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II. PURPOSE OF AFFIDAVIT

3. The purpose of this affidavit is three-fold. First, we summarize our research findings concerning whether vertically-integrated local exchange carriers have incentives to discriminate against their rivals in the downstream (in-region) interLATA long distance marketplace.¹ Second,

¹ David S. Sibley and Dennis L. Weisman, "The Competitive Incentives of Vertically-integrated Local Exchange Carriers: An Economic and Policy Analysis." *Journal of Policy Analysis and Management*, Volume 17, No. 1, 1997, Forthcoming; and David S. Sibley and Dennis L. Weisman, "Raising Rivals' Costs: The Entry Of An Upstream Monopolist Into Downstream Markets," University of Texas Working Paper, March 1997. [An earlier version of this latter paper was entitled "Competitive Incentives of Vertically-Integrated Local Exchange Carriers," University of Texas Working Paper, November 1995.]

we use the framework developed in our research to examine the conditions under which a vertically-integrated provider, in this case SBC, would have incentives to behave in anti-competitive fashion. Our findings, which are based on publicly-available data and conservative assumptions, suggest that, even if SBC were somehow able to circumvent the stringent separate subsidiary requirements mandated under Section 272 of the Act, it has no incentive to raise its rivals' costs (discriminate) in the downstream interLATA long distance market until it reaches market shares in excess of 20 percent. This "critical market share" value should probably be interpreted as a lower-bound estimate. An upper-bound, albeit plausible, estimate of the critical market share value ranges upwards of 30 percent. Moreover, to the extent that the separate subsidiary requirements function as conceived in the Act, and there is ample historical precedent to believe that they will, the incentives to discriminate may not arise at all. Finally, we rebut the erroneous assertions made by Professor Robert Hall (on behalf of MCI) concerning our research and its implications for the entry of Southwestern Bell Long Distance ("SBLD") into the interLATA long distance market. In particular, the main contribution of our research is not, as Professor Hall claims, that there are unambiguous incentives for the vertically-integrated local exchange carrier to discriminate against rivals. To the contrary, we find and have so stated, that under plausible conditions the vertically-integrated provider would not have incentives to discriminate against rivals but, in fact, to act in a pro-competitive manner. The general basis for this finding is as follows. The vertically-integrated provider faces a trade-off between access profits and long distance profits. For a sufficiently large number of downstream competitors (as few as 3 in the case of constant elasticity of demand), the vertically-integrated provider's equilibrium share of the long distance market becomes sufficiently small that it gains more from stimulating access volumes (by lowering its rivals' costs in order to

reduce long distance prices) than it loses in long distance profits. On the basis of this analysis, we conclude that SBC's entry into the interLATA long distance place can be expected to promote competition and enhance consumer welfare.

4. We begin with a recent inquiry by the Department of Justice regarding the prospective entry of the Regional Bell Operating Companies (RBOCs) into the interLATA long distance market. This question is examined in light of current and historical issues raised by AT&T and the other interexchange carriers (IXCs) regarding the RBOCs' ability to raise rivals' costs. We then explain why SBC would not have an incentive to raise its rivals' costs even if it did possess the ability to do so.

III. ABILITY VS. INCENTIVE TO DISCRIMINATE

5. In a recent inquiry concerning the prospective entry of the RBOCs into the interLATA long distance market, the Department of Justice (DOJ) posed the following question: Will the Bell Companies' *ability* or *incentive* to hamper competition be affected by their entry into long distance (emphasis added).² We believe this distinction between the ability and the incentive to discriminate is critical in determining when SBC's entry into the interLATA long distance market satisfies the public interest standard.

6. We contend further that the risk of discrimination is a product of the opportunity to discriminate and the ability to discriminate. There can be no bonafide risk absent the ability.

² Department of Justice. *Justice Department Asks For Public Comments About Bell Operating Companies' Entry Into Long Distance*. Press Release, Washington, D.C., November 21, 1996.

Likewise, there is no risk if the ability to discriminate exists, but not the incentive.³ The ability and incentive to discriminate are jointly as essential to the creation of a legitimate risk of discrimination as hydrogen and oxygen are to the creation of water.

7. As we explain in greater detail below, SBC does not have the incentive to discriminate against rivals in the downstream interLATA long distance market even if it were to have the opportunity. By the time SBC's downstream long distance market share reaches the critical level, if in fact it ever does, SBC may then have the incentive to discriminate but no longer the opportunity.

IV. UNDERSTANDING THE LESSONS OF HISTORY

8. Professors Bernheim and Willig caution policymakers about the alleged anti-competitive activities of the Bell System prior to divestiture.⁴ The following citations capture the basic thrust of their admonitions:

"The RBOCs have at their disposal a wide range of potential strategies for raising rivals' costs, degrading the quality of rivals' services, or simply favoring their own interLATA facilities, including many of the same strategies that were employed by the former Bell System."⁵

³ For a formal analysis of this trade-off, see Dennis L. Weisman, "Regulation and the Vertically Integrated Firm: The Case of RBOC Entry Into InterLATA Long Distance. *Journal of Regulatory Economics*, 1995, 8, pp. 249-266.

⁴ B. Douglas Bernheim and Robert D. Willig. *Appropriate Preconditions for Removal of the InterLATA Restrictions on the RBOCs*, Affidavit filed with the United States Department of Justice in support of AT&T's Opposition to Ameritech's Motions for "Permanent" and "Temporary" Waivers from the Interexchange Restriction of the Decree (D.D.C.) Case No. 82-0192 (February 15, 1994).

⁵ *Ibid*, p. 22.

“Prior to the MFJ, Bell proved to be highly capable of inventing novel methods of discrimination, and the regulatory process became mired in the futile task of attempting, on a timely basis, to distinguish between legitimate practices and pernicious ones.”⁶

9. A few observations regarding these statements are in order. First, when Professors Bernheim and Willig refer to the “former Bell System” this, of course, includes AT&T. Second, the ability to discriminate does not in and of itself constitute a risk of discrimination, as we have previously explained. Third, drawing parallels between the Bell System prior to divestiture and the RBOCs today is problematic for a number of reasons, not the least of which are the relative changes in the carrier access and long distance markets. For example, at the time of divestiture, AT&T maintained well over a 90 percent share in the long distance market while the carrier access market was in its infancy. Conversely, the RBOCs currently maintain well over a 90 percent share in the carrier access market and an infinitesimal share of the interLATA long distance market. As we shall see subsequently, these observations simultaneously explain (i) why AT&T may have had incentives to discriminate against MCI prior to divestiture; and (ii) why SBC and the other RBOCs probably do not have incentives to discriminate against the IXCs in the current environment.

V. THE BASIC MODEL

10. The linkage between the carrier access input market and the retail long distance market is critical to our analysis, as it is necessary to evaluate the net financial effects of SBC’s actions in both markets. Should SBC be authorized to provide interLATA long distance service, it would become a vertically-integrated supplier of carrier access and interLATA long distance. SBC is

⁶ Ibid, p. 23.

currently a vertically-integrated provider of carrier access and intraLATA long distance.

11. To develop some intuition for our more formal analysis, we consider the following question: If it were within SBC's power to lower the costs of the IXCs operating in its service territory, would it choose to do so? This question is easily answered in the affirmative when SBC has no presence in the interLATA long distance market (i.e., an interLATA market share of zero). Under these conditions, lower costs for the IXCs translate into lower prices for retail long distance services which, in turn, stimulates long distance demand and hence the demand for carrier access services on which SBC earns a positive margin. Hence, SBC has unambiguous incentives to lower the costs of the IXCs under these conditions.

12. Suppose now that SBC is authorized to provide interLATA long distance services. Does SBC still maintain incentives to lower the costs of the IXCs? The scenario is now slightly more complicated because there are countervailing effects to evaluate. On the one hand, lowering the IXCs costs tends to lower long distance prices and thus stimulate demand for carrier access on which SBC earns a positive margin. On the other hand, a lower long distance price reduces the profitability of SBC's interLATA long distance operations. The primary objective of our modeling framework is to determine which of these two effects dominates the other as SBC gains market share in the interLATA long distance market.

13. We begin with the conservative assumption that SBC is a monopolist in the market for carrier access services and that it can directly influence its rivals' costs in the downstream interLATA market. The regulatory authority is assumed--solely for the purposes of making our analysis conservative--unable to monitor the influence that SBC maintains over its rivals costs. We posit a fixed proportion relationship between carrier access minutes and interLATA long distance

minutes so that each minute of interLATA long distance requires two access minutes (of which SBC may supply one minute or both).

14. We define the following variables for our analysis. P is the average market price of a minute of interLATA long distance, w is the access charge per minute, c is incremental cost of an access minute, s_L is SBC's in-region market share (measured in minutes) in the interLATA long distance market, ϵ is the industry price elasticity of demand for interLATA long distance, r is the share of incremental profits that SBC is allowed to retain in the regulated carrier access market ($r = 1$ under pure price cap regulation), π is SBC's joint profits in the carrier access and interLATA long distance markets, and θ is the efficiency parameter for SBC's rivals in the downstream interLATA long distance market. Consistent with our previous discussion, we assume that SBC has the ability to raise (lower) θ and hence lower (raise) its rivals' costs.

15. We now examine the conditions under which SBC has the incentive for pro-competitive behavior which implies lowering its rivals' costs or raising θ . Specifically, our objective is to identify those conditions under which raising θ serves to increase SBC's joint carrier access and interLATA long distance profits (π). We can express the fundamental mathematical condition as follows:⁷

$$\text{sgn}\left[\frac{\Delta \pi}{\Delta \theta}\right] = \text{sgn}\left[r(w - c) - \frac{s_L P}{\epsilon}\right] > 0,$$

where "sgn []" indicates the sign (positive or negative) of the expression within the brackets. Let

⁷ For the derivation of this equation, see Sibley and Weisman, March 1997, Op.Cit.

us focus on the expression in the brackets to the right of the equals sign in the above equation. The first term, $r(w - c)$, is positive and represents the increased profitability for SBC in the carrier access market when the IXC's costs are reduced. This term can be viewed as the opportunity cost of displacing a unit of a competitor's traffic. The second term, $-s_L P/\epsilon$, is negative and represents the decreased profitability for SBC in the interLATA long distance market when long distance prices fall as a direct result of the IXC's costs being lowered. When the sum of these two effects is positive, SBC's incentives are to lower its rivals' costs. When the sum of these two effects is negative, SBC's incentives are to raise its rivals' costs.

16. Which of these two effects dominates over the other depends on SBC's growth path into the interLATA market. When SBC first enters, it will be capacity-constrained (i.e., there are operational constraints on its ability to serve actual demand) and its market share (s_L) will be very small, making the expression in brackets positive, and meaning that SBC's interest is best served by reducing costs to its interLATA competitors. We refer to this finding as *Result 1*. As SBC increases capacity, s_L will rise and the expression will turn negative, meaning that SBC's incentives will become anticompetitive. In long run equilibrium, when the subsidiary acts to maximize the total profits of SBC and not its own, its incentives are anticompetitive. We refer to this finding as *Result 2*. Therefore, it is important to calculate a "critical" market share, the level where SBC's incentives turn from being procompetitive to being anticompetitive. If these critical market shares are large, then SBC's incentives are likely to be procompetitive for a considerable period of time.

17. We can determine those critical (in-region) interLATA market share values (s_L^*) below which SBC's incentives are to act pro-competitively and lower its rivals' costs. We use the following

input values to construct our benchmark case: $r = 1$ (pure price cap regulation), $w = \$0.035$,⁸ $c = \$0.005$,⁹ $P = \$0.145$,¹⁰ and $\epsilon = 0.7$.¹¹ Also, on average, approximately 60 percent of interLATA calls that originate in an RBOC's service territory also terminate in that service territory.¹² This further implies that 40 percent of all interLATA calls that originate in an RBOC's service territory terminate outside that service territory. Hence, on average, the RBOC bills approximately 1.6 access minutes for each interLATA long distance minute that originates in its service territory.¹³ Table 1 below displays the critical market share values for the conservative benchmark case. Hence, for intra-region traffic, the analysis implies that SBC has incentives to reduce its rivals' costs for all interLATA long distance market shares less than 29 percent. The average critical market share value across all call types is 23.2 percent.

TABLE 1

<u>CALL-TYPE</u>	<u>CRITICAL MARKET SHARE (s_i^*)</u>
INTRA-REGION	29.0%
INTER-REGION	14.5%
AVERAGE	23.2%

⁸ Federal Communications Commission, Monitoring Report, 1996, Table 35.

⁹ WEFA, Economic Impact of Eliminating The Line of Business Restrictions On The Bell Companies, 1993, p. 21.

¹⁰ *Affidavit of Robert E. Hall On Behalf of MCI*. CC Docket No. 97-121, p.12.

¹¹ Lester D. Taylor. *Telecommunications Demand in Theory and Practice*. Boston: Kluwer Academic Publishers, 1994, p. 143.

¹² Bernheim and Willig, Op. Cit. p. 27.

¹³ $1.6 = 0.6(2) + 0.4(1)$.

18. The critical market share values in Table 1 are based on extremely conservative assumptions and should therefore be interpreted as lower-bound estimates. A number of factors that would tend to increase the critical market share values are not reflected in the analysis. These include the following: (a) The SBC-Pacific merger will tend to increase the proportion of calls that originate and terminate within SBC's operating territory; (b) InterLATA long distance prices will likely decline with competitive entry; (c) There is empirical evidence that the price elasticity of demand in the interLATA long distance market may be larger than 0.7 and, in fact, may range upwards of 0.89;¹⁴ (d) The access costs in the numerical simulations may be overstated given the FCC's recent decision to increase the X-factor in their price cap plan for the RBOCs to 6.5 percent,¹⁵ which anticipates rapid technological progress and hence large reductions in operating costs; (e) The analysis does not take into account the fact that the RBOCs may be dependent on the IXC's for interLATA transport; (f) There is no explicit consideration of any regulatory or antitrust penalties that may be imposed should the RBOCs engage in discriminatory behavior. To produce upper-bound, albeit plausible, estimates of the critical market share value, we assume that the actual price elasticity of demand is 0.89 and that 70 percent of all interLATA minutes that originate in the joint SBC-Pacific territory also terminate in that territory, but all of the other parameters remain unchanged. Table 2 provides these estimates. The average critical market share value across all call

¹⁴ Michael, R. Ward. *Measurements of Market Power In Long Distance Telecommunications*. Bureau of Economics Staff Report, Federal Trade Commission, Washington, D.C., April 1995, p. 33.

¹⁵ See *Commission Reforms Its Price Cap Plan* (CC Docket 94-1), Report No. CC 97-22. Common Carrier Action, May 7, 1997.

types is approximately 31.3 percent.

TABLE 2

<u>CALL-TYPE</u>	<u>CRITICAL MARKET SHARE (s_i^*)</u>
INTRA-REGION	36.8%
INTER-REGION	18.4%
AVERAGE	31.3%

19. These results suggest that SBC's incentives are procompetitive until quite large downstream market shares are reached. To attain these market shares may take a considerable period of time. If so, SBC is unlikely to be anything approaching a monopolist in the supply of access (or network elements) at that point, and the whole problem is rendered moot.

VI. SIGNIFICANCE OF SEPARATE SUBSIDIARY REQUIREMENTS

20. The simple model of a vertically-integrated firm described above does not allow for the possibility that the downstream subsidiary will do anything other than choose the quantity that maximizes profits for the entire integrated firm. However, there are reasons to believe that this may be too simple a view.

21. For one thing, when regulated monopolies such as local exchange carriers diversify into other lines of business, regulators require safeguards to be erected so as to ensure that the subsidiary acts as much as possible like an independent downstream competitor. In the case of SBC, these restrictions are (a) that information flows between the parent company and the subsidiaries be

severely restricted; (b) that the subsidiary acquire inputs from SBC on the same observable terms as its downstream competitors; (c) that the manager of the subsidiary is compensated predominantly on the basis of the earnings of the subsidiary, particularly in the short run; and (d) that the subsidiary maintain completely separate financial, accounting, and net income statements.

22. With these restrictions being forced on the parent-subsidary relationship, it is not clear that complete cooperation between the subsidiary and the parent is feasible or likely. Given the usual restrictions on information flows, it would be difficult for the downstream subsidiary to know at what point its output becomes excessive from the standpoint of the parent company. Further, given that compensation for the subsidiary's management is based largely on the subsidiary's own earnings, an obvious incentive of its management is to maximize those earnings. Perhaps for these reasons, Congress and policymakers have taken the view that restrictions such as these, as well as the specific operational items in the Section 271 "competitive checklist" are sufficient to ensure independent behavior by long distance subsidiaries.¹⁶

23. There are other reasons, too, why subsidiaries might be presumed to maximize their own profits. The simple model of a single integrated firm ignores any possibility of a divergence of interest between the parent company and the management of the subsidiary. And yet such divergences may well exist.

¹⁶ The separate subsidiary structure is not unique to the Act and the FCC has extensive experience with the requisite oversight of separate subsidiaries for AT&T and the RBOCs. In fact, a former FCC chairman and a former Chief of the Common Carrier Bureau have argued that the problem with separate subsidiaries is not that the restrictions on the parent company are easily circumvented, but that in some sense these restrictions work too well in that they serve to impose extremely high costs on the parent company. See Mark S. Fowler, Albert Halprin, and James D. Schlichting. "Back To The Future: A Model For Telecommunications." *Federal Communications Law Journal*, 1986, 38(2), pp. 188-193.

24. For example, the head of the subsidiary may well have career options in mind beside returning to the parent company. If he/she shows ability in running the subsidiary, as measured by observed earnings, then he/she may well become attractive to a downstream competitor or to a company considering entry into the market.¹⁷ If the manager were to purposefully lower those earnings in the interest of the overall profit of the parent, only the lower-than-possible earnings would be easily observable to outside employers, not the benefits to the parent company. The head of the subsidiary might claim to a future employer that he/she had been acting altruistically on behalf of the larger interest of the parent. A claim of this sort made by the head of the subsidiary might be taken by outside employers as a coverup for lack of executive ability if the subsidiary is not performing well financially. Therefore, it is plausible that the subsidiary's management might well place more weight on the profits of the subsidiary than on the whole parent company. Denote by λ the weight placed by the subsidiary's management on total company profits and $1-\lambda$ the relative weight placed on the subsidiary's profits (π_d). The objective of the subsidiary is then to maximize

$$\pi_d + \lambda \cdot (w - c) \cdot x,$$

where x is access usage by competitors. To the extent that λ is low, for the reasons just discussed, the subsidiary will act approximately as if its sole objective were to maximize its own profits.

25. Even ignoring outside opportunities, the parent company itself may have incentives to structure executive compensation so as to induce the subsidiary to maximize its own profits. Suppose

¹⁷ This practice is quite common in high-technology industries, which includes computers and telecommunications. For a recent, example, see John J. Keller. "AT&T Wireless-Services Unit Loses Three Top Executives to Craig McCaw." *The Wall Street Journal*, May 8, 1997, p. B13.

that the parent company has more than one subsidiary and it regards success in heading a subsidiary as a strong signal that a subsidiary head is capable of being promoted to lead the parent company at some point in the future. In this setting, the parent may rationally grant wide discretion to the individual subsidiaries in order to discern the true talents of the subsidiary heads. In other words, the future CEO is in essence the winner of a tournament between the subsidiary heads, where the most easily observable measure of performance is each subsidiary's earnings. In this setting, heads of subsidiaries would likely place greater weight on maximizing their own earnings. From the standpoint of the parent, inducing behavior that is suboptimal at a given period of time may be worth doing if it accurately reveals who will make a good future CEO and benefit the company over a number of periods in the future. This common practice is discussed in the following passage from a seminal article on the theory of labor contracts:

Consider the salary structure of executives. It appears as though the salary structure of, say, the vice-president of a particular corporation is substantially below that of the president of the same corporation. Yet, presidents are often chosen from the ranks of vice-presidents. On the day that a given individual is promoted from vice-president to president, his salary may triple. It is difficult to argue that his skills have tripled in that one day period, ... It is not a puzzle, however, when interpreted in the context of a prize. The president of the corporation is viewed as the winner of a contest in which he receives the higher prize, W_1 . His wage is settled on not necessarily because it reflects his current productivity as president, but rather because it induces that individual and all other individuals to perform appropriately when they are in more junior positions.¹⁸

26. For these reasons, we modify the model described above by having the downstream subsidiary choose its output to maximize its own profits. Doing so, we have calculated that when the downstream demand function has a constant price elasticity of demand, the upstream

¹⁸ Edward P. Lazear and Sherwin Rosen. "Rank-Order Tournaments as Optimum Labor Contracts." *Journal of Political Economy*, 1981, vol. 89, no. 5, p. 847.

monopolist's equilibrium incentives are to reduce costs to its downstream rivals as long as there are at least three (equally sized) firms that compete with the subsidiary, which implies an equilibrium in-region market share of 25 percent for each firm in the downstream market. The rationale for this result is as follows. The RBOC again faces a trade-off between access profits and long distance profits. For a sufficiently large number of downstream competitors (which implies a sufficiently small equilibrium downstream market share), the RBOC's equilibrium share of the long distance market becomes so small that it gains more from stimulating access volumes (by lowering its rivals' costs to reduce long distance prices) than it loses in long distance profits. We refer to this finding as *Result 3*.

VII. REBUTTAL OF SPECIFIC ISSUES RAISED BY PROFESSOR HALL

27. Professor Hall Mis-Characterizes The Research Literature.

a) In paragraph 121 of his affidavit, Professor Hall states "A number of economists have studied the question of whether a monopoly seller of access has an incentive to cooperate with its rivals in the downstream market." This statement implies a substantial literature, but if it refers to the academic literature, this is misleading. To the best of our knowledge, the entire academic literature consists of our research on this issue (see notes 1 and 3) and the 1997 Economides' paper referenced by Professor Hall (note 47). Only these papers examine the economic incentives to engage in non-price discrimination against downstream competitors which are also upstream access customers. (The consulting reports referred to by Professors Fisher and Schmalensee *et al* are apparently based, at least in part, on our work.)

b) It is also misleading for Professor Hall to claim that this literature, small as it is, says with

one voice that “No author has found circumstances where rational conduct by the access supplier would cause it to help its downstream rivals” (Hall at paragraph 121). Professor Hall mentions only in passing our Result 1 and our Result 3, while focusing on Result 2, which is in the best interest of his client. With all due respect to Professor Hall, the main contribution of our paper is not that there are unambiguous incentives for the vertically-integrated local exchange carrier to discriminate against rivals. To the contrary, we find and have so stated, that under plausible conditions the vertically-integrated provider would not have incentives to discriminate against rivals but, in fact, to act in a pro-competitive manner.

28. Professor Hall’s Critique of Critical Market Shares Is Incorrect.

a) Professor Hall criticizes our critical market share analysis on three grounds. First, he claims that “it is completely unrealistic and contrary to basic principles of economics” to assume that the downstream subsidiary acts to maximize its own profits rather than that of the parent company (Hall at paragraph 125). This criticism ignores the extensive literature on principal-agent theory in which it is axiomatic that a divergence of interests exists between a principal (the parent company, in this case) and an agent (the downstream subsidiary). Our discussion in the last section draws from this literature and the institutional evidence confirms the validity of our premise that the management of the subsidiary is primarily concerned with visible evidence of the success of that subsidiary. Professor Hall’s criticism would be correct only if the separate subsidiary restriction of Section 272 of the Act and the FCC’s oversight thereof are without force and no agency problems exist between the management of the parent company and the management of the subsidiary. Given our discussion above, this is unlikely to be true, so Professor Hall’s criticism is without merit.

b) Professor Hall’s second and third criticisms of our critical share analysis are really the

same. Specifically, Hall asserts that the critical market share value in the separate subsidiary example (with linear demand) in our paper, 13 percent, is too small to justify a conclusion that the upstream monopolist does not have a strong incentive to raise rivals' costs. His argument on this point is that projected long run market shares for the RBOCs in interLATA markets tend to be significantly above 13 percent. This is true, but irrelevant. The 13 percent number represents a point on the growth path of a RBOC entering a downstream market and should not be compared to the long run equilibrium market share of the entrant. For downstream market shares up to 13 percent, in the example, the monopolist's incentives are to lower rivals' costs and, thereafter, to raise them.¹⁹ This is true whatever its equilibrium market share may be. A principal finding of our research is that a separate subsidiary requirement can result in the long run equilibrium market share for the RBOC being less than the critical market share. In other words, the incentive to discriminate need not arise in long run equilibrium.

29. Professor Hall Commits Analytical Errors.

a) In paragraph 126, Professor Hall makes an important, and rather obvious, mistake. He says (correctly) that it may take some time for the access monopolist to reach equilibrium downstream and that until that time it will be capacity-constrained. He also says (correctly) that the reason for this would have to be that there is a cost of adjustment which keeps the entrant from going at once to its equilibrium capacity level. He then likens this dynamic cost of adjustment of capacity to a

¹⁹ The linear form of the demand function is easy to work with mathematically in that it facilitates a closed-form expression for the critical market share value. Other functional forms of the demand function (e.g., constant elasticity and semi-logarithmic), which are commonly used for empirical demand analysis in the telecommunications industry, yield critical market share values that range upwards of 30 percent. The linear example in our paper is just that, an example.

marginal production cost in the model of Professor Economides in which no firm is capacity-constrained. This step is simply wrong. The cost of adjustment is precisely the reason why the entrant may spend a fair amount of time being capacity constrained. It is a sleight of hand to say that this is like having a relatively inefficient access monopolist in a static model in which there are no binding capacity constraints.

b) Although Professor Schmalensee *et al* are quite capable of defending their own work, Professor Hall's criticism of their work (paragraph 133) is also wide of the mark. He claims that the use of the Cournot model "forecloses investigation" of an issue raised by Professor Fisher. Professor Fisher points out that the access seller faces an opportunity cost of lost access revenues when it displaces independent long distance sellers. To argue that this opportunity cost does not show up in a Cournot analysis is patently incorrect. This opportunity cost is, in fact, one part of the numerical condition that we use in our own Cournot-based paper to calculate the critical market share values. Indeed, an instructive way in which to define the critical market share is that it represents the point at which the gain to the monopolist from displacing a downstream supplier just equals the opportunity cost of doing so (measured in terms of foregone access profits).

c) Professor Hall's error appears to lie in thinking of the Cournot model as one in which "each seller assumes that its rivals do not change their quantity sold in response to the quantity sold by that seller." Consequently, when an integrated access monopoly makes its decisions, "...it ignores the opportunity cost of access foregone when long distance sales are taken away, because it assumes no sales are taken away." (See Hall at paragraph 133.) These statements are at odds with the logically consistent interpretation of the Cournot model found in modern industrial organization

theory.²⁰ The modern view of Cournot is that it describes a Nash Equilibrium for a one-shot game of complete information in output levels or quantities. In this Nash Equilibrium, firms take account of the marginal effects of their decisions given the optimal quantities produced by other firms. As a result, Professor Fisher's opportunity cost emerges naturally. No one is saying that firms are being myopic in a multi-stage game as in the now-discredited conjectural variations model. To the contrary, it is the recognition of this opportunity cost that gives rise to the entire construct of a critical market share.

VIII. POLICY RECOMMENDATIONS

30. Even if SBC were somehow able to circumvent the pervasive restrictions of the separate subsidiary requirements, our analysis, which is based on plausible examples, suggests that SBC has no incentive to raise its rivals' costs (discriminate) in the downstream interLATA long distance market until it reaches market shares in excess of 20 percent. This critical market share value is based on extremely conservative assumptions and should therefore be interpreted as a lower-bound estimate. An upper-bound, albeit plausible, estimate of the critical market share value ranges upwards of 30 percent.

31. Section 272 of the Act requires SBC to maintain a separate subsidiary for at least three years after interLATA entry is authorized. Based on the discussion above, it is likely that the subsidiary, SBLD, will act to maximize its own profits, not those of the parent company, SBC.

32. A principal finding of our research is that when the separate subsidiary requirements function as conceived in the Act and experience suggests that they will, the long run equilibrium

²⁰ See, for example, Jean Tirole. *The Theory of Industrial Organization*. Cambridge: MIT Press, 1988, Chapters 5 and 11.

market share for the RBOC can be less than the critical market share. In other words, the incentive to discriminate need not arise in long run equilibrium.

33. Our analysis assumed that SBC is a monopolist in the upstream carrier access market. In fact, SBC faces a myriad of competitors in its local service markets including carrier access. Hence, our analysis tends to overstate SBC's incentives to behave anti-competitively by raising its rivals costs.

34. The foregoing analysis suggests that there may be no economic rationale for delaying SBC's entry into the interLATA market until widespread competition develops in the carrier access market provided SBC's long distance market share remains below the critical level. By the time SBC's in-region long distance market share exceeds the critical level, if in fact it ever does, competition may well have developed fully in the carrier access market and while SBC may then have the incentive to discriminate it presumably will no longer have the opportunity.²¹ This is an important observation because it suggests that the ability of SBC to discriminate against its rivals does not constitute a risk of discrimination unless accompanied by the incentive to leverage this ability. Moreover, SBC's authority to provide interLATA services can be revoked under Section 271(d)(c) of the Act if it "has ceased to meet any of the conditions required for" interLATA entry.

35. We should note that our work has explicitly assumed that SBC is able to raise freely the

²¹ Recall, however, that the competitive checklist provisions set forth in Section 271 of the Act are designed to eliminate all barriers to entry in local exchange telecommunications markets. These provisions must be in place before SBC is even authorized to enter the interLATA marketplace. This would seem to suggest that SBC's ability to discriminate will decrease at a considerably faster rate than its incentives to discriminate will increase.

cost of access to its downstream rivals, but not to its own interLATA subsidiary. In practice, it would likely be very difficult technically to raise rivals' costs downstream without simultaneously raising them for SBC's own subsidiaries, or bearing an unacceptable risk of detection and punishment. Thus, SBC's incentives to behave anti-competitively are even weaker than shown by our analysis.

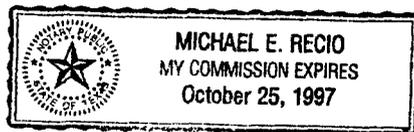
36. The United States Congress was abundantly clear in its mandate that the purpose of the Telecommunications Act was "To promote competition and reduce regulation in order to secure lower prices ... for American consumers..." Absent the risk of anti-competitive behavior and in light of mounting evidence of inflated price-cost margins,²² there is no public interest rationale for delaying SBC's entry into the interLATA long distance marketplace.

²² Paul W. MacAvoy. *The Failure of Antitrust and Regulation To Establish Competition In Long-Distance Telephone Services*. Cambridge: MIT Press and Washington D.C.: AEI Press, 1996.

The foregoing Affidavit is true and correct to the best of my knowledge, information, and belief.
This concludes my Affidavit.

David S. Sibley
David S. Sibley, Ph.D.

Subscribed and sworn before me, the undersigned authority, on this 17 day of
may 1997.

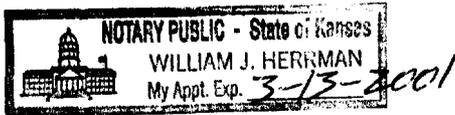


Michael E. Recio
NOTARY PUBLIC

The foregoing Affidavit is true and correct to the best of my knowledge, information, and belief.
This concludes my Affidavit.

Dennis L. Weisman
Dennis L. Weisman, Ph.D.

Subscribed and sworn before me, the undersigned authority, on this 14th day of May 1997.



William J. Herrman
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March, 1992 - Present: John Michael Stuart Centennial Professor of Economics, University of Texas at Austin.

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September 1981 - September 1983: Member of Technical Staff, Bell Laboratories, Murray Hill, NJ.

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TEACHING:

Since September 1991: Introductory Microeconomics, undergraduate and graduate Industrial Organization.

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PUBLICATIONS:

A. Journal Articles:

"A Note on the Concavity of the Mean-Variance Problem," *Review of Economic Studies*, July 1975.

"Permanent and Transitory Income Effects in a Model of Optimal Consumption with Wage Income Uncertainty," *Journal of Economic Theory*, August 1975.

"Optimal Foreign Borrowing with Export Revenue Uncertainty," (with J. L. McCabe), *International Economic Review*, October 1976.

"Regulatory Commission Behavior: Myopic vs. Forward-Looking," (with E. E. Bailey), *Economic Inquiry*, June 1978.

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"Efficiency and Competition in the Airline Industry," (with D. R. Graham and D. P. Kaplan), *Bell Journal of Economics*, Spring 1983.

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"Reply to Lipman and Further Results," *International Economic Review*, June 1985.

"Public Utility Pricing Under Risk: A Generalization," *Economics Letters*, June, 1985.

"Optimal Consumption, the Interest Rate and Wage Uncertainty," (with D. Levhari), *Economics Letters*, 21 (1986).