Telecommunications Deregulation*

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> *The case of telecommunications is so much more complicated than that of the airlines, I am deterred to the point of muteness—well, not quite— by the challenge of sorting out what ought to happen next.*[1]

In 1970, when Fred's magisterial volumes of *The Economics of Regulation* first appeared, telecommunications in the United States was unrecognizably different from today. Voice telephony was supplied by pervasively regulated monopolists — largely AT&T and the Bell System for wireline local (80%) and long distance services (near 100%). For practical purposes, data and wireless communications did not exist. Competitive entry for local and long distance voice services was forbidden, service characteristics and quality were prescribed and prices were set (more or less) by cost-plus, rate base, rate of return regulation, administered by the Federal Communications Commission for interstate (long distance) services and by state public utility commissions for local and intrastate long distance services. This regulation was justified by presumed natural monopoly characteristics of at least parts of the industry. In contrast to the airlines ("government cartelization, plain and simple"),

> [t]he regime of telecommunications regulation…has been much more clearly and directly aimed at the protection of putatively captive customers from putative natural monopolies.[2]

Forty years have passed, and the landscape has changed. Recently, Fred began an essay on network neutrality with the proposition that:

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[1] Alfred E. Kahn, *Lessons from Deregulation*, AEI-Brookings Joint Center for Regulatory Studies, 2004, ("*Lessons from Deregulation*") p. 21.

[2] Alfred E. Kahn, "Telecommunications, the Transition from Regulation to Antitrust," AEI-Brookings Joint Center for Regulatory Studies, August 14, 2006, p. 6.

> …The industry is obviously no longer a natural monopoly and wherever there is effective competition—typically and most powerfully, between competing platforms—land-line telephony, cable and wireless—regulation of the historical variety is both unnecessary and likely to be anticompetitive.[3]

The path from then to now was tumultuous, driven by technological change (wireless, fiber, cable telephony, broadband services) and featuring a (regulatory-induced) gold-rush-style entry and collapse of competitors, an industry-wide vertical divestiture largely offset by a subsequent merger wave, regulatory innovation (social contracts, price caps, "incentive" regulation, forbearance), industry restructuring legislation (the 1996 Telecom Act) and re-regulatory initiatives (TELRIC, network neutrality). But Fred's observation above is the key to change and competition in telecommunications: it is ***facilities-based*** competition that drives technological change, competition, and increases in consumer welfare. The experience from 1970 to the present demonstrates that attempted regulation and "sharing" of a privately owned network facility is second best, and would be third best if there were an alternative second best.

It is impossible in this space to detail Fred's contributions to this history. Unlike airlines, he did not set the agenda. Nonetheless, that agenda was influenced by his publications, his colleagues, students and admirers, and his numerous testimonies, reports and affidavits, dealing with a range of topics from the minutia of telecommunications economics (*e.g.*, depreciation reserve deficiencies) to the largest regulatory and economic issues underlying the current structure of the industry (*e.g.*, mandatory network unbundling at cost-based prices).

Several themes pervade Fred's massive written record. Prices must be informed by costs; costs are actual incremental costs; costs and prices are an *outcome* of a Schumpeterian competitive process, not the starting point; excluding firms from markets is fundamentally anticompetitive; a reliance on imperfect markets subject to antitrust law is preferable to necessarily imperfect regulation; if an essential facility must be unbundled, it must be priced at competitive parity; and a regulatory transition to deregulation entails propensities to micromanage the process to generate preferred outcomes, visible competitors and expedient price reductions. We expand on some of these ideas below.

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[3] Alfred E. Kahn, "Network Neutrality," AEI-Brookings Joint Center for Regulatory Studies, March 2007, p. 1.

1. Incremental Costs

Using prices to elicit supply and regulate demand and adjusting those prices towards costs is an economically sensible program for a regulator. At the New York Public Service Commission in the 1970s, Fred showed skeptics that non-zero usage prices for business and residential local service and—famously—for directory assistance would significantly affect usage volumes and increase social welfare. The next step, adjusting regulated prices towards costs was more difficult, first because multiproduct telecommunications firms had important economies of scale and scope:

> At the core of almost all the pricing issues in telecommunications is the fact that products of this industry are a large and increasing diversity of services issuing from *common* facilities.[4]

and second, because the Supreme Court in *Smith v. Illinois Bell* in 1930 insisted that some portion of the cost of local facilities be recovered from long distance services, which used the local loop to originate and terminate calls.

In telecommunications regulation, efficient pricing of basic local exchange service and carrier access services hinged on the economic cost of the local loop. Because additional usage imposes no additional costs on the loop, the marginal cost of usage includes no assignment of loop costs, no matter how reasonable the allocators proposed by advocates of low local prices and high long distance and carrier access prices:

> The regulatory expedient of assigning fixed costs among categories (e.g., between regulated and unregulated or between interstate and intrastate jurisdictions), in proportion to variable costs or demand volumes, though "reasonable," is not cost-causative, and the resulting costs are not economic costs. It might be equally reasonable to allocate railroad overhead costs to services by volume, weight or value, but shippers of feathers, coal and diamonds would undoubtedly disagree about the results.[5]

The futility of artificially allocating costs was vividly expressed in Fred's regulatory analogue of Schrödinger's cat:

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[4] Alfred E. Kahn and William B. Shew, "Current Issues in Telecommunications Regulation: Pricing," Yale Journal on Regulation, 1987, ("Kahn-Shew") p. 194.

[5] Declaration of Alfred E. Kahn and William E. Taylor, *In the Matter of AT&T Corp. Petition for Rulemaking to Reform Regulation of Incumbent Local Exchange Carrier Rates for Interstate Special Access Services*, FCC RM No. 10593, December 2002, p. 9.

> Once you abandon marginal cost, it is not *difficult* to find another measure of cost…, it is hopeless. This is not a question of looking for a black cat in a room where all the lights have been turned out. *There is no cat there*.[6]

Years after Kahn-Shew eviscerated such cost allocations, the cat still haunts some regulatory proceedings, but it is much scrawnier.[7]

If regulators and the DOJ had understood this basic point, the history of telecommunications in the US would have been much different. The belief that monopoly local service cross-subsidized competitive long distance service would not have been an important element of the government antitrust case and the subsequent litigation before Judge Harold Greene. RBOC cellular companies would have been able to provide long distance service, and the RBOCs would have been allowed entry into long distance well in advance of their permitted entry (state by state from 1999 through 2003). The FCC's and DOJ's objections to this entry cost consumers more than $50 billion in higher prices.[8]

2. Entry Restrictions

Between 1984 and 1996, local telephone companies' participation in manufacturing, information services and long distance was constrained and controlled by the MFJ Court under Judge Greene. Fred submitted a number of affidavits to the Court urging free entry, partly due to the dynamic technological change in the industry.[9] According to Fred:

> Because the restrictions on the uses to which the BOCs may put their own technology are both anticompetitive and countertechnological, I expect those restrictions will not survive many more years. Moreover, I incline to Judge Breyer's view that their removal is additionally desirable because they prevent the BOCs from offering new services in markets in which they are not now

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[6] Alfred E. Kahn, "The Uneasy Marriage of Regulation and Competition," Telematics, Vol. 1, 1984, p. 12 (emphasis in the original).

[7] For example, in 1996 the FCC proposed to allocate costs of the new hybrid fiber coax networks between unregulated video and regulated telephony services to reduce telephone prices. In "Ask Not the Bells for Tolls," Fred responded that "the prices of the regulated telephony services should be neither raised to recover any of those costs nor reduced to share in the benefits. … The commission should call off its cost-allocation rule making, leave the prices of regulated services where they are and let the market work." *Wall Street Journal*, August 6, 1996.

[8] Hausman et. al. "Does Bell Company Entry into Long-Distance Telecommunications Benefit Consumers?," *Antitrust Law Journal, 70, 463-484, 2002*

[9] Two technological developments — fiber optic transmission and computer-controlled switches — revolutionized competition in telecommunications during the 1980s and 1990s, but neither of these changes were considered by Judge Greene because they post-dated the record in the case.

> dominant—indeed, in which they would offer effective competition to the companies already in those markets.[10]

Restrictions on BOC provision of information services cost consumers approximately $1.2 billion per year from lost consumers surplus from voice mail alone.[11] Restrictions on BOC provision of long distance services were even more costly. Technical change (optical fiber transmission) allowed entry of competing cable providers for local telephone service and doomed long distance providers such as AT&T and MCI.[12] Nevertheless, FCC and DOJ policies attempted to protect these companies from RBOC competition in the misguided belief that they would be the providers of local competition, while neglecting to take account of competition from cable companies.[13] Delaying RBOC entry into long distance cost consumers tens of billions of dollars in lost consumer welfare.[14]

3. The Path to Deregulation

As telecommunications markets opened to competition, the inherent inconsistency with rate base, rate of return regulation became apparent. One regulatory response was to break the link between regulated prices and costs. In 1987, Vermont replaced traditional regulation with a social contract, followed shortly by the FCC which introduced a form of price cap regulation of long distance and carrier access services in 1988-89. Many states followed suit during the 1980s and 1990s.

Most of these incentive regulation plans included vestiges of rate of return regulation: prices were capped and the caps were reduced at a fixed real rate but the plans were often subject to scheduled rate of return reviews, earnings sharing backstops and other mitigations. Before the FCC, Fred urged that:

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[10] Alfred E. Kahn, "Deregulatory Schizophrenia," *California Law Review*, May 1987, pp. 1060-1061.

[11] J. Hausman, "Valuation and the Effect of Regulation on New Services in Telecommunications," *Brookings Papers on Economic Activity: Microeconomics, 1997, 1-38*

[12] Optus began providing local telephone service over a hybrid fiber coax network in Australia in the mid-1990s.

[13] Hausman predicted in a talk given in 1995 that AT&T would not exist in ten years time. He was off in his prediction by one month. Thus, the world's largest corporation disappeared in less than 25 years from the time of the MFJ.

[14] Hausman et. al. "Does Bell Company Entry into Long-Distance Telecommunications Benefit Consumers?," *Antitrust Law Journal, 70, 2002,* p. 481..

> So long as the price caps continue to be tested from time to time against the rate of return they produce … the perverse effects of cost-plus regulation on the companies' incentives will not be entirely eliminated. The same is true of the provisions for sharing and backstops: they dilute the complete transfer from ratepayers to shareholders of the risks and benefits of unsuccessful or successful performance. The longer the interval between reexaminations of the price caps and the wider the range of achieved rates of return that regulators, the utility companies and the public can tolerate, the closer will be the approximation to the workings of competition.[15]

The strongest reason to eliminate these remaining ties to rate base regulation, Fred said, was the importance of innovation in telecommunications: that narrowing the range of possible profits from such ventures would inhibit the undertaking of such risky investments.[16] By and large, ties to accounting earnings were removed from state and federal price cap plans, as other deregulatory initiatives progressed. Fred called for pricing flexibility where competition warranted, (e.g., interstate special access services), for deregulation of retail services that are discretionary (e.g., call waiting) or where wholesale services have been structurally separated (Rochester and Southern New England Telephone companies) , and for regulatory forbearance where facilities-based competition and sunk investment — from competitive access providers, cable companies or wireless carriers — meant that such competition would be permanent (U.S. and Canadian telephone company petitions for forbearance).

4. Re-regulation – TELRIC-BS

This gradual removal of regulation in the industry was partially reversed after 1996, when, in acts of "astounding regulatory presumption" in establishing wholesale prices pursuant to the Telecommunications Act, the FCC and state regulators succumbed to the "temptations of the kleptocrats," ignoring the lessons from years of experience with price cap regulation and "reneging on obligations to allow utilities to recover their historical costs when those obligations stood in the way of politically expedient rate reductions."[17]

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[15] Affidavit of Alfred E. Kahn, In the Matter of Price Cap Performance Review for Local Exchange Carriers, Notice of Proposed Rulemaking, FCC CC Docket No. 94-1, ¶ 20.

[16] Asymmetrically, because regulators would be loath to pass on the costs of failed ventures but eager to limit the offsetting profits from successful ones.

[17] *Lessons from Deregulation,* pp. 30-31.

As implemented by the FCC, the Telecommunications Act was essentially a "competitor protection" act, setting below-cost prices for CLEC use of the RBOCs' networks and restricting RBOC entry into long distance. The FCC ignored the spread of competing fiber networks operated by cable companies that offered voice and broadband services in addition to pay TV, which transformed the competitive environment. Indeed, below-cost regulated pricing led CLECs to prefer "regulation forever" by creating incentives for new entrants to use unbundled RBOC network elements rather than invest in their own competing facilities. This incentive increased when the FCC mandated UNE-P at regulated prices, which permitted CLECs to use an entire RBOC network (combined loops and switches) at below-cost prices, spawning a gold-rush-style entry by CLECs in the late 1990s.

Fred's memorable contribution to this debate was his blistering condemnation of the FCC's pricing policy for unbundled network elements, set equal to "the costs of an 'efficient firm' constructing its network afresh, using the latest, best technology" which Fred dubbed TELRIC-BS (total element long run incremental cost, blank slate). According to Fred,

> In a world of continuous technological progress, it would be irrational for firms constantly to update their facilities in order *completely* to incorporate today's lowest-cost technology, as though starting from scratch, the moment those costs fell below prevailing market prices. Investments made today, totally embodying the most modern technology available, currently, would instantaneously be outdated tomorrow and, in consequence, fail over their lifetimes to earn a return sufficient to justify the investments in the first place.[18]

In February 2003, the FCC substantially upheld its UNE-P plan in its universally-reviled *Triennial Review Order*.[19] Fortunately, in 2004, UNE-P was overturned by the U.S. Court of Appeals – DC Circuit, which determined that because CLECs were able to provide their own switching services, they were not entitled to purchase price-regulated UNE-P. The most prominent local competitors MCI and AT&T (the long distance company) soon disappeared by merger in 2005, and local and long distance residential competition shifted rapidly to cable

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[18] Alfred E. Kahn, Timothy J. Tardiff, Dennis L. Weisman, "The Telecommunications Act a three years: an economic evaluation of its implementation by the Federal Communications Commission," *Information Economics and Policy*, 1999 p. 326.

[19] "…the decision is an abomination, purely political in the worst sense of the term and grounded in neither good economics nor honorable regulatory practice. The one safe prediction is that it will turn out to have resolved little or nothing." Alfred E. Kahn, "Regulatory Politics as Usual," AEI-Brookings Joint Center, March 1 2003, p. 1.

companies and cellular providers.[20] This competition is thriving today, but it comes from facilities-based competitors, not from "artificial competition" as Justice Breyer characterized the regulatory-based approach of the FCC and DOJ.[21]

In the same 2003 schizophrenic *Triennial Review Order* that retained UNE-P, the FCC (by a 3-2 majority) exempted next-generation fiber facilities from unbundling and sharing requirements. Almost immediately, the two major landline telephone companies Verizon and SBC (now AT&T) began construction of residential fiber optic networks, commencing service in 2005. Thus, only after artificial competition was rolled back from both voice and broadband services did facilities-based competition begin to replace regulation in residential telecommunications markets.

5. Re-regulation – Network Neutrality

The final chapter in Fred's contribution to telecommunications deregulation was his stand against re-regulation of broadband access to the internet. Proponents of such regulation point to possible incentives of wireline, cable and wireless broadband providers to discriminate against competitors of their other services: e.g., telephone and wireless broadband providers discriminating against Vonage and cable companies discriminating against Netflix or BitTorrent.[22] Acknowledging that possibility, Fred pointed out that the antitrust laws prohibited such discrimination and that regulatory authorities had promptly intervened in the few instances where it was alleged.

Fred also objected on economic grounds to regulations that would prevent broadband providers from offering traffic prioritization for a price. That a network "neutral" to the transmission of packets is far from neutral with respect to applications means that there can be

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[20] The most recent government data find that approximately 30% of residential users subscribe to cable telephone and that 28% of users subscribe only to cellular service. See FCC, "Local telephone competition: Status as of December 31, 2010", released October 2011 and S. Blumberg and J. Luke, "Wireless Substitution: Early Release of Estimates from the National Interview Health Survey, July-December 2010", CDC, June 8, 2011.

[21] Justice Stephen Breyer, U.S. Supreme Court *AT&T Corp. v. Iowa Utilities Board,* 119 S. Ct. 721 (1999)

[22] Ignoring economic arguments, the FCC recently implemented its net neutrality rules, prohibiting carriers from charging content providers different prices for different transmission priorities: see, In the Matter of Preserving the Open Internet, Broadband Industry Practices, FCC GN Docket No. 09-191, WC Docket No. 07-52, *Report and Order*, released December 23, 2010; effective (as of this writing) November 20, 2011.

large gains in consumer welfare from pricing priority for applications.[23] As Fred argued, neutrality advocates "seem to be guilty of using the term 'discrimination,' sloppily, to embrace mere differences in price for different qualities of service."[24] Nondiscrimination—even for common carriers—does not imply a single class of service; just that all shippers of a product face the same charges when they ship the same thing. Railroads can charge different rates to shippers and provide a different class of service (speed) for coal, cattle and cabbages. Indeed,

> Newspapers charge advertisers for access to their readers—more for big ads than small ones—television broadcasters charge similarly for access to their audiences; and the charges vary widely depending upon the anticipated size of the audience. Why is that any different from the proposed additional fees for guarantees of the unusually rapid rates of transmission required for some content, with its greater claim on the broadband facilities?[25]

6. Conclusion

Fred's considerable contributions to telecommunications spanned three eras of regulation and deregulation—the pre-MFJ FCC, Judge Greene and the DOJ, and the FCC after the 1996 Telecommunications Act. As a regulator, Fred revised regulation to provide better economic incentives. As a commenter, he submitted affidavits to Judge Greene to allow RBOC entry and greater competition, proposed changes in price cap regulation to improve incentives, blasted the re-regulatory aspects of the FCC's implementation of the Telecommunications Act of 1996 — particularly FCC-mandated TELRIC regulation, and questioned the economic and political premises of net-neutrality advocates.

In sum, the main lesson learned from Fred's deregulation of the airlines applies as well to telecommunications. Facilities-based imperfect competition (and it can be highly imperfect) provides greater consumer welfare than imperfect "regulation forever." In contrast, telecommunications regulatory history has demonstrated that policies such as those imposed by the FCC and DOJ produced significant consumer harm. Regulatory attempts to mimic

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[23] For example, increased delay or jitter may be unnoticeable for web-browsing or e-mail but annoying for VoIP conversations or streaming video applications.

[24] Alfred E. Kahn, "Network Neutrality," AEI-Brookings Joint Center for Regulatory Studies, March 2007, p. 3.

[25] Alfred E. Kahn, "A Democratic Voice of Caution on Network Neutrality," The Progress & Freedom Foundation, October 2006.

competitive outcomes are vastly inferior to the observed competition among landline, cable and wireless providers. As Fred said at these very meetings thirty-two years ago

> Our uncertainty about the outcome of the competitive struggle is no reason to prevent its taking place; the only sensible prescription is to give competitors freedom to slough off their artificial handicaps by entering and leaving markets as they please. Moreover, if we cannot *predict* how these offsetting advantages and handicaps of the several carriers are likely to work out under a regime of free entry, it seems to me even less likely that we can hope to achieve the most efficient performance…by prescribing how the thousands of markets should be served, as the proponents of the status quo would have us do. I find it difficult to see how these uncertainties tilt the balance in the direction of a reliance on predictably ignorant regulation in preference to an uncertainly predictable market process.[26]

We hope this lesson will not be forgotten in the future.

[26] Alfred E. Kahn, "Applications of Economics to an Imperfect World," The Richard T. Ely Lecture, *The American Economic Review, Papers and Proceedings,* Volume 69, No. 2, May 1979, p. 6.