The Untold History of FCC Regulation

Popular wisdom holds that, before the creation of the Federal Radio Commission, the radio spectrum was in chaos. But as former chief economist at the Federal Communications Commission (FCC) THOMAS HAZLETT documents in his new book, *The Political Spectrum: The Turbulent Liberation of Wireless Technology, from Herbert Hoover to the Smartphone,* the real story of the radio spectrum is quite different. At a Cato Book Forum, Hazlett was joined by FCC Chairman Ajit Pai to discuss how FCC regulations have hampered innovation for decades, delaying the advent of everything from FM radio to the cell phone.

THOMAS HAZLETT: Wireless is a technology so curious that it’s named for what it’s not. In 1939, at the World’s Fair, when wireless television was debuted, the demonstration featured a special television created out of glass, to counter rumors that it featured tiny actors on a miniature stage.

It turned out to be real science, of course, and consumers came to embrace it. With the discovery of broadcasting in the 1920s, a mass-market radio service developed. And it was widely said at that time, and even to this day, that a “market failure” developed: there was a cacophony of competing voices, endemic spillovers creating static interference and inefficient externalities. There had to be centralized, administrative control. Broadcasting stations could not, if left to their own, keep from destroying one another.

But, in fact, that was not the history. The robust emergence of radio was under a first come, first served system of property rights in frequencies. The rules were enforced by the U.S. Department of Commerce—the first regulator of radio was the secretary of commerce, Herbert Hoover, 1921–1928. And rules borrowed from common law created an orderly marketplace with brisk development.

Up until about February 23, 1927, when the Radio Act was signed into law. The Radio Act overturned and preempted property rights in frequencies. Instead, a “public interest” standard would be used by regulators to set aside particular frequencies for particular tasks by particular licensees. A commission would define the wireless services, the communications technologies, and the business models allowed to compete.

This change in law was not due to the chaos of markets, but sprang from a coalition of political and business interests. Political actors, led by Hoover, desired more discretion over who could broadcast and what they said. These policymakers aligned with major commercial radio station owners, incumbents who sought barriers to entry and provided the actual language of “public interest” for the 1927 Act.

The upshot was that a government agency, not competitive market forces, would allocate airwaves. A golden resource in the budding information age was taken off the market. The “political spectrum” was born.

For decades, this system blocked competitive forces and stymied innovation. Gradually, however, the restrictions from the central allocation system loosened. Why and how this process unfolded is still a bit of a mystery. But there are two stories that will illustrate this path to liberalization.

Let’s start with one of the great inventors of the 20th century, Edwin Howard Armstrong. He was a Columbia University professor of physics, but he preferred to be addressed as “Major Armstrong”—he was very patriotic and had served in both world wars. He was one of the key contributors to AM technology and in the early 1920s he was the largest shareholder in the Radio Corporation of America (RCA) due to the sale of his patents.

In 1934 he came up with a better mouse-trap, FM broadcasting. He had to get permission to deploy his new idea using radio spectrum—and it took some years for the planet’s preeminent expert on wireless technology to get his allocation. But finally he did, stations were built, and some 500,000 radio sets in the northeastern United States tuned into high fidelity radio. They experienced the rich, wonderful, quality reception that Armstrong had told them they would.

But in 1945, the FCC reconsidered and uprooted the entire band. The FCC had a “sunspot theory” of radio interference, uniquely applying the threat of solar flares. Armstrong, who would have been the first to worry about interference had the threat been real, objected violently to the move and introduced mountains of scientific evidence against it. To no effect. The FCC, under political pressure, eliminated the FM allocation, making all existing radios worthless. A new band was assigned, but by the time the new radios were designed, no one would buy them. Armstrong, distressed and humiliated, committed suicide in 1954. Had he lived to see FM radio given a straight-up chance to compete, as it finally was in the 1960s, he would have been proud to witness its almost instant domination of the incumbent AM technology.

I tell the Armstrong FM story because that technology actually got into the marketplace before it was excluded. The great majority of wireless innovations never made it to market—nipped in the bud.

Alas, progress slowly came. Let’s see it by fast-forwarding to 2005. In that year there was another idea for a new ’improved’ radio. An entrepreneurial company in Cupertino, California, which had very nearly gone bust just a few years before, was thinking about how mobile phones could be made prettier, better, and vastly more functional. And so it...
was that Apple invented the iPhone. To work, the device would have to have access to airwaves. Just as had Edwin Armstrong, Steve Jobs needed spectrum.

Yet by 2005, the regime called by its practitioners “mother may I” had been, at least in significant part, reformed. Apple did not have to ask Washington for permission to launch. Instead, the FCC had relaxed restrictions, granting mobile carriers wide latitude to use radio spectrum in flexible ways. This put the onus on the networks to manage their own frequency spaces.

A new spectrum store was open for business, and the mobile carriers approached Apple to sell access to airwaves. Indeed, the networks bid fiercely against each other to host this consumer-pleasing innovation. The price Apple paid for airwave access was negative.

The iPhone took the market by storm, selling in the hundreds of millions globally, instigating the smartphone revolution, and establishing the iconic consumer innovation of this century. And beyond that, a vast ecosystem emerged. There are millions of applications for iPhones and competing Android devices now in the radio space without approval from a commission. This is a level of complexity unheard of in the 1920s or ’30s, when it was said it would be too complicated for businesses to figure out where the rules of the road should be bent to accommodate interfering devices and services. The conflicts would be overwhelming unless carefully avoided by “public interest” spectrum allocations.

In consumer welfare terms, almost the exact opposite was true. Until tight administrative controls were peeled back, the rules maintained a Quiet Zone. The radio spectrum was governed by passive aggressive librarians. Regulators could hardly have known what would happen when the rules were loosened, but they feared it greatly. They sought to prevent the future.

Reforms gradually forged room for new opportunities. By ceding spectrum property rights to competitors in the marketplace, experiments could be run and the march of technology accommodated. You probably don’t think much about the potential spectrum conflicts that come into play when you tap your smartphone icons. But your Angry Birds and Pandora and Facebook; your map apps and Snapchat and Kindle; your ride share or your Twitter; your dog tracker and cat videos—each potentially interferes with the other. The complexity, barely background noise to you, is universes beyond what might be managed by a central authority. That regulatory structure had to fade away for the new wireless world to evolve.

Now whole new sectors are created, and nary a thought is given to the fact that the platform it sits on is a liberalized, deregulated spectrum market that frees the competitive forces that were so recently thought not up to the task at hand. What Herbert Hoover asserted had to be done by the state, it turns out, can only be done by open markets.

Proof of concept. Delegating spectrum coordination to private competitors, as now applies to perhaps one-fifth of the most valuable spectrum, has demonstrated its worth. The struggle now is to push reform far deeper into the “political spectrum,” unlocking more of nature’s wireless bounty. The successes are not illusory, and surely not the product of tiny actors on a miniature stage.

**AJIT PAI:** This book is an extraordinary read, and as I was going along chapter by chapter, I thought about one of my favorite philosophers. I refer of course to Yoda, who when instructing Luke in *The Empire Strikes Back* says, “You must unlearn what you have learned.” This book forced me to look at how some of the received wisdom we have accepted uncritically should actually be challenged.

There are a couple of different insights that I found especially salient—number one, that far from empowering the public, the FCC’s style of decisionmaking over the years actually empowers politicians and bureaucrats to make decisions. Many FCC regulators of both parties, across different eras and through different technological debates, found themselves creating a system that essentially vested control in themselves.

In one passage, Professor Hazlett discusses the scarcity rationale for broadcast regulation and the FCC’s paradoxical restriction on cable entry, which would have provided more competition. As the professor puts it, quoting an FCC order from many years ago, “The circularity of this argument bears note. Broadcasting was regulated because spectrum was a physically scarce resource limited by nature. But when ‘spectrum in a tube’”—cable—“promised (or threatened) to relax that scarcity, the government was allowed to extend its powers to preserve the very limitations that justified regulation in the first place.” That is such a profound insight. The FCC had been regulating for decades on the basis of a premise which, because of an
emerging technology, should have been called into question. Yet the agency actually squelched that emerging technology and ultimately disserved consumers.

Which leads us to the second major insight that I got from the book in terms of public choice, which is how FCC decisionmaking typically has accommodated rent seeking. The example I liked in particular was the emergence of cellular—or the non-emergence of cellular. I’ve had the chance to meet the one and only Marty Cooper, who placed the very first cellular call in the early 1970s. And I remember after meeting him and seeing the prototype—this giant cell phone that he used to place that first call—wondering: Why did he place that call in the early 1970s, in the year I was born, yet cellular as we know it didn’t emerge until I was pretty much out of law school in the 1990s? The book goes to extraordinary lengths to detail exactly why that was, and one of the reasons was that the FCC was besieged by a couple of different entities that thought this was a competitive threat, or simply didn’t want the FCC to be focusing on this new and emerging technology.

The other aspect of public choice that I thought was very interesting was how ultimately this way of decisionmaking has harmed consumers. And quite often this harm to consumer welfare comes under the guise of what the professor calls very humorously throughout the book, “technical reasons.” For “technical reasons” we have to prohibit you from exploring this emerging technology, or we have to restrict output.

To me, the “technical reasons” excuse was best shown in 1944, as the professor already mentioned, when the FCC got a couple of petitions with a bold proposal: toss every FM station off its assigned frequency and relocate the entire industry up the dial. All existing equipment—transmitters owned by stations, receivers owned by listeners—would become obsolete. Proponents claimed the frequency switch would help FM stations avoid ionic interference, a threat alleged to emanate from sunspots. Think about how many decades of consumer welfare were forestalled, or in the immediate years prohibited, because the agency essentially restricted the ability of Armstrong and other FM pioneers to be able to engage in what they were doing best.

The same thing happened with cellular. The professor quotes a study that concluded that, had the FCC proceeded directly to licensing from its 1970 allocation decision, cellular licenses could have been granted as early as 1972, and systems could have been operational in 1973. The study’s authors found that the FCC spectrum allocation process caused a 10- to 15-year delay in cellular service. And the professor suggests that actually might be on the conservative end of things.

And that leads me to the last key insight, which is that the market mechanism, as he conceives it, has delivered far more value over the years than the amorphous and elastic public interest standard. And with respect to the former, of course, Ronald Coase features very prominently in the book. It really is incredible to think that in the late 1950s and early 1960s he was pioneering an idea that was almost quite literally laughed out of the academy, the halls of Congress, and even the halls of the FCC: this notion that assigning property rights and minimizing transaction costs would ultimately allow the asset itself to be allocated to its highest valued use. The professor quotes a couple of my predecessors at the commission who said that the likelihood of any spectrum being auctioned would be akin to the Easter Bunny winning the Preakness.

I think that the success of Professor Coase’s theory has been proven over the years. And as Professor Hazlett mentions in closing, “From electricity to water to pollution allowances to fishing rights, newly constructed markets have fashioned superior alternatives to command-and-control regulation.”

The other piece of it, of course, is the public interest standard, and here the professor does a masterful job of elucidating why that standard, all too often, has been amorphous and has been subject to the interpretation of whatever particular majority happens to occupy the FCC. In the best example I can think of, Hazlett talks about how FCC staffers over the years would be given an assignment to approve a broadcast license renewal. “The FCC was well practiced in crafting eloquent documents detailing how any given assignment advanced ‘public interest, convenience or necessity.’ These statements, required by administrative law, laid a veneer of respectability over processes that might otherwise attract interest from journalists or prosecutors. In one revealing episode, a surprisingly self-confident FCC staffer—tasked with writing up a justification for a license award—asked the chairman of the Commission to describe the policy grounds for this selection.” (This is in the mid-1960s) “The annoyed chairman responded ‘You’ll think of some.’” In
another case, “the FCC voted to grant a company a TV license, and the staff wrote up an order of more than 100 pages explaining it. For reasons undisclosed, the FCC reconsidered and switched licensees. The staff dutifully revised its order using the original draft as a template, producing an equally glowing public interest justification for the new winner.” I think that makes it critical for us to focus on the facts, to think about principles of economics and to have a view as to consumer welfare as opposed to whatever parochial interest might be badgering us for this or that regulatory favor.

The professor, as I said, offers some great insights, and I would like to think that over the last year and change we have tried to incorporate some of those insights in terms of structure and policy. Last year, I introduced my proposal to create an Office of Economic Analysis. Our hope is to make sure that economic reasoning is not just an after-thought at the FCC, but a central thought as we make our decisions. That is one way to insulate the agency from that kind of “ends justify the means” decisionmaking that I just described.

Additionally, we are giving teeth to Section 7 of the Communications Act. No longer will an innovator have to sit around waiting for years for the FCC to figure out whether or not an invention is in the public interest. We now have a one-year deadline for making these determinations. And we are adopting more market-based solutions—flexible spectrum use, for example, has been a profound benefit to consumers the world over. Instead of determining what the spectrum shall be used for, dictating it from on high and expecting entrepreneurs to make use of it, we let innovators make that decision. And the results speak for themselves. The fact that we have smartphones speaks to the fact that innovators have been able to devote the spectrum to its highest-valued use.

Additionally, we want to minimize infrastructure burdens. Increasingly this is where the rubber meets the road. Next week, for example, we are going to be voting on an order modernizing our regulations to recognize that the networks of the future won’t look like the networks of the past. The small cells of the future and all the guts of the 4G networks need to be evaluated under a regulatory rubric that is different from the one that applied in decades past to 200-foot cell towers.

Our hope is that both in terms of structure and in terms of policy we can make sure that we make decisions that are right for the American people, produce more consumer welfare, and most importantly ensure that when the sequel to this book is written, Chairman Ajit Pai is not going to be featured whatsoever. Except for, hopefully, as an example of something that went right.