

enable new terminating alternatives on the receiving end, and therefore (assuming high concentration in local services) are generally compelled to use the LEC's services on the receiving end. The RBOCs' affiants have commented on this aspect of our analysis in the context of barriers to entry for local competition, and we will provide our responses in that context (section III.A).

*Conclusion #6: Premature interLATA relief is likely to forestall the development and deployment of efficient competitive access alternatives.*

As we explained in our first report (pp. 22-23), our analysis also has important implications concerning the effects of premature interLATA relief. Currently, the RBOCs have no incentive to discriminate against the IXCs; consequently, the services of alternative access providers are not impaired at the terminating end. Absent the MFJ, the RBOCs would discriminate against the non-RBOC IXCs, thereby impairing the terminating end of any call placed through alternative access facilities. Thus, the competitive success of alternative access providers may hinge on the line of business restrictions.

Neither the RBOCs nor their affiants challenge the logic of this argument. However, Hausman contends (p. 25) that our conclusion is disproved by the fact that "new access alternatives" have developed in the UK (by which he apparently means the provision of telephone service by cable television companies), despite the fact that British Telecom has "never been precluded from providing long distance service." For the reasons discussed in our first report, the experience of cable companies in the U.K. is inapplicable to the U.S. We will revisit the details of this issue in section III.B.

*Conclusion #7: While significant risks to competition exist even if the RBOCs act independently, the potential for a geographic partition of the market significantly increases the likelihood that the market outcome in interLATA services would be dictated by implicit collusion.*

In our first report (pp. 26-27), we warned that a geographic partition of the market would be particularly natural for the RBOCs, since (1) each is already associated with an identifiable territory, (2) each has pre-existing relationships with customers residing in its own territory, (3) each presumably possesses some cost or marketing advantage over other RBOCs for interLATA traffic originating in its

own territory, and (4) geographic specialization permits more effective exploitation of scale economies. An implicit cartel based on geographic market division would be particularly easy to sustain. We also noted that RBOC witnesses have conceded the likelihood of this geographic market partition.

Neither the RBOCs nor their witnesses respond to any of our specific arguments on this issue. However, Woroch does observe (p. 35) that "RBOCs have already begun to invade each others' territories... Apparently, the cartel-like arrangement among the RBOCs that Bernheim and Willig... postulate does not, in fact, exist." Several of Woroch's examples concern cable ventures. As we explained in our first report (p. 52), entry by cable companies may happen eventually with or without RBOC involvement. It is therefore in the mutual interests of the RBOCs to acquire controlling rights to cable telephony in each others' territories, specifically to render mutual forbearance between cable companies and LECs more likely. Woroch ignores this point. More generally, the level of competition between the RBOCs remains minuscule, and minor incursions here and there are entirely consistent with a process by which a pattern of mutual forbearance is established. It is worth recalling that, although a number of the RBOCs once appeared to be positioning themselves for large-scale entry into each other's territories in the Yellow Page directory business, they have retreated from this position, in several instances withdrawing directories from the market.<sup>12</sup>

## **B. COST SHIFTING**

*Conclusion #8: Under any binding scheme of price regulation that links rates to allocated cost expenditures, an RBOC has an incentive to misallocate costs from unregulated activities to regulated activities. The incentives for cost misallocation are strongest under traditional rate of return regulation, but incentives for cost misallocation continue to exist under the hybrid regulatory schemes adopted by many states.*

In our first report, we explained that incentives for cost shifting arise whenever rates are tied to costs (pp. 29-31). We noted that these incentives induce an RBOC to behave in an overly aggressive

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<sup>12</sup>Moreover the impact of potential entry by one RBOC against another is smaller in the current context than in directory advertising, due to the virtual absence of barriers to entry into the relevant market for the latter.

manner with respect to the pricing and promotion of competitive services, thereby undermining the mechanism through which the competitive marketplace achieves an efficient allocation of production among suppliers. We also observed that these incentives impel the RBOCs to shift both costs and risks to the users of regulated services without valid economic justification, thereby subverting the attempts of regulators to limit the exercise of market power over such services.

We also distinguished in our first report between the terms “cost shifting” (or “cost misallocation”) and “cross-subsidization” (p. 31). Cross-subsidization is usually said to occur when a regulated company prices a good or service below incremental costs. Cross-subsidization arises as a special case of cost shifting. We noted that the RBOCs and their witnesses confine their remarks on this subject exclusively to cross-subsidization. This is inappropriate, since the subversion of regulatory limits on the exercise of market power may raise antitrust issues, regardless of whether cross-subsidization is involved.<sup>13</sup>

It is important to understand that cost shifting can take two distinct forms: misallocations of incurred expenses for the purposes of cost accounting, and, of equal importance, selection of inefficient technologies. The fact that the RBOCs and their affiants express such utter confidence in the efficacy of cost accounting regulations indicates a failure to appreciate or even recognize the second form of cost shifting (which cannot be addressed through regulated cost allocation principles, auditing, and the like).

The following simple example illustrates the manner in which the selection of inefficient technologies can facilitate cost shifting -- and even cross-subsidization -- even when iron-clad principles of cost accounting and fool-proof monitoring are in place. Imagine that an RBOC is capable of providing regulated and unregulated services with either of two distinct (and mutually exclusive) technologies, A and B. For the purposes of expositional simplicity, we assume that technology A involves no joint costs

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<sup>13</sup>Hausman is simply wrong when he asserts, in his reply affidavit (p. 22, footnote 52) that “[o]nly cost shifting which leads to predation will cause competitive harm...” Similarly, Rivera, Firestone, and Halprin incorrectly argue that cost shifting is a concern only when an RBOC manipulates its prices “so greatly as to drive the competitors of [its unregulated] affiliate[s] out of business” (reply affidavit, p. 31).

whatsoever. With this technology, the regulated service can be produced at a cost of \$10 per unit, while the unregulated service can be produced at a cost of \$11 per unit. Technology B involves a joint cost of \$12, and incremental costs of \$8 and \$2 for the regulated and unregulated services, respectively. To complete the example, we assume that the unregulated service is supplied competitively by other firms that produce this service at a cost of \$10 (so that, with technology A, the RBOC is an inefficient producer of this service). We will also assume that regulators can perfectly observe joint and incremental costs, and (for expositional simplicity only) that they set the price of the regulated service equal to incremental costs plus one half of joint costs.

In this example, our assumptions concerning the regulatory framework might seem to preclude cost shifting and cross-subsidization, but this is not the case. Technology A is clearly the efficient choice - the RBOC should produce the regulated service, and leave the unregulated service to other firms. Both services are then produced at a total cost of \$20, vs. \$22 if the RBOC opts for technology B. However, if the RBOC opts for technology A, it will be forced to set the price of the regulated service equal to incremental costs, and it will fail to earn any economic profits. If instead the RBOC opts for technology B, regulators will set a price of \$14 for the non-competitive service (\$8 in incremental costs plus \$6, or half of joint costs). In addition, the RBOC will be able to charge up to \$10 for the unregulated service, earning a margin of \$8. In total, the RBOC earns revenues of \$24, and incurs costs of \$22, thereby extracting pure economic profits of \$2.

Note the implications of this example. Due to the existence of the very cost allocation mechanism that is intended to eliminate cost shifting, the RBOC has an incentive to opt for an inefficient technology that inflates joint costs. In doing so, it shifts costs to the ratepayers (the regulated price is \$14, rather than \$10). Moreover, even though it prices regulated services above incremental costs for the chosen technology, this price is below the RBOC's true incremental costs for the unregulated service. To see this point, note that the regulated service alone is most efficiently produced with technology A. Thus, the

corresponding incremental cost of the unregulated service for the RBOC is \$12 (= \$22 - \$10).<sup>14</sup> We conclude that the induced selection of inefficient technologies leads to instances of cost-shifting and even cross-subsidization that the usual forms of regulatory surveillance cannot detect.

In criticizing our analysis of cost shifting, Hausman writes that “[a]lmost all economists (except [Bernheim and Willig])... agree that cross subsidy occurs when the subsidized product is priced below incremental cost.” On the contrary, we do not disagree with this definition. Rather, we are simply arguing that legitimate antitrust concerns may arise in a broader range of circumstances, and we have used the term “cost shifting,” rather than “cross-subsidization,” to describe these circumstances.

Hausman’s view of cross-subsidization and cost shifting is predicated on the supposition that local services are currently priced below incremental or marginal cost (p. 22, footnote 52).<sup>15</sup> In our original affidavit (p. 35, footnote 19), we noted that this argument is circular, since it is predicated on the allegation that the price of local service is less than some *measure* of costs, and since that measure may be artificially inflated as a result of cost shifting. Thus, the alleged observation proves nothing unless one *assumes* the absence of cost shifting to begin with. Hausman simply ignores this argument in his reply affidavit.

In our first report, we also noted that cross-subsidization of long distance services could occur even if all local services were priced below incremental costs (p. 36). We described a scenario in which an RBOC would shift costs from long distance to the local exchange, without affecting cross-subsidies from access to the local exchange. Although Hausman asserts without explanation that this is “based on a complete absence of economic logic” (p. 22), the logic of the example is elementary. Hausman also responds that we “have not constructed an example where the BOCs would be pricing long distance

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<sup>14</sup>Note that RBOC’s price for the unregulated service is also below the incremental cost of that service with the efficient technology (\$11).

<sup>15</sup>It is worth mentioning that Hausman has provided no evidence in support of the contention that *all* local services, including non-residential services, are priced below incremental cost.

(including access) below incremental cost" (p. 23, emphasis added). We have not attempted to construct such an example; nor is this necessary, since access and long distance are separate services.

### C. STRAW MEN

*Conclusion #9: The logic of the MFJ is not rooted in the contention that the local exchange is a natural monopoly.*

As we have stated here and in our original report, the logic of the MFJ depends only on the existence of significant market power that is constrained by the kind of regulation found in telecommunications. The issue of natural monopoly is central to the question of whether it is justifiable to bar entry *into* a problematic market, thereby creating an exclusive franchise. But the existence of natural monopoly bears only indirectly on the desirability of policies that bar entry *from* a problematic market (which is the nature of the line of business restrictions). Natural monopoly is relevant to the MFJ only because conditions of natural monopoly often lead to the existence of significant market power. This is especially true in cases where the state recognizes these conditions, and grants an exclusive franchise with the objective of promoting efficient production. The existence of an exclusive, regulated franchise is *sufficient* to raise the concerns that motivate the MFJ; hence, discussions of natural monopolies and exclusive franchises during the period leading up to the Decree were entirely appropriate. However, the existence of a natural monopoly is in no way *necessary* for the existence of significant market power, or for the regulatory restrictions on the use of this power that give rise to the concerns discussed in sections A and B.

Neither the RBOCs nor their affiants make any attempt to refute this incontrovertible logic. This does not, however, discourage them from blowing smoke into the air. Spulber's reply affidavit (p. 15) quotes the following statement from a 1987 opinion by Judge Greene: "[t]he exchange monopoly of the Regional Companies has continued because it is a natural monopoly." Whether this statement was correct in 1987, and whether or not it remains true today, it most certainly does not imply that market power can

exist only under conditions of natural monopoly, or that the existence of natural monopoly is necessary to justify the Decree's restrictions. Similarly, according to Ying, Lovell (an AT&T witness) "acknowledges that the natural monopoly question is 'at the heart of the regulatory decision on whether to allow or prohibit competition in the market,' an admission which Bernheim and Willig would probably not care to make" (p. 4). There is, however, no contradiction between our statements and that of Lovell. We too acknowledge that the existence or absence of natural monopoly in any particular market is a central aspect of the regulatory decision on whether to allow or prohibit competition *into* the same market. However, it is *not* at the heart of the regulatory decision on whether to allow or prohibit firms in that market to compete in other markets.

Ying's reply affidavit implicitly concedes the irrelevance of natural monopoly. In our first report, we pointed out that Ying cannot reconcile his conclusion that natural monopoly was absent prior to the MFJ with the documented pattern of abuses that justified the MFJ, without conceding that natural monopoly is not a necessary condition for these abuses. In response, Ying writes that "[t]he ability of AT&T to behave anticompetitively derived not from a natural monopoly, but an unnatural monopoly maintained by ill-conceived government-imposed regulation" (p. 15). Just as we have emphasized, it is the existence of market power, and not the source of market power, that is the primary concern.

***Conclusion #10: Concerns about market power leveraging and cost misallocation do not presuppose that the RBOCs would engage in predatory behavior, with the object of driving rivals out of the market. Predation is only one possible deleterious consequence resulting from abuse of the RBOCs' market power.***

As we have explained (p. 33), leveraging of market power from one market to another benefits the RBOCs, regardless of whether long distance competitors remain in business. Even without predation, cost shifting subverts the attempts of regulators to limit the exercise of RBOC market power over non-

competitive services. Both possibilities concern the unlawful exercise of market power, and hence are clear antitrust issues. Aside from reiterating their incorrect assertions that the case in favor of the MFJ rests on the likelihood of predation, the RBOCs and their witnesses simply ignore the substance of our analysis on this point.

#### **D. THE COMBINED EFFECTS OF LEVERAGING AND COST MISALLOCATION**

*Conclusion #11: When both leveraging and cost misallocation are present, one cannot test for either effect by looking only at prices in adjacent markets. Even though these anticompetitive practices significantly harm customers in adjacent markets (as well as customers of the local exchange), prices in adjacent markets may not be higher than in the absence of such practices.*

In our first report, we noted that leveraging and cost shifting appear to have opposite effects on prices in adjacent markets (pp. 36-37). While this does establish that one cannot test for the presence of anticompetitive abuses by examining prices in adjacent markets alone, it does not imply that the effects of these two practices are offsetting. Cost shifting simply transfers some of the economic burden of leveraging to local subscribers, and promotes further misallocations of telecommunications resources by distorting price signals. These points are unrebutted.

### **III. THE EXTENT TO WHICH LOCAL COMPETITION MITIGATES THE DECREE'S CONCERNS**

#### **A. SOURCES OF RBOC MARKET POWER**

*Conclusion #12: Sources of RBOC market power in local network services include regulation, the sunk costs of network construction, and strategic exploitation on an RBOC's entrenched position as the incumbent network provider. The third factor distinguishes local exchange markets from most other kinds of markets (including interexchange markets), and justifies concerns over market power based on high market share.*

The first two barriers to entry mentioned in the preceding passage -- regulation and sunk costs of entry -- are completely standard concepts, and required little elaboration in our first report (p. 39). The third factor is less standard, because it arises only in situations with substantial network externalities. Consequently, we devoted several pages of our first report (pp. 39-41) to an explanation of this factor.

None of the RBOC affiants take issue with the view that either regulation or sunk costs can in principle pose formidable barriers to entry. However, Spulber does challenge the conceptual validity of the third factor. The substance of his challenge reflects a fundamental misunderstanding of our position. Thus, before addressing his specific comments, it is appropriate for us to quote the analysis of our original report at some length (pp. 39-41, emphasis removed):

"A customer who subscribes only to a LEC's network can only be reached through the LEC's network. Hence, as long as the bulk of local customers subscribe only to the LEC's network, all local service competitors are completely dependent on the LEC, and subject to manipulation by the LEC. A LEC can deter even a more efficient competitor through discriminatory interconnection precisely because that competitor is dependent on the LEC's network.

To escape the consequences of discrimination, a potential competitor has only one option: replace the entire network at once, and attempt to induce the bulk of customers to shift. Even if a potential competitor thought that it had a reasonable chance of overcoming customer inertia and orchestrating a mass migration to a new network, this strategy would clearly involve extremely high sunk capital expenditures, and would expose investors to extraordinary risks.

Thus, a LEC's position is protected by strategic exploitation of its entrenched position as the incumbent network provider... [I]n the context of local network services, the potential for strategic manipulation of an entrenched position by a LEC does imply that high concentration, by itself, is a reliable indicator of market power."

Note carefully that there are four separate ingredients in this argument: network externalities, the ability to discriminate against competitors, sunk costs, and market share. If network externalities are present, and if the incumbent has both an extremely high market share and an ability (through discrimination) to limit competitors' abilities to leverage off of its own network, then it can force putative entrants to contemplate replacing the entire network at once, with substantial attendant risks and sunk costs.

Naturally, this barrier to entry arises only in the limited set of circumstances where the four ingredients are present. It is therefore important to note that this barrier is probably not a significant factor for certain telecommunications services. For example, as noted in our first report (pp. 60-61), it is possible to provide dedicated access services without the need ever to make contact with a local network, and therefore without vulnerability to discriminatory practices. For this reason, "the experience of CAPs

in alternative access cannot be generalized to other aspects of local network services" (p. 61). And, as discussed in section II, competition from the CAPs alone cannot remove the risks to competition that justify the MFJ. The RBOCs are therefore completely incorrect when they assert (RBOC reply, p. 51) that "[t]he CAPs' competitive successes disprove [the] thesis . . ." that "competitors would have to replicate those networks and incur massive sunk costs to enter the local exchange."

Spulber's characterization of this third entry barrier bears practically no relation to our original position. According to Spulber, we "effectively abandon" the arguments that barriers to entry arise from regulation and sunk costs of entry, "in favor of the incorrect observation that the market share of the RBOCs in the local exchange is sufficient evidence of market power" (pp. 3-4). According to Spulber, "economists generally recognize that market shares are not in themselves a good guide to market power and the intensity of competition. . . . Therefore, exclusive reliance on market share is of limited value as an indicator of market power and the extent of competition" (p. 25). Consequently, our arguments "are not based on the assertion that there are barriers to entry in the local exchange" (p. 25).

It is difficult for us to imagine how even the most casual reader of our first report could come to the conclusion that we "effectively abandoned" regulation and sunk costs as sources of barriers to entry. Likewise, we can only shake our heads in astonishment when Spulber equates our position with the notion that market shares are "in themselves a good guide to market power and the intensity of competition." Spulber may feel well-equipped to attack this straw man, but he should at least be aware that it is not our argument. As emphasized in the preceding discussion, strategic exploitation of entrenchment creates an entry barrier when four ingredients are present, and high market share is only one of these ingredients.

However, once the presence of the other three ingredients has been verified, market share is a reliable indicator of market power, exactly as we argued in our first report.<sup>16</sup> Spulber has simply failed to come to grips with the substance of this argument.

Apparently sensing that he has missed something important (which indeed he has), Spulber asserts that the strategic exploitation of entrenchment is a variant of our argument concerning market power leveraging, and he turns his attention to the latter. We have dealt with his comments on leveraging elsewhere in this report. In some cases, he has severely misunderstood or mischaracterized our arguments (see section II.A). In other instances, his comments are superficial, and add nothing of substance to the debate (as in the case of his assertions concerning the efficacy of regulation).

*Conclusion #13: Regulation remains an important barrier to entry, with many states still preventing competition in local exchange switched services. Even where competition is permitted, other regulatory barriers significantly slow the pace at which its potential is realized. For example, a statutory right to oppose new entrants through the regulatory and judicial systems operates to impede entry and to chill competition between the RBOCs and new entrants.*

The RBOCs and their witnesses continue to dismiss remaining regulatory barriers to entry as insignificant, but even their own evidence fails to support this conclusion. Their repeated references to intraLATA toll services (e.g. Spulber, p. 17) are plainly irrelevant. Of greater importance is Spulber's statement (p. 17) that "fifteen states allow competition in local exchange service..., and a dozen more states have partial competition in local exchange."<sup>17</sup> Thus, even by Spulber's count, 70% of states (35 of 50) have either partial or complete bans on local exchange competition, and nearly 50% of states (23 of 50) preclude competition altogether. Spulber attempts to disguise this obvious fact with the optimistic

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<sup>16</sup>Spulber also argues that we have provided no evidence to support the existence of this third entry barrier. The existence of powerful network externalities is common knowledge to anyone familiar with the telecommunications industry. Evidence on the ability and inclination of the LECs to discriminate against competitors is a key subject in this proceeding, as is discussed at length in section V. None of the RBOC affiants pretend to dispute the claim that the sunk costs associated with replication of the entire local network are extremely large. Finally, high market shares have been thoroughly documented. Thus, all four ingredients are certainly present.

<sup>17</sup>Woroch, p. 33, reports slightly different figures.

assertion that the openings of local exchange competition in certain states are “bellwethers for their regions” (p. 18). Of course, Spulber offers no time table for liberalization, and his forecast may or may not prove correct. The current reality is that regulatory barriers to entry are alive and well, and any decision concerning the fate of the MFJ must come to grips with this reality.

Oddly, Spulber argues that his position on regulatory barriers to entry finds support in a 1987 decision by Judge Greene, who concluded that “[l]ocal exchange competition has failed to develop, not so much because state and local regulators prohibit entry into the market by would-be competitors of the Regional Companies, but because of the economic and technological infeasibility of alternative local distribution technologies” (pp. 16-17). Spulber is confused. In this passage, Judge Greene has simply expressed the opinion that local exchange competition would not develop even if regulatory barriers to entry were absent. He did not deny the existence of these barriers.

Spulber also claimed in his first affidavit that regulation creates regulatory burdens on incumbents. In his reply affidavit, he incorrectly asserts that we “do not address the incumbent burdens” in our first report (p. 16). On the contrary, we pointed out that Spulber made no attempt to establish that these burdens are quantitatively significant; that the RBOCs do not appear to be prepared to switch places with their nascent competitors in return for regulatory relief; and that such costs cannot possibly compare with a regulatory ban on entry (p. 56). The mere assertion that there might be some incumbent burden is not a sufficient justification for the conclusion that barriers to entry are unimportant.

The RBOCs’ affiants have also completely ignored two additional facts concerning regulatory barriers to entry. First, even where competition is permitted, other features of regulation (such as a statutory right to oppose entry) significantly slow the pace at which the potential of competition is realized (see our first report, p. 55). In his reply affidavit, Hausman (p. 23) agrees that “[c]ompetitors have historically used regulation to attempt to limit competition.” Wilk excuses this unintended consequence of regulation on the grounds that “[r]egulators must follow due process in all actions, including opening new

competitive opportunities" (p. 20). While this is certainly correct, it is not a response. Wilk's observation does not change the fact that regulatory observance of due process erects unintended barriers to entry. Second, even in the most progressive states, the regulatory groundwork for meaningful competition has not yet been laid (see our first report, pp. 55-56). Local network interconnection issues are still being settled, most states have not yet guaranteed competitors feasible and efficient access to rights-of-way, conduits, and other pathways used by LECs, and number portability is, in most instances, still problematic.

*Conclusion #14: The sunk costs of network construction continue to create a significant barrier to entry, even with the emergence of new technologies. Contrary to the assertions of the RBOCs' witnesses, local competitors have not yet sunk a significant fraction of the costs required to provide meaningful local exchange competition; nor do other factors identified by the RBOCs' witnesses mitigate the importance of sunk costs.*

In our first report, we noted that each available technology for local telephony requires substantial sunk investments in loops, transport, and switching. We also responded in detail to the specific arguments concerning sunk costs raised in Spulber's first affidavit. Here, we review the subset of arguments that Spulber revisits in his reply affidavit, restate the central criticisms of these arguments from our first report, and then evaluate Spulber's responses (as well as relevant comments from other reply affidavits).

(1) The extent of existing facilities duplication. Spulber argued in his first affidavit that competitors have already incurred the sunk costs of entry. We noted in response that CAP facilities are severely limited to a narrow clientele, that cellular service will not be competitive with wireline service without far-reaching upgrades based on developing technologies, and that, absent costly retrofitting, cable companies would have to use existing, commercially unproven facilities to provide telephony. For the vast majority of LEC customers, no existing facilities (aside from those of the LEC) are capable of providing local telephony on a cost-effective basis (pp. 57-58).

According to Spulber, we are in error because we "fail to recognize that a competitive service can be supplied with a technology that differs from the incumbent." On the contrary, we point out quite explicitly that these new technologies do not currently offer economically viable alternatives to wireline

service, and that, even under optimistic assumptions about their potential, they will not be capable of providing such service without large sunk investments.

Spulber also asserts we have ignored the “possibility that when combined, the segments served by the entrants cover most of the RBOCs’ exchange markets” (p. 19). We assume he has in mind a scenario wherein cable is used to provide telephony to residential customers in moderate to high density areas, wireless is used in low density areas, and CAPs are used to serve large businesses in metropolitan areas. This is one vision for the future, but it is not a reality today. The investments required to actually provide the vast majority of the customers with service have not yet been sunk.

(2) Replacement of network facilities with CPE. Spulber asserted in his original affidavit that the sunk costs of entry could be reduced by incorporating network functions into CPE. In his reply affidavit, he claims that we agree with this point (p. 21). This is nonsense. We did not choose to investigate this factual issue in the context of our first report simply because the stated “fact,” even if correct, would not justify Spulber’s conclusion. As we noted (p. 58), the necessary CPE is not currently widespread, and competitors today must build facilities to accommodate existing CPE. The alternative -- to build a network incorporating network functions into CPE -- would create obvious problems of interconnectivity (since the network would be unable to process calls from “dumb” CPE), necessitating the enormous sunk cost investment associated with replacing the entire network at once, rather than incrementally. In addition, the provider of the “dumb” network would have to provide customers with economic incentives to invest in “smart” CPE. Currently, this appears to be nothing more than a theoretical possibility.

(3) Strategies to reduce the significance of sunk costs. Spulber pointed out in his original affidavit that competitors can enter selectively or incrementally, and indeed they do *for particular services*. However, in our first report, we noted two problems with this strategy (p. 58). First, it does not necessarily reduce the size of sunk costs relative to potential economic rewards. Second, it usually leaves entrants dependent upon the LECs, and vulnerable to strategic manipulation. For this reason, Spulber is

simply wrong in asserting generally that “services need not have the same mix of customers as the incumbent in order to be competitive” (p. 19). As we have already noted, the more successful examples of selective entry have occurred in narrow circumstances where dependence on the LEC network is minimized (e.g. CAP entry into dedicated access), and where the entrants provide services that do not, by themselves, undermine the logic that justifies the MFJ. Selective or incremental entry into local network competition would be far more difficult.

Spulber does not deny the validity of our first point -- he merely reasserts his view that incrementalism and selectivity remove the need to replicate the entire network (p. 21). We will come to this issue shortly. For the moment, we merely reiterate the un rebutted point that entry barriers can arise when sunk costs are large relative to potential gains, even if the size of the operation is small.<sup>18</sup> This does not mean that sunk costs pose absolute barriers to entry in all cases. As Spulber notes, the need to sink costs has not precluded CAPs from entering certain markets. But the issue here is not whether barriers to entry are absolute; rather, it is whether these barriers are low enough to permit competitive entry sufficient to discipline the LECs’ use of market power and render rate regulation essentially obsolete. If, for example, the economics of CAPs usually prevent more than one CAP from entering the access market to serve the same section of the same metropolitan area, then, at most, entry will yield duopolies. This is probably not sufficient to guarantee the necessary erosion of LEC market power.

With respect to our second point, Spulber argues as follows (p. 22):

“The fact that entrants in the local exchange have begun by serving segments of the market demonstrates that one should not be concerned about the need to recreate the entire transmission system. Bernheim and Willig worry that entrants serving part of the market are left dependent on the RBOCs but the reciprocity agreements mentioned earlier suggest that there are incentives for local exchange networks (and interexchange networks as well) to interconnect in a mutually beneficial manner.”

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<sup>18</sup>This observation also applies to Woroch’s claim that CAPs can minimize the total amount of investment at risk by narrowly focusing their entry plans (p. 30). The size of incremental investment does not necessarily alter the relation between risk and expected return.

As we have emphasized, evidence of past entry does *not* disprove the need to recreate the entire transmission system *for competitors who intend to provide local network services*. We have distinguished the markets in which CAPs have been moderately successful by noting that these are generally cases in which vulnerability to LEC discrimination is minimal (since direct interconnection with the LEC is not typically required) and that competition in these narrow venues does not overturn the logic of the MFJ (since the LEC's network is still required for termination). Spulber has simply chosen to ignore this distinction.

Spulber's characterization of reciprocity agreements is also naive. The mere fact that a few firm have recognized a mutual interest along one dimension does not imply that they, or any other firms, will refrain from aggressive competitive activities, or even anti-competitive activities, along other dimensions. Reciprocity agreements are also inherently incapable of addressing the imbalance of bargaining power in service markets where the LECs hold all the cards.

In response to our second point, Spulber also writes that "[i]t is unclear why one should expect the competitive fringe in long distance to be any more aggressive than it is in the local exchange" (p. 23). This issue may well be unclear to Spulber, but the explanation was clearly stated in our original report (see p. 40, footnote 21). Small competitors in the market for local network services are entirely dependent on the LEC, whereas small IXCs are in no way dependent upon AT&T.

Woroch asserts that CAPs can reduce sunk costs by signing up customers in advance (p. 30). However, without a convincing demonstration of technical capability, quality, and reliability, and a guarantee of availability by a known date, customers may be unwilling to make commitments of sufficient duration to justify sinking the requisite costs. Woroch merely asserts the feasibility of this strategy without demonstrating that it is practiced successfully on a sufficient scale to measurably affect entry conditions.

(4) The role of technological change. In his original affidavit, Spulber argued that technological change places the RBOCs and competitors on a more equal footing, since the RBOC must also sink costs

to implement new technologies. We responded (p. 59) that (a) large sunk costs may protect the RBOC's market power even after its technology has become less efficient, (b) there is, as yet, no evidence that alternative technologies are even as efficient as existing wireline networks for the lion's share of customers, (c) updating an existing network may be less costly than building a new one from scratch, and (d) in contrast to its competitors, an RBOC does not have to attempt to recover the cost of deploying new technologies in an environment where it is dependent on a hostile competitor.

Without offering a specific response to any of these points, Spulber simply reasserts that the traditional technology is not protected from entry when the newer technology entails lower costs, or new services. He cites CAP fiber optic networks, VSAT point-to-multipoint distribution of data, and mobile wireless services as examples.

Spulber has entirely ignored the fact that the incumbent is ordinarily better positioned to implement new technologies. The incumbent needn't be concerned that its ability to recoup sunk costs will be eroded by competition subsequent to implementation (point (a) above), and, in cases where new technologies leverage off of the existing network, incumbents do not have to worry about discriminatory interconnection (point (d) above). In certain cases, incumbents may also discover that up-front costs can be reduced by making some use of existing facilities (point (c) above).

This is not to say that the incumbent *always* has an advantage. But further consideration of the three alleged counterexamples provided by Spulber (p. 23) actually establishes that technological "leapfrogging" of incumbents is the exception, rather than the rule. As we have emphasized repeatedly, successful CAP entry occurred primarily in situations where point (d) above was not a factor, and is properly regarded as a "cream-skimming" phenomenon stimulated by regulations that artificially inflated access prices. In the case of VSAT point-to-point distribution of data, the new technology differed greatly from traditional telephony, and the service in question did not require direct contact with local networks (again rendering point (d) inoperative). The case of wireline service simply does not fall into the category

of technological leapfrogging, since cellular telephony is not a more efficient substitute for wireline telephony (it is more properly regarded as an entirely separate service). Moreover, the pattern of entry in the cellular industry was primarily dictated by the FCC's procedures for allocating scarce spectrum.

*Conclusion #15: The availability of new technologies does not alter a LEC's ability to exploit strategically its entrenched position as the existing network provider.*

As we pointed out in our original report (pp. 60-61), as long as most parties continue to subscribe to the RBOC's local network, other parties will need to access that network. Thus, potential local exchange competitors are entirely dependent on the RBOC's network. It is therefore not surprising that such competition as exists has largely been confined to those services that are least dependent on direct interconnection with the local network (such as originating access, or terminating access for dedicated point-to-point communications). Even the modest success of CAPs in alternative access therefore cannot be generalized to the other aspects of local network services upon which long distance carriers necessarily rely. The logic of this argument is unrebutted.

*Conclusion #16: The natural monopoly issue is indirectly relevant to the MFJ only insofar as it is used as a justification for maintaining regulatory barriers to competition at the state level. While some RBOC witnesses argue that the local exchange is not, and perhaps never has been, a natural monopoly, their reasoning and analysis of the data is inherently flawed. Whether this situation will change with the emergence of new technologies is a matter of speculation.*

As we have established here and in our first report, the desirability of the MFJ's line of business restrictions does not depend on the existence or non-existence of a natural monopoly in local telephony. If conditions of natural monopoly are satisfied, then this might justify the granting of exclusive franchises for local telephone service, which would automatically create sufficient market power to justify the Decree. However, even if these conditions are not satisfied, the LECs may still possess substantial market power, and pose severe risks to competition.

Two RBOC affiants -- Spulber and Ying -- address the natural monopoly issue in their reply affidavits. Spulber never attempts to prove that the local exchange is *not* a natural monopoly. Rather, he

provides a variety of reasons for believing that it *might not* be a natural monopoly. In contrast, Ying attempts to demonstrate that the conditions of natural monopoly are not satisfied.

The discussion of natural monopoly in Spulber's reply affidavit focuses exclusively on the issue of multiple technologies (pp. 11-15). He asserts that a natural monopoly is not present unless one technology dominates all others at all relevant output levels (p. 12). He also claims that different technologies offer different advantages (e.g. bandwidth or mobility), so that it is very difficult to determine whether the best mixture of services has the properties of a natural monopoly.

There are at least two critical problems with Spulber's arguments. First, nowhere does he dispute the claim that traditional, low bandwidth, *wireline* telephone service is provided under conditions of natural monopoly. If one accepts this premise, then the granting of an exclusive low bandwidth *wireline* franchise could well be justified. Unless alternative technologies are sufficiently competitive with wireline service (which they are not), the low bandwidth wireline provider would possess significant market power, presumably constrained by regulation, by virtue of its franchise. In this case, conditions of natural monopoly would indeed continue to justify the Decree's application.

Second, even if alternative technologies are reasonable cost-competitive substitutes for wireline service, Spulber's argument would not establish the absence of natural monopoly. As we argue in our original affidavit, greater efficiency "could equally well arise from the integration of wireline, cable, and wireless telephony within a single LEC territory" (p. 44). Spulber responds that this claim is without foundation (p. 11), that natural monopoly requires such economies to exist system-wide (p. 14), and that advances in computer and switching technology permit the interconnection of multiple networks operated by different firms (p. 14). But each of these points was addressed in our first report (pp. 43-44) -- Spulber

simply ignores our responses. As we noted, the RBOCs' own witnesses have testified to the pervasive advantages of integration, and the inability to achieve important efficiencies through interconnectivity.

As discussed in our first report, Ying's analysis is severely flawed in its conceptualization, and sheds no light whatsoever on the issue of interest. We explained this point as follows (p. 42):

"[T]he relevant question is whether it is more efficient to serve the *same* customers with one network, or two different networks. In contrast... Ying investigate[s] whether it is efficient to serve *different* customers with one network, or two different networks. Only the first question speaks to the issue of whether networks can compete head-to-head, rather than exist in a non-competitive relationship side-by-side."

Ying claims (without explanation) that the case of head-to-head competition is addressed by his tests (p. 15), but this is obviously incorrect. Exhibit A of his first affidavit describes the manner in which he divides up a LEC's demand and facilities between two hypothetical local exchange competitors. On page 10, Ying explains that "[a]s the monopoly outputs are divided between the two firms, most of the other variables in the cost function are left unchanged. The only exception is the central office (CO) variable" (emphasis added). This implies in particular that the division of a LEC's territory between two competitors is assumed to have no effect on average loop length (AL) -- Ying's only measure of teledensity. Yet it should be obvious that, if real head-to-head competition is to exist, then the areas served by the two competing LECs must overlap, and hence teledensity must decline. Notably, Ying finds (exhibit A, p. 7) that lower density areas are more costly to serve (primarily as a consequence of interaction terms). Thus, he neglects entirely the increase in costs associated with lower effective teledensity that would result from the introduction of a second LEC.

Woroch's reply affidavit also contains several assertions concerning the natural monopoly issue. He begins with the thoroughly perplexing statement that our reasoning concerning natural monopoly "is based entirely on cost conditions; it fails to take into account the demand side of these markets" (p. 28). But as essentially all economists aside from Woroch (including RBOC affiant Ying) recognize, the question of natural monopoly is a technical issue about cost conditions -- the demand side of the market is only

relevant for assessing whether conditions of natural monopoly are present insofar as it affects the scope and scale of the market.. A similar comment applies to Woroch's observation that "users benefit from price competition when two carriers vie to serve the same markets" (p. 28). With respect to the claim that "[c]ustomers... enjoy a higher level of overall reliability when they subscribe to two or more carriers" (p. 28), it seems very likely that a single carrier could assure such reliability more efficiently by providing greater redundancy for the more vulnerable portions of the network. The fact that CAPs have deployed low cost systems in certain areas (Woroch, p. 25) does not rule out the possibility that LECs could implement these same systems at lower cost via economies of scope, nor does it challenge the view that there is a local wireline natural monopoly for most customers. Contrary to Woroch's assertion (p. 29), conditions of natural monopoly are entirely consistent with patterns of behavior where the incumbent responds to actual or potential entry.

## **B. THE STATUS OF LOCAL COMPETITION**

*Conclusion #17: The appropriate standard for evaluating local competition in the context of the MFJ's line of business restrictions is not whether some competition exists, but rather whether competition is sufficient to rule out the exercise of significant market power, and render redundant existing regulatory constraints on rates and returns. The RBOCs' affiants have made no attempt to demonstrate that this condition is satisfied. Moreover, the case to vacate the MFJ is based on a fundamental inconsistency concerning standards of competitiveness. None of the evidence on local competition cited by the RBOCs' affiants comes even remotely close to satisfying the minimal standards of competitiveness that the RBOCs' witnesses set forth in the context of interLATA services.*

As we have explained in section II, the MFJ is motivated by two concerns: first, that the RBOCs would leverage market power into currently proscribed services, and second, that the RBOCs would subvert regulators' attempts to limit the exercise of market power by shifting costs to regulated services. The existence of a monopoly is not essential in either case. Since both motives arise from regulatory

restrictions on rates, the correct criterion to apply is whether the RBOCs would raise these rates significantly in the absence of regulation. In other words, the relevant question is whether competition has rendered rate regulation essentially redundant for the RBOCs. Aside from the obviously incorrect assertion that we are imposing a standard of *perfect* competition, the logic of this argument is unchallenged.

We also pointed out in our first report (pp. 61-65) that the RBOCs and their witnesses impose a much less demanding standard for establishing the existence of competition in local service than in long distance. If anything, the logic of the MFJ implies that the appropriate standards of competitiveness should be *more* demanding in the context of local services (due to the potential for exploitation of the network externalities resulting from an RBOC's entrenched position as the incumbent network provider, with control over switched terminating access), than in the context of interLATA services. The central inconsistency in the RBOCs' position remains unexplained, and our argument concerning the need for a *more* demanding standard in the context of local service is unchallenged.

The RBOC witnesses clearly have not used the correct standard to evaluate the intensity of local competition. Nowhere is this clearer than in the following passage from Woroch's reply affidavit (pp. 28-29): "A monopolist secure in its control of the market would not issue a response to small-scale actual or potential entry... But... the RBOCs have reacted with lower prices and improved service quality." We take up substantive issues concerning indicia of competition below. For the moment, one should simply observe that Woroch's stated objective is to demonstrate that the local exchange is not a monopoly. This hardly suffices to justify the elimination of the Decree.

The issue of competitive standards is addressed indirectly in Hausman's affidavit. With considerable irony, Hausman suggests that "[n]o amount of competition, apart from perfect competition, seemingly will suffice for [Bernheim and Willig] to agree that the MFJ restrictions should be removed" (p. 25, footnote 59). This appears to be an intentional misrepresentation of our position. We have repeatedly

stated that the relevant criterion is not perfect competition, but rather whether regulation constrains the exercise of significant market power. In addition, we have spelled out, on the public record, a detailed proposal for determining whether competition in local exchange services is sufficient to justify removal of the MFJ's line of business restrictions<sup>19</sup> -- something which Hausman, for all his bluster and rhetoric, has not done. The truth is that, for Hausman and the RBOCs, *any* amount of documented competition suffices to gut the MFJ, whether or not this competition can be shown to have any measurable impact on actual market outcomes.

In the same context, Hausman also attempts to draw an analogy between the RBOCs and AT&T, arguing that AT&T has market power, and therefore should also be subject to line of business restrictions.<sup>20</sup> This analogy is misplaced for a number of reasons, including the following: (1) local service is clearly differentiated from long distance service with respect to the potential for market power, since regulatory barriers to local competition still exist in many instances, and since LECs are capable of exploiting their positions as entrenched network providers (due to the near monopoly on switched terminating access), whereas IXCs are not (see our first report, p. 40, footnote 21); (2) long distance is already characterized by vigorous competition (see section VI), whereas local service is not; and (3) AT&T is subject only to price cap regulation at the federal level, whereas many RBOCs are subject to either rate-of-return regulation or hybrid incentive schemes at the state level.

***Conclusion #18: Competition in local services does not yet exist in the forms or on the economic scale necessary to alleviate the concerns that motivate the line of business restrictions. The ultimate competitive effects of emerging alternatives to the local wireline exchange remain speculative.***

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<sup>19</sup>B. Douglas Bernheim and Robert D. Willig, "Appropriate Preconditions for Removal of the InterLATA Restrictions on the RBOCs," pp. 44-51 (filed with DOJ February 14, 1994).

<sup>20</sup>In fact, in his testimony concerning the AT&T-McCaw merger, Hausman argued that AT&T should be barred from cellular service because it allegedly has market power and faces binding rate regulation. Hausman McCaw Affidavit, p. 28, paragraph 45. The inconsistency is therefore his, and not ours. Indeed, given the existence of this prior testimony, it is disingenuous, to say the least, for him to argue in this proceeding that the RBOCs should not be subjected to line of business restrictions.

In our original report, we noted that access competition is narrowly limited, and places downward pressure on access charges only at artificially inflated, supracompetitive prices. As discussed in section 2, the existence of cost-competitive access alternatives would not, in any event, alleviate the concerns that justify the line of business restrictions. Since calls terminate at disperse destinations, point-to-point service (facilitated by dedicated access at both ends) cannot substitute for long distance services that make use of local exchange networks. Moreover, the LECs remain the only economically meaningful providers of local switched network services, and barriers to providing competitive local switched network services are far larger than the barriers to providing access services. Thus, even with cost-competitive access alternatives, the LECs' facilities would remain necessary for terminating the vast majority of calls. Wireless and cable technologies may ultimately challenge LEC dominance of local switched network services. However, current mobile services are not cost-effective alternatives to wireline loops. With only minor exceptions, cable telephony is not yet an *economic* reality in the United States, and experience with cable telephony in the U.K. is largely irrelevant to the U.S.

Much of the material on local competition contained in the RBOC affiants' reply affidavits covers well-trodden ground, and adds little of substance to the debate (see e.g. most of the discussion of local competition in Hausman's reply affidavit, pp. 24-27). There are, however, some arguments that merit direct refutation. We will therefore review each of the major sources of alleged competition, and evaluate the new assertions of the RBOCs' witnesses.

(1) General issues. Spulber argues that our analysis of competitive technologies "appears to be based entirely on the criterion that an alternative technology must have a high current market share. Their denial of the *current and future* impact of technological change in telecommunications is startling and inconsistent with industry developments" (p. 6). In response, we would suggest simply that Spulber reread pages 45 to 53 of our first report. While we certainly regard market share as a significant consideration

(for the reasons discussed above), our analysis is also based on existing and potential capabilities, uncertainties, and technical limitations. However, Spulber's comment does hint at one key distinction between his position and ours. We distinguish between *technical feasibility* and *competitive impact*, whereas as Spulber and the other RBOC affiants do not. Likewise, we require evidence, in addition to the statements of technologists, that an alternative technology has met the market test in direct competition with an existing wireline network, whereas Spulber and the other RBOC affiants do not. Finally, we insist on proof that alternative technologies are at least beginning to render regulatory restrictions on RBOC pricing obsolete, whereas Spulber and the other RBOC affiants do not.

To illustrate the uncertainties associated with the deployment of new telecommunications technologies, it is worth quoting at length from a recent *Wall Street Journal* article (7/24/95, p. 1) on the RBOC's efforts to provide interactive services:

"The Baby Bells' video networks were supposed to be spewing out interactive fare to a few million homes by now, but they are barely off the drawing board. Hampered by technical snags, soaring costs and regulatory hurdles, the Baby Bells and the cable-television giants as well are nowhere near making good on their much-hyped promises to build interactive networks across their regions.

Now, many of these telecommunications titans are in retreat. The market trials once hailed as the start of a commercial launch have been scaled back, and some Bells say they aren't sure they will build the systems at all..

How could the Bells have been so wrong? The main reason is they vastly underestimated the difficulty of the undertaking...

The biggest obstacle is cost. 'It's like going to the moon,' technically possible but economically infeasible, says Mary Modahl of Forrester Research Inc.

...[N]ew technology vendors, anxious to land a sale, make grand claims, only to have their equipment fail in the lab."

(2) CAPs. Spulber argues that the competitive pressure from CAPs is a reality, and not speculation: "[t]he competitive success and rapid growth of CAPs shows conclusively that the technology that they employ is available today" (p. 11). He ignores entirely the many limitations on CAPs cited in our first report (pp. 45-48), including: (a) CAPs cannot generally substitute for a LEC's access services on