus airline executives is now available to work at Amtrak.

MR. ANDERSON: Well no, it's actually been really good and I'll comment on that. I really do believe in my safety theory or at least I felt that that was the most important thing we did was operate safely. Ken Highlander who is probably the most foremost expert on SMS and was the chief safety officer at Northwest, director of engineering at United, chief safety officer at Delta, he did the integration of Delta and Northwest. He retired, he’s the chief safety officer of Amtrak. I got him out of retirement after I went through two train crashes. We had a crash in Washington and we had a crash in Whiteman. I went to the one in Washington and Steven Gardner went to the one down in Casey. So, we are bringing aviation safety practices to Amtrak. We are going to be the first passenger railroad to implement an SMS. We’re going to down the road of a just culture where we stop disciplining engineers for cooperating with us and figuring out safety issues. We’re going to change the face of safety at Amtrak by bringing the deregulated safety model of the aviation industry to Amtrak.

MR. GOTBAUM: As a passenger on Amtrak 188, thank you.

MR. ANDERSON: Were you on 188?

MR. GOTBAUM: Yes. Let us thank our guest.

* * * * *

CERTIFICATE OF NOTARY PUBLIC

I, Carleton J. Anderson, III do hereby certify that the forgoing electronic file when originally transmitted was reduced to text at my direction; that said transcript is a true record of the proceedings therein referenced; that I am neither counsel for, related to, nor employed by any of the parties to the action in which these proceedings were taken; and, furthermore, that I am neither a relative or employee of any attorney or counsel employed by the parties hereto, nor financially or otherwise interested in the outcome of this action.

Carleton J. Anderson, III

(Signature and Seal on File)

Notary Public in and for the Commonwealth of Virginia

Commission No. 351998

Expires: November 30, 2020