consequences will be averted. There is very little reason to doubt, however, that any steps to provide such equivalent compensation will be strenuously resisted and be frustrated by a combination of the very political forces that, by insisting on the continued suppression of basic residential service rates, have continued to render the present flow of contribution from access charges necessary in the first place.

II. THE BEGINNING POINT: THE LEGACY OF PAST REGULATION

The process of deregulation—of, so to speak, getting from "here" to "there"[2]—cannot be conducted rationally without a full consideration of the state of affairs at its beginning point. In the U.S. telecommunications industry, economic efficiency alone requires that the process of deregulation begin with a clear conception of the huge legacy of the preceding era of comprehensive regulation.[3] To take the simplest example, that continuing heritage includes a structure of regulatorily-imposed rates, some markedly below and others markedly above incremental costs. In these circumstances a simple removal of barriers invites inefficient as well as efficient entry: the competitive process itself is therefore distorted by that legacy.

The heritage of the local telephone companies incorporated—and continues to incorporate—two closely interrelated regulatory phenomena. First, an historical and continuing obligation to extend service ubiquitously and a continuing entitlement to a reasonable

[2] See, e.g., Kahn, Alfred E., "Deregulation of Air Transportation: Getting From Here to There," *Regulating Business: The Search for an Optimum*, Institute for Contemporary Studies, San Francisco, California, 1978, pp. 37-68.

[3] In this critical respect the situation in telecommunications differs fundamentally from the cases of trucking and the airlines, where it proved possible simply to wipe the slate clean—simply to abolish the entire structure of accumulated regulatory restraints.

opportunity to recover the costs, both past (to the extent they have been capitalized) and current, of fulfilling that obligation. And, second, a rate structure reflecting the residual pricing of basic residential telephone service, with rates in large areas of the country clearly below incremental cost and in most areas below economically efficient levels, and rates for other services—notably toll, vertical services and switched access services to long-distance carriers—equivalently above both incremental costs and efficient levels.

The question of whether the still-regulated LECs are or should be entitled to continuing recovery of those historically-incurred costs is of course intensely contested. It seems incontestable, however, that under the historical—and still continuing in most jurisdictions—regulatory system, they have been entitled to a fair opportunity to recover their prudently incurred costs—that is, the costs that regulators have not found to have been imprudently incurred. This continues obviously to be the essence of continuing rate base/rate of return regulation practiced in a large minority of states. It is, however, true also under the price cap form of regulation adopted by the FCC in 1990 for the largest LECs and now in one form or another in the majority of states: typically the capped or frozen rates were inherited from traditional rate case determinations finding them "just and reasonable," and the controversies over the indexation formulas and productivity offsets have been essentially controversies over the level of rates that would be sufficient for a well-managed company to recover its costs and a fair return on invested capital. As the FCC itself has observed, "the cost showing contemplated by the price cap rules is, in essence, a traditional, embedded-cost rate case." (Docket FCC 96-488, par. 235.)[4]

That these principles explain the present levels of the carrier access charges that are the subject of this proceeding and the basis on which the Commission has set those charges heretofore is incontestable: the parties and witnesses that have with increasing virulence criticized them and demanded their reduction have not contradicted that generalization but simply ignored it. The Commission explicitly set those charges at levels—concededly far above incremental cost—in order to perpetuate after the dissolution of AT&T the flow of cross-subsidy to the intrastate jurisdiction and, specifically, to holding down the basic local service rates that AT&T had previously earned directly and transferred from toll to basic service. So, the most dramatic reduction in those charges enacted by the Commission came when it simultaneously imposed a flat line charge directly on subscribers' bills, thereby substantially (but concededly far from completely) diminished the underpricing of that basic service, on the one side, and, correspondingly, the size of the subsidy required from the access charges. The rationale of the access charge, imposed at the time of the breakup, then, was to honor both of

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[4] According to the comments of MCI (ftn 25, p. 16) in the Access Charge Reform proceeding (Docket No. 96-262), the FCC at the time said "we are not making a finding that existing rates are just and reasonable, but only that they are a reasonable starting point for price cap...." (par. 241) As MCI itself recognizes, however, the Commission "presumed that rates were at reasonable levels," even though of course it recognized that they "were not based on economically efficient costs...."

In these circumstances, while MCI takes pains at various points to contend that any losses in net revenues consequent on the FCC's proposed "prescriptive" reductions in access charges would be offset by increased revenues from other sources—increased subscription to second lines, vertical services and from interLATA service, once the BOCs are permitted to provide it—at other times it makes the flatly indefensible assertion:

> any access charges that remain above cost will plainly violate the Act's requirement that rates be just and reasonable. (p. 10)

the commitments I have already described—recovery of costs incurred both historically and on a continuing basis in fulfillment of the obligation to serve and, specifically, to serve residential customers at inefficiently low flat monthly charges.

In this connection, I am compelled to observe, MCI's assertion that above-incremental costs access charges produce "guaranteed monopoly profits for incumbents"[5] is simple demagoguery. The Act requires the state commissions to establish "just and reasonable" rates for these services, which means they must ensure that companies recover no more than their legitimate costs, plus, as the Act puts it, a "reasonable profit."

III. THE FALLACY OF THE "BLANK SLATE" VERSION OF TSLRIC

The Commission's goal of the blank slate version of TSLRIC—the (estimated) cost of a hypothetical, completely new network, employing the most efficient current technology and constructed from the ground up—contains a basic fallacy. It is based on the assumption that that is the level to which effective competition would drive prices. The view is mistaken.

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 today's most modern technology, would instantaneously be outdated tomorrow and, in consequence, never earn a return sufficient to justify the investments in the first place. For this reason, as Professor William J. Fellner

[5] "Competition Delayed is Competition Denied," advertisement, The New York Times, Op-ed page, October 28, 1996.

pointed out many years ago, firms even in competitive industries would systematically practice what he termed "anticipatory retardation": they would adopt the most modern technology only when the progressively declining real costs had fallen sufficiently below currently prevailing prices as to offer them a reasonable expectation of earning a return on those investments over their entire economic lives. In consequence, even perfectly competitive prices would not be set at the level of these (totally) current costs.[6]

An alternative way of putting this proposition is that firms would indeed incur the heavy sunk costs of investing in totally new facilities, embodying the most recent technology from the ground up, only if prevailing market prices were high enough to provide rapid depreciation of their sunk investment cost and rates of return that Professor Jerry Hausman has estimated would have to be two to three times the current cost of capital.[7]

IV. The Effect of the Prescriptive Approach on Investment and Innovation

The economic underpinning of traditional regulation was the recognition if investors were promised a reasonable opportunity to recover their prudently incurred costs, the utilities' ability to attract capital in the future would be ensured. No one can say with confidence what

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[6] Fellner, William J., "The Influence of Market Structure on Technological Progress," in Amer. Econ. Ass'n. *Readings in Industrial Organization and Public Policy* (Homewood: Richard D. Irwin, 1958), as described also in Kahn, *The Economics of Regulation*, Vol. 1, pp. 199-20, note 91.

[7] Affidavit of USTA Comments, Implementation of the Local Competition Provisions of the Telecommunications Act of 1996, CC Docket No. 96-98, May 16, 1996. See also Schmalensee, Richard, and Taylor, William E., "Economic Aspects of Access Reform: A Reply", NERA, USTA Reply Comments, CC Docket No. 96-262, February 14, 1997. The FCC has in effect conceded this proposition, saying it "agree[s] with USTA, Bell Atlantic, and Bell South that, as a theoretical matter, the combination of significant sunk investment, declining technology cost, and competitive entry may increase the depreciation rates and cost of capital of incumbent LECs." FCC Order, par. 686.

the effect would be on the ability of public utility companies, operating hitherto with this understanding, if prudently incurred costs were now to be ignored and commissions were instead to base regulated rates instead on some such conception as TSLRIC-BS.[8] This much, at least, seems undeniable. First, the experience of having had the rules of the regulatory game changed in such a way as to deny the incumbent LECs' recovery of costs that they had been entitled to recover under the preceding regulatory regime cannot but diminish their incentives to engage in such investments in the future.

Entirely apart from the consideration of equity, this might be regarded as matter of indifference if any consequent reduction in investments by the incumbent companies in our telecommunications infrastructure could reliably be expected to be filled by new entrants. This would be particularly true if, never having been regulated from the outset, they faced no such possibility of a changing the rules of the game to their disadvantage in the future. On the other hand, to the extent that they were motivated in part to enter by the prospect of governmentally-

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[8] Significantly, however, one of AT&T's lead witnesses in this and in other cases has been one of the foremost proponents of the view that anything less than 100 percent recovery would cause consumers to lose more in the form of higher capital costs henceforward than they would gain indirectly from illegitimate disallowances. See, for example, his communication with J. Gregory Sidak, "Recovering Stranded Cost Benefits Consumers," *Regulation*, No. 2, 1996 and for a more extended analysis with respect to the electric power industry, see Baumol, William J., Paul S. Joskow, and Alfred. E. Kahn, "The Challenge for Federal and State Regulators: Transition from Regulation to Competition in Electric Power," prepared for Edison Electric Institute, December 9,1994, *Industry Structure Monograph Series*, No. 1, 1995.

> A failure now of policy makers to ensure the companies at least some reasonable level of recovery of their regulatorily approved costs in any transition to competition would leave investors, in effect, with part ...of the value of their property expropriated by the change in the rules of the game. (p. 34)

Similarly, in collaboration with Sidak, he said:

> Failure to allow recoupment of stranded costs will clearly violate this implicit regulatory compact. And aside from inequity, the failure to recoup could also deter capital investment.

"Stranded Cost Recovery: Fair and Reasonable," *Public Utilities Fortnightly*, May 15, 1995, p. 22.

dictated distributions from a universal service fund, the ability of the government to change the rules of that distribution in the future might weigh more heavily on their current calculations in the light of the previous experience of the ILECs. Moreover—and clearly affecting the calculations of new entrants—an FCC decision to set rates for network components and access services at bare cost—blank slate TSLRIC or other—can have the effect only of discouraging investments that would otherwise be made.[9] In competitive markets, after all, prices tend to be set on the basis of the costs of the incumbent companies; these give challengers a proper target to try to meet or beat and the full reward, to the extent their costs prove to be lower than the incumbents.

The problem raised by the proposed prescriptive path is not confined to its effect on the incentives of both incumbent and competitive LECs to invest in the modernization of our telecommunications infrastructure. Even more directly and obviously, it would inevitably impair drastically the ability of the incumbents to do so. A reduction in the flow of revenues to the ILECs on the order of ten billion dollars annually can only diminish their ability to finance such investments. Yet that is precisely the order of magnitude of the rate reduction that AT&T and MCI are advocating here.

Some of these investments in on-going modernization could still be financed with external funds; but the higher cost of external financing via the capital markets[10] would make

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[9] The FCC acknowledges that: "[blank slate TELRIC] may discourage facilities based competition by new entrants because new entrants can use the incumbent LECs existing network based on the cost of a hypothetical least-cost, most efficient network." FCC Order, par. 683

[10]

> "The costs we have outlined make external financing of any form—be it debt or equity—more expensive than internally generated funds. Given those costs, companies prefer to fund investments with retained earnings if they can.

(continued...)

some otherwise viable investment projects uneconomic. This diminution of investment by LECs would be further exacerbated by the higher cost of capital caused by the increased regulatory risk, consequent on regulators changing the rules of the game, that we have already described.

What is particularly troublesome about the FCC's proposal to base charges for carrier access and central network elements at TELRIC, on the basis of the belief that that would be the efficient level, is that its definition of efficiency is entirely static, while the nature of competition—especially in telecommunications—is inherently dynamic. Any proposal that rates be set at costs, or cost plus regulatorily-prescribed markups, should at least, in consideration of the critical importance of innovation, distinguish the rules applicable to providing existing network elements from the rules that would apply for supplying innovative new ones. To tie the rates for new services closely to costs, incremental or otherwise, would fatally attenuate the incentives of incumbents to develop new and innovative service as well as of competitors to enter on a facilities basis.

The historical institution of tightly regulated, franchised monopolies lacked competitive stimuli to innovation. But in offering those monopolists reasonable assurances that they would be permitted to recover their total prudently incurred investment costs—of unsuccessful as well as successful ventures—it did have a positive effect on their willingness and ability to innovate.

(...continued)

> "The key to making good investments is generating enough cash internally to fund those investments; when companies don't generate enough cash, they tend to cut investments more drastically than their competitors do."

Froot, Kenneth A., Sharfstein, David S., and Stein , Jeremy C., "A Framework for Risk Management," Harvard Business Review, November-December 1994, pp. 94, 92.

As we have moved from cost-plus regulation to a more competitive system, however, any requirement that charges to competitors for innovative new network elements be closely tied to some narrow measure of cost would destroy that previous symmetry. Rival entrants would then have the option of purchasing the results of successful innovation at bare cost, while leaving stranded the costs of unsuccessful ventures. Investors would be forced to absorb the costs of failed ventures—as in competitive markets generally—but be denied the offsetting opportunity, essential to innovation in a competitive system, to reap whatever rewards the unregulated market would otherwise confer on ventures that turn out successfully.

V. SHOULD THE MARKUP ON ACCESS—OR CONTRIBUTION FROM A USF—BE REDUCED IN REFLECTION OF ANTICIPATED NET REVENUES FROM OVERPRICED SERVICES

The MCI Comments suggest that the size of the markup in the access charge should be reduced to take into account the net revenues that the LECs may reasonably be expected to earn from such other services with incremental costs far below their rates as vertical and, eventually, interLATA services (pp. 3-5).

The last of these suggestions is particularly incongruous—indeed, outrageously self-serving. It would clearly be inconsistent with efficient competition in the unregulated markets—specifically, it would handicap the LECs in that competition if they alone were required—indeed, obliged, in the interest of their shareholders—to continue to charge rates above competitive levels for those offerings because regulation was requiring them to rely in part on those contributions in order to recover the reasonable cost of regulated operations. It would strongly tempt them to hold a price umbrella over their competitors in intraLATA markets, so long as they have a major share of that business; it would be impossible for them to do so in the interLATA, where they would begin with a zero share.

More broadly, MCI's suggestions conflicts with the intention of the national policy in the Telecommunications Act to subject the offer of the contribution-generating regulated services to competition. Continued regulation of basic rates that assumes a continued generation of subsidy from these services would be inefficient and self-defeating. There is simply no escaping the ultimate desirability, on ground of economic efficiency as well as equity, of getting the basic rates right or making good politically-determined underpricing with genuinely competitively-neutral sources of subsidy.[11]

VI. WILL THE UNIVERSAL SERVICE FUND TAKE CARE OF ANY CONSEQUENT REVENUE INADEQUACY?

Of course, to the extent that the reduction in contribution resulting from the FCC's proposed prescriptive charges for access is to be made good by contributions from the "neutrally financed" Universal Service Fund, the two proposals are alternatives to one another; and, indeed, the latter is in principle preferable to the former on economic efficiency grounds.

[11] Since the demand for vertical services and second lines is clearly more elastic than for basic, continued reliance on subsidies from them perpetuates the inefficiencies of the residual pricing. For this reason, assertions by interested parties such as MCI that (a) economic efficiency calls for a reduction in carrier access charges and (b) such reductions will be consistent with giving the LECs a fair shot at recovering their costs because they can continue to expect to derive contributions (inefficiently) from these other services is logically inconsistent. In my opinion it is also politically opportunistic, seeking to capitalize on the political attractiveness of giving consumers some visible benefits from the Telecommunications Act. So long as those benefits are to be derived, explicitly or implicitly, not from additional efficiencies or erosion of monopoly prices under pressure of competition but merely by altering the terms of the regulatory bargain with the utility companies, at the expense of their shareholders, it seems not unfair to characterize such proposals as cynical.

Clearly, therefore, if the prescriptive course for access charges is to be adopted, it must be simultaneously with constitution of a USF.

The other side of the of coin is that the effect of such a change, clearly contemplated by the Telecommunications Act, will be simply to transfer the forum of arguments about the size of the LECs' revenue entitlements from the access charge to the USF proceeding. There, it may safely be predicted, the political pressures that continue to suppress prices of basic residential service—the admitted reason for the inflated access charge—will continue to discourage the levy of "competitively neutral" taxes sufficient to fill the gap. If we now recognize that added to those historical political pressures is the pressure on the Commission quickly to show some positive benefits to consumers from the new Act in the form of lower prices to all customers, we must in honesty recognize the danger—indeed, the likelihood—that the Commission will be under strong pressure to be more forceful in its reduction of the one than in its increase of the other.

This is not to say that the Commission must feel prevented from reexamining the price formula to which the access charges are now subject or truly substituting distributions out of a USF for the markups now incorporated in those charges. But merely to accede to the importuning of the IXCs to reduce the latter charges more rapidly than it would otherwise have done, on the ground that their levels are economically inefficient—and without regard to their effect on the ability of the carriers to recover their currently incurred costs—would be simply dishonest. It would be particularly ironic in confrontation of the fact that the markups in the charges of the unregulated IXCs above their respective incremental costs (including access charges) are larger than the markups in the access charge about which they complain so insistently."[12]

VII. Is the Prescriptive Course for Access Charges Necessary for Entry of Efficient Competitors?

Time and again, AT&T and MCI, in their Comments, insist that access charges markedly above incremental costs are obstructive of competitors and competitive entry.[13] AT&T insists that the concededly inflated carrier access charges (inflated above both incremental costs, by any measure, and above economically efficient levels)

> directly impede Congress' primary objective of rapidly bringing competition to local exchange and exchange access markets by providing ILECs with a significant, unearned competitive advantage over their potential competitors. (p. 13)

And

> when ILECs provide long distance services, they threaten long distance competition. (pp. 13-14)

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[12] See my documentation of this fact at note 14, below

[13] MCI Comments: "A Prescriptive Approach to Access Reform is Necessary to Protect the Development of Local Competition and Preserve Long Distance Competition" (p. 7);

> To achieve the goal of effective competition in the local market, the Commission must eliminate this excess [that is the receipt of 'uneconomic subsidies' via the access charge] immediately through the use of a prescriptive approach. (p. 8);

and

> the competitive threat is clear. If access remains above cost, MCI and the other long distance carriers will be subsidizing the business of our soon-to-be rivals, the incumbent LECs. Unless the Commission eliminates excessive charges, the incumbent will be able to use them to solidify their control over their local markets or subsidize their entry into long distance. (p. 10)

See, in the same vein, the AT&T Comments, in our text below.

As to the former effect, these comments simply ignore the basic truth, which AT&T consistently and correctly trumpeted over the many years before divestiture, that it has been regulation that has suppressed charges for local exchange services below either cost or economically efficient levels: this is what has discouraged and continues to discourage facilities-based competitive entry at the local level. Its astounding assertion now that "the incumbent carrier...can subsidize local services by tapping into its supracompetitive access revenues" (p. 17) also ignores the historical fact, equally undeniable, that it was precisely in order to permit that underpricing at the local level that AT&T originally defended its vertical integration and monopoly of long distance services, as necessary to generate the consequently required subsidies; and that the FCC, after divestiture, authorized the overcharging of interexchange carrier access services. AT&T's claims here not only contradict its own consistent position over the years but turn the causal relationship absolutely upside down.

As for the asserted effect of discouraging competition in the provision of carrier access services, the fact is, as once again the FCC has consistently recognized, the opposite: the inflated access charges have artificially encouraged bypass, both efficient and inefficient.

And what is the perceived threat to competition in the provision of long-distance services? It is that these net revenues from access services confer on the LECs the ability to "subsidize their entry into long distance" MCI Comments, (p. 10)—that is, to <u>cut long-distance rates</u>. To this assertion, there are the following answers:

- First, the notion that an LEC should be denied an opportunity to recover its total costs, plus a going return on its invested capital, in order to prevent its using the net revenues from deliberately overpriced services to subsidize their entry into new, competitive markets has no more validity for them than it has for unregulated carriers.

- If that threat is a real one, it clearly applies equally to an AT&T, the unregulated markups of whose long distance rates are larger than the markups in the LECs' access charges[14]—namely, that they would use those net revenues to subsidize their entry into local service.

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[14] AT&T's reported revenue per minute averaged 18 cents in 1994, when its reported carrier access payments averaged 6 cents per (conversation) minute (AT&T *ex parte* letter in CC Docket No. 94-1, March 21, 1996) and its incremental toll costs are estimated at 1 - 2 cents per minute (Lewis J. Perl and Johnathan Falk, The Use of Econometric Analysis in Estimating Marginal Cost, presented at Bellcore and Bell Canada Industry Forum, San Diego, California, April 6, 1989, Table 2. See also Robert W. Crandall and Leonard Waverman, *Talk is Cheap: The Promise of Regulatory Reform in North American Telecommunications,* Washington, DC: The Brookings Institution, 1995, p. 92.

This contrast between the apparent markups above incremental cost contained in the carrier access charges of the ILECs (of 5 or 5 1/2 cents) and AT&T's toll rates (of 10 or 11 cents) is of course sensitive to the estimate I employ for the LRIC of the latter operations. Since we now have an explicit estimate of the "long-run incremental costs of long-distance" of "between $0.03 and $0.08 per minute (including sales and administrative costs)," by Crandall and Waverman (p. 181), it seems desirable to take this later estimate into account in attempting to put these two markups in perspective.

To this end, I make the following additional observations:

- My 2 cents per minute figure was the top of the 1 to 2 cents range estimated by Perl and Falk.
- In making the first of their welfare-loss calculations, Crandall and Waverman themselves allude to their "assume[d] 2 cents per minute" incremental cost (p. 92, stress supplied), which they then refer to in an attached footnote as "our 2 cent per minute estimate" (p. 94, stress supplied). And in their concluding chapter, they say that "the incremental costs of long-distance service is probably no more than 5 cents and surely no more than 10 cents per minute" (pp. 276-77), citing the Company's reported marketing and customer service and general and administrative costs, which they take to be on the order of 3.9 cents and 2.9 cents per minute (p. 142), respectively. While a large portion of the former costs are probably part of the Company's TSLRIC (as contrasted with the LRIC of smaller increments), it seems highly unlikely that that would be true also of the general and administrative costs.
- In any event, the authors' assertion that "it [would be] unwise to estimate AT&T's marginal costs as simply 1 cent per minute over and above access costs and conclude the prices should fall to this level" (p. 144) is based on the proposition, with which I am in total agreement, that prices would have on average markedly to exceed incremental costs even in competitive equilibrium—that is, if total forward-looking costs were to be recovered—a proposition that applies equally to the ILECs.
- I observe, only in passing, that Paul W. MacAvoy uses an estimate of LRIC for long-distance calling at 1 cent (*The Failure of Antitrust and Regulation to Establish Competition in Long-Distance Telephone*

(continued...)

- As to the asserted threat of subsidized competition or anti-competitive price squeezes on long-distance competitiors, two of AT&T's witnesses in this case, Professors Baumol and Willig, are the founding fathers of the efficient component pricing rule (ECPR), the essence of which is that so long as the charges by incumbents to competitors for use of their essential facilities are fully reflected in (or "imputed" to) the incumbents' own retail charges, efficient competition is in no way jeopardized—provided those retail charges of the LECs fully recover their own LRICs as well. The 1996 Act itself recognizes this principle. It requires Bell companies that have been authorized to provide in-region long distance services to charge their own long distance operations the same rates for exchange access that they charge to others. This simple measure ensures that the absolute level of exchange access rates will not influence the competitive outcome.

- Predatory tactics of the kind that AT&T and MCI would on the one side make sense for the LECs and, on the other, represent a threat to <u>competition</u> as an effective force

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(...continued)

Services, MIT and AEI Presses, 1996, p. 115), citing an estimate by Wharton Econometric Forecasting Associates and that a recent report by Lehman Brothers (*Telecom Services: Buy the Bundle Builders, Get the Growth*, March 18, 1996, p. 28) includes an estimate of long-run incremental cost: "Large customers and large resellers can purchase transport at close to long-run incremental costs, or at about the $0.02 per minute in average depreciation and network engineering costs of the major players (this is the rate that the federal government recently negotiated on its multiyear FTS 2000 contract for POP-to-POP transport)." It seems likely, however, that these figures fail to include such marketing, customer service and overhead costs as would indeed be properly part of the LRIC of the <u>total service</u>.

If, then, I were to have employed the Crandall-Waverman estimate of the "probable" <u>ceiling</u> of 5 cents per minute, my comparison would show AT&T marking up its retail long-distance prices on average by at least 7 cents above incremental cost plus access, compared with the 4 cents by the LECs that is the subject of such violent condemnation by the IXCs.

protecting consumers only if there were some prospect that by so doing, the LECs could hope eventually either to drive out the incumbent IXCs or so debilitate them as to enable the aggressors eventually to recover those sacrificed "subsidies" in higher prices. The notion that the LECs, entering the interLATA business with zero market shares, could hope or expect to weaken competition as an effective constraining force in the interLATA market is ludicrous. There is simply no possibility whatever that the BOCs, once permitted to compete for interLATA business, could drive such formidable, entrenched incumbents as AT&T, MCI and Sprint out of their market or so weaken them as to achieve the ability to exploit consumers. The capacity of the IXC incumbents—substantially in excess of current needs—is already in place; the incremental costs of continuing to operate it are only a tiny fraction of the original investment costs. The investments are sunk and are not going to go away. It would be extremely difficult to imagine a case in other industries in which successful predation—not, observe, by present incumbents in that market but by firms seeking to enter with a zero market share—would be equally impossible.

- Entry by the BOCs can have no effect other than to intensify competition—competition the inadequacy of which, particularly in relationship to small residential subscribers, the FCC has itself criticized—and extend its benefits more broadly to a largely neglected group of consumers. AT&T's arguments are a request for protection against that competition.

VIII. CONCLUSION

In short, the FCC's suggested prescriptive course for access prices entails an abandonment of the case—hitherto accepted by the Commission itself—for the markup now incorporated in those charges, in violation of the regulatory principles on the basis of which the FCC has set those markups to date. It can only have the effect of discouraging the ILECs' investments in the upgrading of the telecommunications network. It will discourage innovation by both the incumbent LECs and their challengers. And, it would be flatly unjustified in terms of the necessity for encouraging efficient competition at both the local and long-distance levels.

END

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EMPLOYMENT:

1961-1974	NATIONAL ECONOMIC RESEARCH ASSOCIATES, INC.
1980-	Special Consultant
	CORNELL UNIVERSITY
1947-1989	Assistant Professor; Associate Professor; Robert Julius Thorne Professor of Economics; Robert Julius Thorne Professor of Political Economy, Emeritus, 1989-; Chairman, Department of Economics; Dean, College of Arts and Sciences; on leave 1974-80.
	NEW YORK UNIVERSITY SCHOOL OF LAW
Spring 1989	Visiting Meyer Professor of Law
	UNITED STATES GOVERNMENT
1978-1980	Advisor on Inflation to President Carter
1978-1980	Chairman, Council on Wage and Price Stability
1977-1978	Chairman, Civil Aeronautics Board
1955-1957	Senior Staff, Council of Economic Advisors to the President
1943	U.S. Army, Private
1943	War Production Board
1942	Associate Economist, International Economics Unit, Bureau of Foreign and Domestic Commerce, Department of Commerce
1941-1942	Associate Economist, Antitrust Division, U.S. Department of Justice
	NEW YORK STATE PUBLIC SERVICE COMMISSION
1974-1977	Chairman
	BROOKINGS INSTITUTION
1940, 1950-1951	Staff Economist
	RIPON COLLEGE
1945-1947	Assistant Professor, Chairman, Department of Economics
	TWENTIETH CENTURY FUND

1944-1945	Research Economist
	COMMISSION ON PALESTINE SURVEYS
1943-1944	Economist
	UNIVERSITY OF MISSOURI
1937-1938	Teaching Assistant

CONSULTANCIES AND PROFESSIONAL ACTIVITIES:

1994-	American Airlines on code-sharing
1994-	Antitrust Division, U.S. Department of Justice, on the application of Ameritech for waivers of the interexchange restrictions in the AT&T Modified Final Judgment
1993-1994	Court-appointed expert in State of New York v. Kraft General Foods, Inc., et al., U.S. District Court, S.D.N.Y.
1992	New Zealand Telecom on the progress of competition in New Zealand telecommunications
1992	Rochester Telephone Company on corporate restructuring and deregulation
1992	Russian Government on economic reform
1991	British Mercury on terms of competition with British Telecom
1989	City of Denver on charging and financing of Stapleton Airport
1988-1990	Attorneys General, New York and Pennsylvania, on airline mergers
1985	Attorney General, State of Illinois, on Illinois Bell rates
1981-1984	City of Long Beach, California, the Coca-Cola Company and American Airlines on antitrust litigation
1981-	Economic commentary, Nightly Business Report (PBS)
1980-1982	Advisor to Governor Carey on Telecommunications Policy
1968	Ford Foundation
1966	National Commission on Food Marketing
1965,1974	Federal Trade Commission
1963-1964	Antitrust Division, Department of Justice
1960-1961	U.S. Department of Agriculture
1957-1961	Boni Watkins, Jason & Co.

See also the list of testimony below.

MEMBERSHIPS:

1992-	Member, New York State Telecommunications Exchange
1992-93	Member, Ohio Blue Ribbon Panel on Telecommunications Regulation
1991-	Board of Editors, *Review of Industrial Organization*
1990-92	Chairman, International Institute for Applied Systems Analysis Advisory Committee on Price Reform and Competition in the USSR
1986	Governor Cuomo's Advisory Panel on public power for Long Island

1983-89	Governor Cuomo's Fact-finding Panel on Long Island Lighting Company's Nuclear Power Plant at Shoreham, L.I.
1983-90	New York State Council on Fiscal and Economic Priorities
1982-	*The American Heritage Dictionary* Usage Panel
1982-1985	Governing Board, Common Cause
1980-1986	Director, New York Airlines
1978-1979	National Commission for the Review of Antitrust Laws and Procedures
1975-1977	Project Committee, Electric Utility Rate Design Study, Electric Power Research Institute
1974-1975	National Academy of Science Review Commission on Sulfer Oxide Emissions
1974-1977	Public Advisory Board, Electric Power Research Institute
1974-1977	Environmental Advisory Committee, Federal Energy Administration
1974-1977	Executive Committee, National Association of Regulatory Utility Commissioners, and Chairman, Committee on Electric Energy
1968-1974	Economic Advisory Board, American Telephone & Telegraph Corporation
1965-1967	Economic Advisory Committee, U.S. Chamber of Commerce
1967-1969	Chairman, Tompkins County Economic Opportunity Corporation
1964-1969	Board of Trustees, Cornell University
1961-1964	Board of Editors, *American Economic Review*
1953-1955	Attorney General's National Committee to Study the Antitrust Laws

HONORS AND AWARDS:

May 1995	Wilbur Cross Medal for outstanding achievement, Yale University
Mar 1989	Burton Gordon Feldman Award for Distinguished Public Service, Gordon Public Policy Center, Brandeis University
Feb 1989	Distinguished Service Award, Public Utility Research Center, University of Florida
Nov 1988	International Film and TV Festival of New York, Bronze Medal presented to The Nightly Business Report/WPBT2 for Editorial/Opinion Series written by Alfred E. Kahn
Apr 1986	Harry E. Salzberg 1986 Honorary Medallion for outstanding achievement in the field of transportation
Oct 1984	Distinguished Transporation Research Award of the Transportation Research Forum
1981-1982	Vice President, American Economic Association
1978	Richard T. Ely lecturer, American Economic Association, 1978
1978	Rejection Scroll, International Association of Professional Bureaucrats
May 1985	State University of New York (Albany), DHL (Hon.)
May 1983	Colgate University, LL.D. (Hon.)
June 1982	Northwestern University, LL.D. (Hon.)
May 1980	Ripon College, LL.D. (Hon.)
May 1979	University of Massachusetts, LL.D. (Hon.)
May 1978	Colby College, LL.D. (Hon.)

1977-	Fellow of the American Academy of Arts and Sciences
1976	Distinguished Alumni Award, New York University
1976	American Economic Association, Section on Public Utilities and Transportation, citation for distinguished contributions
1954-1955	Fulbright Fellowship, Italy
1935-	Phi Beta Kappa
1939-1940	Yale-Brookings Fellow

BOOKS:

The Economics of Regulation, 2 volumes, John Wiley, 1970 and 1971. Reprinted by The MIT Press, 1988, with a new "Introduction: A Postscript, Seventeen Years After," pp. xv-xxxvii.

Integration and Competition in the Petroleum Industry, (with Melvin G. DeChazeau), Petroleum Monograph Series, Volume 3 (Yale University Press, 1959). Reprinted in 1971.

Fair Competition: The Law and Economics of Antitrust Policy (with Joel B. Dirlam) (Cornell University Press, 1954). Reprinted by Greenwood Press, 1970.

Great Britain in the World Economy (Columbia University Press, 1946). Reprinted in 1968.

MAJOR ARTICLES:

"How to Treat the Costs of Shared Voice and Video Networks in a Post-regulatory Age," *Policy Analysis*, #264, November 27, 1996, Cato Institute.

"Competition and Stranded Cost Re-revisited," 36 *Natural Resources Journal* (1996) forthcoming.

"Deregulation of the Public Utilities—Transitional Problems and Solutions," *Economic Papers*, Economic Society of Australia, September 1995, pp. 1-17. (Published in *Réseaux* nos. 72-73 Juillet/Octobre 1995 by CNET as "Déréglementation des Services Publics: Problèmes transitoires et solutions.")

"The Challenge for Federal and State Regulators: Transition from Regulation to Efficient Competition in Electric Power," with William J. Baumol and Paul L. Joskow, Edison Electric Institute, December 9, 1994.

"Competition in the Electric Industry Is Inevitable and Desirable," *The Electric Industry in Transition*, Public Utility Reports, Inc. and New York State Energy Research and Development Authority, December 1994, Chapter 3, pp. 21-31.

"Can Regulation and Competition Coexist? Solutions to the Stranded Cost Problem and Other Conundra," *The Electricity Journal*, Volume 7, Number 8, October 1994, pp. 23-35.

"The Pricing of Inputs Sold to Competitors: A Comment," in *Yale Journal on Regulation*, Vol. 11, No. 1, Winter 1994, pp. 225-240.

"Airline Deregulation," in *The Fortune Encyclopedia of Economics*, David R. Henderson, Ph.D., ed., New York: Warner Books, 1993, pp. 379-384.

"Change, Challenge and Competition The Report of the National Commission to Ensure a Strong Competitive Airline Industry, August 1993," *Regulation*, No. 3, 1993.

"The Competitive Consequences of Hub Dominance: A Case Study," in *Review of Industrial Organization*, Vol. 8, 1993, pp. 381-405.

"Pricing of Telecommunications Services: A Comment," in *Review of Industrial Organization*, Vol. 8, 1993, pp. 39-41.

"The Purposes and Limitations of Economic Regulation; The Achievements and Problems of Deregulation" and "Reflections and Conclusions on British and U.S. Experience: The Future of Regulation," in *Incentive Regulation: Reviewing RPI-X & Promoting Competition, Proceedings 2*, Based on papers presented at two CRI seminars in London on 4 June and 15 July 1992, CRI (Centre for the Study of Regulated Industries), October 1992, pp. 1-17 and 93-104.

"Market Power Issues in Deregulated Industries," in *Antitrust Law Journal*, Vol. 60, Issue 3, American Bar Association, 1992, pp. 857-866.

"Regolamentazione e concorrenza nelle imprese de pubblica utilità: un < <inquadramento teorico> >," *L'INDUSTRIA* / n.s., a. XIII, n. 2, aprile-guigno 1992, pp. 147-166.

"Least cost planning generally and DSM in particular," in *Resources and Energy* 14 (1992), Elsevier Science Publishers, North-Holland, pp. 177-185.

"Price Deregulation, Corporatization and Competition" (with M.J. Peck), in *What is to be Done? Proposals for the Soviet Transition to the Market*, M.J. Peck and T.J. Richardson, eds., New Haven: Yale University Press, 1991.

"Thinking About Predation--A Personal Diary," in *Review of Industrial Organization*, Vol. 6, The Netherlands: Kluwer Academic Publishers, 1991, pp. 137-146.

"An Economically Rational Approach to Least-Cost Planning For Electric Power," *The Electricity Journal*, Vol. 4, Number 5, June 1991, pp. 11-20.

"The Changing Focus of Electric Utility Regulation," *Research in Law and Economics*, Richard O. Zerbe, Jr., Victor P. Goldberg, eds., Vol. 13, JAI Press, Inc., Spring 1991, pp. 221-231.

"The Soviet Economic Crisis: Steps to Avert Collapse" (co-author), Executive Report 19, International Institute for Applied Systems Analysis, Laxenburg, Austria, February 1991.

"Telecommunications, Competitiveness and Economic Development--What Makes Us Competitive?", *Public Utilities Fortnightly*, Vol. 126, No. 6, September 13, 1990, pp. 12-19.

"Deregulation: Looking Backward and Looking Forward," *Yale Journal on Regulation*, Vol. 7, Spring 1990, pp. 325-354.

"Do We Need to Curb the Investments Foreigners are Making in the United States?" in *The Impact of Foreign Investment in the United States*, Touche Ross & Co., June 1989.

"Innovative Pricing of Electricity," in *New Dimensions in Pricing Electricity: Proceedings*, Palo Alto, CA: Electric Power Research Institute, April 1989.

"Competition: Past, Present and Future, Perception vs. Reality," in *Proceedings: 1988 Utility Strategic Issues Forum Planning in a Competitive Environment*, Palo Alto, CA: Electric Power Research Institute, March 1988.

"Thinking About The Record of Deregulation," in The Donald S. MacNaughton Symposium Proceedings 1987, *Economic Deregulation: Promise and Performance*, Syracuse, NY: Syracuse University, 1988, pp. 21-35.

"In Defense of Deregulation," in *Cleared For Takeoff: Airline Labor Relations Since Deregulation*, Jean T. McKelvey, Editor, Ithaca, NY: Cornell University ILR Press, 1988, pp. 343-347."

"I Would Do It Again," *Regulation*, 1988 Number 2, pp. 22-28.

"Airline Deregulation," *The Senior Economist*, Joint Council on Economic Education, Spring 1988.

"Airline Deregulation - A Mixed Bag, But a Clear Success Nevertheless," *Transporation Law Journal*, Volume 16, No. 2, Spring 1988, pp. 229-251.

"Surprises of Airline Deregulation," *The American Economic Review, Papers and Proceedings*, Volume 78, No. 2, May 1988, pp. 316-322.

"Thoughts on the Past, Present, and Future of Telecommunications Regulation," talk presented to the Current Issues in Telephone Regulation conference at the University of Texas, Austin, October 5, 1987, reprinted in *Telecommunications Deregulation: Market Power and Cost Allocation Issues*, John R. Allison and Dennis L. Thomas, eds., Westport, CT: Quorum Books, 1990, pp. 259-268.