distance, the 2% increase is a conservative adjustment given the much larger productivity advances that have taken place in the past and will continue in the future.

Throughout the economy, the number of white collar workers has grown to be a significant majority of total employment. "Knowledge workers" currently comprise about two-thirds of the white collar group. This portion of the work force has increased its use of information technology and broadly-defined information services at a very rapid rate. These technologies and services facilitate information retrieval and processing, information and data transfers, computer-assisted cooperative work, teleconferencing, video conferencing, and facsimile transmissions. This has occurred even as organizations have become more decentralized and workers more dispersed.

Improvements and cost reductions in information technology have altered the structure and operation of firms and entire industries. This has occurred and will continue to occur as each improvement and /or cost reduction lowers the transaction cost throughout the business and consumer communities. The transaction costs fall not only as prices for key inputs fall but also as the quality of key inputs rises. Thus, faster computers with more memory and more storage, more functional software with easier to use interfaces, faster telecommunications speeds, and better trained workers all combine to lower the cost and improve the quality/productivity of broadly defined information services. Computers and software in use today enable an individual to leverage one's own knowledge, but telecommunications enables a group to integrate and leverage the knowledge of many individuals locally, nationally, and globally.

In the Long Distance simulation, the assumed long distance services price reduction by itself lowers the transaction costs for many information applications and immediately

increases the quality and the productivity of those information applications. But in addition to the lower prices, competition will lead to additional enhancements in the services that are provided to the users. The change in the industry structure due to the addition of another major competitor will lead to service improvements. And the service improvements will effectively lower the transaction costs for many applications as well. The combination of lower long distance prices and higher quality leads to an increase in the quality or productivity in the use of information services.

Consider the tremendous improvements that have occurred in telecommunications over the last 20 years -- digital switching, fiber optic technology, and ever-faster modems. Quality in terms of the speed for local and long distance data transmissions alone has improved 25% to 30% per year over the last two decades. And that is just using standard modem technology for the measurement. The decline in transaction costs from the increase in transmission speed has led to many new local and long distance applications. This will continue, and the increase in competition in the interLATA market will lead to some improvement in the way businesses and households use and exchange information.

A good example of the benefits of lower telecommunications, data, and facsimile transmission costs is the large increase in telecommuting and telework in the United States. From 1986 to 1996, the number of telecommuters increased from 400,000 to 13 million -- that is, from less than 1% of the total work force to 10% of the total work force. Over the next five years, that number will increase to 27 million or 20% of the total work force. Also, from 1986 to 1996, the number of teleworkers increased from 22 million to 47 million -- that is, from about 21% of the total work force to 37% of the total work force. Over the next five years, that number will increase to 60 million or 43% of the total work

force. There is a very close relationship between the number of telecommuters and teleworkers and the cost of data and facsimile transmissions and the value of installed information technology. Thus, as costs decline and quality increases, more employers and workers take advantage of productivity improvements in telecommuting and teleworking relationships with coworkers in other parts of the country.

III. LABOR FORCE PARTICIPATION ASSUMPTION

In the Long Distance simulation, the labor force participation rate is assumed to increase 0.5% in total over the ten year simulation interval relative to the Baseline forecast. This assumption recognizes several facts. First, there has been a significant deceleration in the growth in the labor force due to demographic realities. Second, there has been an increase in the demand for and a corresponding shortage of many types of knowledge/information workers. And third, there has been a slowdown in real income in the economy. As a result, business managers and workers have become increasingly creative in their use of information technology to find workers, locate skills, and generate additional income. In the Long Distance simulation, lower long distance prices and higher information service quality yield lower costs of implementing long distance information processing using workers around the state and the nation. These workers augment the work force, transmit their skills electronically to the locations in which they are needed, and in the process earn income that they need or want.

Due to demographic factors -- that is, the baby boom generation has given way to the baby bust generation -- growth in the labor force has slowed dramatically during the last 20 years. And the growth in the labor force participation rate has slowed from about 0.5%

annually during the 1970s and 1980s to less than 0.2% annually during the first half of the 1990s. Fortunately, the length of the economic expansion since the 1990-91 recession has lured more people back into the labor force resulting in a projected increase in labor force participation growth to almost 0.4% annually from 1996 through 2001. However, after 2001, demographic realities set in, and growth in the labor force participation rate drops to less than 0.1% annually for the rest of the forecast interval. Businesses need more new recruits even though heavy investment in capital equipment has increased the capital-labor ratio.

One of the constraints imposed by slow labor force growth is a shortage of certain types of workers throughout much of the economy. Computer programmers, systems analysts, network administrators, document processors, desk top publishers, data entry clerks, data analysts, and other computer-related occupations are in short supply. One current example of this is a critical need for Fortran, Cobol, and Basic programmers to help rework the software code for hundreds of thousands of applications to prepare for the inclusion of the year "2000" and higher. The army of programmers who can work in these programming languages is scattered around the country (and around the world). Long distance telecommuting and telework makes it possible for teams to be assembled no matter where the workers are located. The same can be said of other types of workers such as telemarketing sales and service representatives, experienced financial analysts, newsletter publishers, and many others. Some of these workers are or can be employees of business enterprises. Others may be self-employed. But more of these workers can be economically employed as the cost of long distance service falls.

Income constrained households may find it possible to have a non-working spouse enter the labor force by working remotely to earn additional income. While many

telecommuting jobs are within a local or intraLATA calling area, more and more possibilities open up as interLATA long distance prices fall. Virtual corporations find it feasible and economically reasonable to utilize the talents and/or support of a computer-assisted graphic artists, computer programmers, data entry clerks, data analysts, or other knowledge-based workers in remote parts of the state, across the nation, or around the world. Lower priced long distance services make this feasible for more businesses and individuals.

Thus, in an environment such as this, labor force participation will grow slightly faster than in the Baseline forecast. In the Long Distance simulation, the assumed value is 0.05% per year for the forecast interval.

IV. CONCLUSION

The intense competition in the interLATA markets during the 1980s led to lower prices, better services, higher quality, and lower costs for businesses and households. Under the terms of the Telecommunications Act of 1996, competition could be intensified again. Quantifying exactly what will happen is an impossible task, but I believe the benefits of increased competition are measurable and significant. In Oklahoma, the increase in jobs and gross state product has been estimated using three assumptions and WEFA's models. Even if the value of each assumption is cut in half, the models still yield a positive impact.

Michael J. Raimondi

Subscribed and sworn to before me this 21 day of May 1997.

David L. Bell

Notary Public

My commission expires: at death.

US OFFICE PRODUCTS

BEFORE THE
FEDERAL COMMUNICATIONS COMMISSION
WASHINGTON, DC 20554

In the matter of	)	
	)	
Application of SBC Communications Inc.,	)	
Southwestern Bell Telephone Company,	)	CC Docket No. 97-121
and Southwestern Bell Communications	)	
Services, Inc., for Provision of In-Region,	)	
InterLATA Services in Oklahoma	)	

REPLY AFFIDAVIT OF RICHARD L. SCHMALENSEE

I. QUALIFICATIONS

RICHARD L. SCHMALENSEE, being duly sworn, deposes and says:

1. My name is Richard L. Schmalensee. I am the Gordon Y Billard Professor of Economics and Management at the Massachusetts Institute of Technology (MIT), Deputy Dean of MIT's Sloan School of Management, and a Special Consultant to National Economic Research Associates, Inc. (NERA). I filed an affidavit with the Federal Communications Commission for this docket on April 11, 1997, explaining the basis for my conclusion that Southwestern Bell Long Distance (SBLD) has a good chance to increase competition in the long distance market. My professional qualifications are outlined in that statement.

II. INTRODUCTION

2. Counsel for SBC Communications Inc. ("SBC"), Southwestern Bell Telephone Company ("SWBT"), Southwestern Bell Communications Services, Inc. d/b/a SBLD—collectively, "Southwestern Bell"—has asked me to assess the economic merits of comments on Southwestern Bell's Section 271 application, as these comments apply to my affidavit in this proceeding. Specifically, I am responding to comments by Professor William Baumol for AT&T, Professor Robert Hall for MCI, Marybeth Banks for Sprint, and Professors Glen Hubbard and William Lehr for AT&T. Because my original affidavit was more limited in

scope than those by Dr. Kahn and Dr. Tardiff or by Dr. Gordon, my reply comments are also narrow in scope.

3. My original affidavit found that SBLD has reasonable prospects for success upon entering the long distance market in SBC's "home" region. In reviewing comments, I find no dispute of this finding. Instead, comments of an economic nature relate more to whether SBLD's entry would be beneficial for consumers and whether it might harm competition.

4. As explained below, the conclusions from my review are as follows:

- Claiming that the long distance market is effectively competitive, commenters on behalf of the incumbent interexchange carriers (IXCs) attempt to create a myth that they have not raised rates for consumers, yet they fail to present data showing that consumer rates have not risen. To the contrary, I demonstrate that for several years AT&T has raised rates, both for the average consumer and particularly for low-volume consumers. The new flat rate-per-minute plans do not change that conclusion.

- The commenters also argue that, even if they have raised rates for residential customers, they had to do so to recover their costs of serving these customers. To the contrary, AT&T's own data show that the rates paid by most of its customers are well above costs. Cost estimates by Professor Hall confirm that AT&T's profit margin for residential customers is substantial.

- Contrary to claims by several commenters, carrier access rates which are above costs do not pose a threat to competition in the long distance market.

5. Based on the above conclusions and my original affidavit for this proceeding, I maintain my opinion that SBC's strengths would make the long distance market more competitive and would benefit consumers.

III. THE LONG DISTANCE MARKET IS NOT FULLY COMPETITIVE FOR LOW-VOLUME CUSTOMERS.

A. AT&T Has Raised Rates for Residential Consumers, Most of Whom Pay Full Basic Rates

6. I do not address the controversy about whether the average revenue per minute of long distance carriers has declined or risen relative to access charges for all switched services and all customer classes combined. That controversy is tangential to the point that rates for *residential* customers have risen in spite of declining costs.

7. AT&T has raised basic rates by 22 percent since 1993,[1] even though average access charges for the IXCs fell by nine percent in that period.[2] AT&T has also been reducing its costs other than access: according to data supplied by AT&T to the FCC, its annual reports to stockholders, and statements by Professor Hall, the productivity of AT&T and the other IXCs has been increasing. In its price cap filing before the FCC, AT&T reported data showing that, from 1985 to 1991, it reduced its capital costs relative to output by 2.1 percent per year, and it reduced its non-capital costs by 7.3 percent per year.[3] More recently, AT&T reported that it continued to improve productivity: "Total cost of telecommunications services declined [in 1993 and 1994] despite higher volumes, *in part* because of reduced prices for connecting customers through local networks. *In addition, we improved our efficiency in network operations, engineering and operator services.* With lower costs and higher revenues, the gross margin percentage rose to 41.8% in 1994 from 39.0% in 1993 and 37.2% in 1992."[4] If the long

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[1] AT&T raised basic residential rates by an average of 6.3 percent in January 1994 ("AT&T Proposes $750 Million Rate Hike, New Calling Plan Aimed at High-Volume Residential Users," *Telecommunications Reports*, January 3, 1994); 3.7 percent in December 1994 ("AT&T and Rivals Boost Rates Further," *Wall Street Journal*, November 29, 1996, p. A3); 4.3 percent in February 1996 ("AT&T to Raise Basic Prices an Average 40c a Month," *Bloomberg News Services*, February 16, 1996. See also "AT&T Increases Basic Rates, Extends Discount Plans," *Telecommunications Reports*, February 26, 1996, p. 27); and 5.9 percent in December 1996 ("AT&T Follows MCI, Sprint with Long Distance Rate Increases," *Telecommunications Reports*, December 2, 1996). The cumulative increase is 1.063*1.037*1.043*1.059-1=0.22.

[2] From 1993 to 1996, average switched access charges fell from 6.66 cents to 6.04 cents per conversation minute. *FCC Monitoring Report*, Table 5.11, May 1996, p. 474.

[3] R. Schmalensee and J. Rohlfs, "Productivity Gains Resulting from Interstate Price Caps for AT&T," report filed by AT&T in CC Docket No. 92-134, July 1992. The cost reductions I report here are in real terms.

[4] AT&T 1994 Annual Report, p. 24.

distance market were truly competitive, the incumbent IXCs would have passed through to consumers the above reductions in both access and nonaccess costs.

8. Commenters attempt to imply that the IXCs have not raised rates for residential customers in recent years. They attempt to do so in two steps. First, they show that the average revenue per minute has declined for all switched services and all customer groups combined. (Banks at p. 7, fn. 13;[5] Hall at ¶ 19; Hubbard and Lehr, Figure 3) Second, they discuss either the current percentage of residence customers that subscribe to calling plans (Hall at ¶ 31) or the mere availability of calling plans.[6] (Hall at ¶¶ 26, 29; Banks at p. 7; Hubbard and Lehr, Figure 5) They do not present any data showing that long distance prices actually paid or average revenue per minute have declined in recent years *for residence customers*. They do not because they cannot.

9. Ms. Banks, Professor Hall, and Professors Hubbard and Lehr report data showing declining average revenue per minute; however, their data combine the average revenue per minute for business and residence customers and therefore disguise the opposite trends in prices for the two groups. It might be true that long distance competition has benefited business customers with decreasing rates. But, as explained below, the incumbent IXCs have been raising rates for residence customers even accounting for any upward trend in subscriptions to optional calling plans.

10. As I said, AT&T increased basic rates by 22 percent since 1993. Some customers have discount calling plans and pay less than basic rates. It is even true that the percentage of AT&T's customers subscribing to calling plans has been increasing, so the average percentage discount received by residence customers as a whole has been increasing. But that increase in the average discount was too small to change the conclusion that rates for the average residence customer have increased. The average discount on a dollar of toll for all residential AT&T

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[5] In a paragraph about residential customers, Ms. Banks misleadingly fails to point out that her comments on declining prices applies to business and residence customers combined.

[6] Inconsistently, although Professor Hall claims that "the best available way to measure the price of long distance is by revenue per minute" (Hall at ¶ 11), he lays inordinate emphasis on the mere availability of the flat-rate-per-minute plans that the IXCs have introduced in the last year, without any reference to the number of customers who subscribe to such plans.

Oklahoma customers in 1995 was only 13 percent.[7] Even for those Oklahoma customers who had AT&T calling plans, the average discount on a dollar of toll was only 16 percent. In the extreme case in which no customers had AT&T calling plans in 1993 and every customer had one by 1996, AT&T's 22 percent rate increase would still have overwhelmed the increase in average discount, which in that extreme case would have been from 0 to only 16 percent. Contrary to that extreme illustration, according to Yankee Group surveys, 20 percent of AT&T households had a calling plan in 1993,[8] and the percentage had increased to only 38 percent in 1996.[9] A plausible estimate of the increase in AT&T's average residential rates, *accounting for discounts*, is therefore about 18.5 percent since 1993.[10] During the period, as I mention above, AT&T's costs declined.

11. Ms. Banks claims that I am wrong when I calculated that 64 percent of AT&T's Oklahoma customers faced full, undiscounted rates.[11] (Schmalensee at ¶ 18) She says, "Nonetheless, MacAvoy's (and therefore Schmalensee's) finding is simply wrong because MacAvoy assumes that all discount plans are based on volume." (Banks at p. 8) I hold to my finding. Ms. Banks presents no conflicting data, and my finding is consistent with independent data sources.[12] Perhaps Ms. Banks misunderstands the import of *optional* calling plans. To receive a discount, a customer must choose to subscribe to a calling plan and to make calls eligible for discounts under that plan. That is true whether or not a calling plan has discounts

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[7] Based on calculations using PNR and Associates' "Bill Harvesting II" database (1995).

[8] The Yankee Group, "The Technologically Advanced Family Tracking Study—1993," Table 327.

[9] The Yankee Group, "1996 TAF Survey: Implications for Convergence," December, 1996, Table 307, p. 717.

[10] Rate Increase $= \dfrac{1.22\left[(1-0.384)+0.384(1-0.16)\right]}{(1-0.205)+0.205(1-0.16)} = 1.185$. This estimate assumes that the average discount for plan customers is constant at 16 percent. Even if the best available discounts might have increased over the period, new plan customers tend to receive lower discounts than previous ones, because the ones who sign up early are the ones for whom the plans are most advantageous.

[11] Contrary to her characterization, this percentage comes from my analysis of data from PNR and Associates, not from analysis performed by the latter.

[12] The Yankee Group survey gives results which are consistent with mine. It reported that the percentage of AT&T households in the U.S. who had did not have a calling plan in 1995 was 67.5 percent, which is close to my estimate of 64 percent without a plan for Oklahoma. According to the Yankee Group survey, the percentages of AT&T and Sprint households which did not have a calling plans was also similar: in 1995, 67.5 percent of AT&T households and 62.3 percent of Sprint customers did not have a plan. (Yankee Group, TAF survey (1995), Table 236) In 1996, the two IXCs again had similar results: 61.1 percent of AT&T households had no calling plan, and 57.1 percent of Sprint households did not. (Yankee Group 1996 TAF Survey, *op. cit.*)

based on volume. If a customer does not subscribe to a calling plan, or does not make calls eligible for a plan to which he subscribes, or, in the specific case of volume-discount plans, does not make enough calls to receive a discount, then that customer faces full, undiscounted rates. Perhaps also Ms. Banks' difficulty is that she is unaware of the nature of the data I used. It consists of the detailed toll bills of a sample of customers. For each sampled AT&T customer, these data show the price of every call at basic rates and the amount the customer actually owed AT&T. The data also show which plan, if any, applies to each call. I can calculate the discount straightforwardly from these data.

12. Professor Hall asserts that the percentage of MCI customers who subscribe to calling plans is larger than what I report for AT&T customers.[13] (Hall at ¶¶ 31-32) Whether that is true or not does not address the point I made in my affidavit about *AT&T* customers. But even suppose that we add AT&T, MCI, and Sprint together. Only about 43 percent of their combined residential customers subscribe to a calling plan; *i.e.*, 57 percent of them do not subscribe to a calling plan, and thus at least that number pay full basic rates.[14] Some plan subscribers even pay rates higher than basic rates.

B. The New Flat Per-Minute Plans Do Not Change the Conclusion that AT&T Has Increased Residence Rates

13. The IXCs have introduced calling plans with flat per-minute rates; an example is AT&T's recently-introduced One Rate plan, which charges 15 cents per minute regardless of distance or time of day. Professor Hall and Ms. Banks suggest that the existence of such calling plans can somehow reverse the findings that most residence customers face basic rates or that rates paid by residence customers have increased. (Hall at ¶ 29, Banks at pp. 7-9) To evaluate the potential effect of AT&T's One Rate plan, I first calculated the price that an average Oklahoma customer would pay for domestic direct dialed calls at AT&T's current basic interstate rates.[15] The average rate would be about 18.8 cents per minute. Since 15 cents

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[13] Professor Hall uses careful wording. He does not reveal how many MCI customers subscribe to a plan yet pay rates that are equal to or above basic rates.

[14] Based on data from Yankee Group, 1996, *op. cit.*

[15] Based on calling data for Oklahoma customers in PNR and Associates' "Bill Harvesting II" database (1995).

under the One Rate plan is lower than 18.8 cents, the One Rate plan might be attractive to many Oklahoma residence consumers today who are paying basic rates.

14. Even the One Rate plan will not benefit all residence customers, however. The plan would not be attractive for customers who make most of their calls on weekends or at night. The new plan also would not benefit many customers who are already on another plan. For instance, a True Reach customer who already receives a 25 percent discount would typically pay more under the One Rate plan.

15. My main point about AT&T's One Rate plan is this: the only reason that many customers might find the One Rate plan attractive today is that *AT&T has substantially raised its basic rates over the last few years*. If instead AT&T had merely passed through its savings in access charges—even ignoring its other cost savings—today's One Rate plan would be unattractive in comparison. As I have said, AT&T raised its basic rates by about 22 percent since 1993. Suppose that AT&T had not increased its rates. Then today the average basic rate for direct-dialed calls would be only about 15.3 cents a minute (18.7/1.22).[16] If AT&T had passed through the industry-average decrease in access charges of 0.6 cents since 1993,[17] then the average basic direct-dialed rate today would be 14.7 cents. If AT&T had also passed through its other cost reductions, today's basic rates would be even lower. In summary, net of access charges AT&T increased basic rates for direct-dialed calls by 4.0 cents,[18] or 26 percent. If instead it had passed through its cost decreases, as would have happened in a truly competitive market, AT&T's touted One Rate plan would be a nonstarter. Thus, in introducing its One Rate plan, AT&T has nothing to brag about. Still, its pricing plans have been clever: (1) It was able to collect increasing excess profits from its residential customers for several years. (2) Just in time for the Section 271 proceedings, it has now introduced its One Rate plan, which it can hope might sway some opinions during the proceedings. (3) And it can be confident that, in spite of making the One Rate plan available, many customers will continue paying basic rates for quite a while. Between 1992 and 1996, the calling plan subscription rate

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[16] I implicitly assume that AT&T increased rates for direct-dialed calls by about the same percentage as for other calls.

[17] See Hall, Appendix B, Table 35.

[18] 18.7-15.3-0.6=4.0.

of AT&T residence customers increased from 20.5 percent to 38.4 percent—only 4.5 percentage points per year. The combination of rising basic rates and optional calling plans effectively exploits many customers' lack of information and inertia. With their pricing, the IXCs segment the market, separating the active "bargain-hunters" from the "victims." Ms. Banks illustrates this point very nicely with her Figures 1, 2, and 3. They show rising rates for older products, which the victims keep buying, while the bargain-hunters switch to the lower-priced new products.

16. Professor Hall offers an alternative explanation for the increases in residential basic rates for the past several years: he claims that basic rates must be increased to enable the carriers to cover the costs of serving consumers with low usage. He argues that "an additional customer costs about $.98 per month." (Hall at ¶ 42) In an FCC proceeding, AT&T asserted that the costs of serving customers with monthly bills less than $3 per month exceed the revenues received from them. This explanation for increasing rates, even if true, is clearly inadequate. It does not explain why AT&T should have increased rates for two groups: (1) the 22 percent of its customers with monthly bills above $3 but less than $10,[19] the threshold for eligibility for its True USA and True Reach calling plans;[20] and (2) the many residential customers who have bills exceeding $10 per month who did not benefit from calling plans. If $3 per month of billings is the break-even point, then, at a minimum, AT&T is making supracompetitive profits from those two groups, and it increased its profits as it increased basic rates.

17. Further, Professor Hall's own data confirm that AT&T is making supracompetitive profits from its residential customers—*even those with calling plans*. First, in criticizing the

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[19] *Ex Parte Presentation in Support of AT&T's Motion for Reclassification as a Nondominant Carrier*, Letter from C.L. Ward, AT&T, to William F. Caton, FCC, dated March 9, 1995.

[20] One can derive an alternative estimate of the break-even point using estimates provided by Professor Hall. He claims that an additional customer costs $.98. (Hall at ¶ 42) As discussed below, he also estimates that the incremental cost of usage is 10 cents a minute. (Hall at ¶ 36) (To be conservative, here I assume that this 10-cent cost does not double count the per-customer costs of $.98.) Although he is not clear on the point, I tentatively infer that this cost applies to direct-dialed calls. The average rate for direct-dialed calls is between 18 and 19 cents; to be conservative, suppose it is 18 cents. Then Professor Hall's figures imply that the break-even point would be a monthly bill of about $2.20 (0.18*0.98/[0.18-0.10]). This alternative estimate of the break-even point is lower than AT&T's claim, which implies that even more than 22 percent of the customers have bills below $10 but are above the break-even point for the IXCs. Until recently, all of AT&T's customers with such usage levels have paid full basic rates.

cost estimates from Dr. Kahn and Dr. Tardiff, Professor Hall estimates that long distance service costs are a little below ten cents per minute. (Hall at ¶ 36) He uses the sensible approach of estimating costs by finding "the best available price . . . for offices and homes," which some resellers offer. I interpret that estimate as an upper bound, since a reseller which can profitably sell at that price might pay more than the incremental costs of one of the facilities-based carriers for network transmission and switching. I also assume that that cost applies to direct-dialed domestic calls, not operator service or international calls. Furthermore, as Professor Hall himself points out, the network cost of off-peak calls is lower than that of peak calls, and residence customers make most of their calls in off-peak periods. Thus, the cost for residence customers might be less than ten cents per minute. Second, Professor Hall does not challenge the estimate of Drs. Kahn and Tardiff that AT&T's average revenue per minute from residence customers for direct-dialed calls is about 18 cents. Therefore, Professor Hall's own cost estimate would imply that AT&T's profit margin for the average residential customer is about 8 cents per minute, and it has been increasing as AT&T has raised rates.

18. Even AT&T residence calling plan customers are paying rates above costs. The maximum discount available through AT&T's True Reach plan is 25 percent. So a typical high-volume True Reach customer would pay about 13.5 cents a minute,[21] which exceeds Professor Hall's estimated cost of 10 cents a minute.

19. Professor Hall criticizes my use of the data from PNR and Associates because "the PNR sample is badly biased, through its construction, in favor of smaller users." (Hall at ¶ 32) Yet I have concluded that an attempt to weight the sample to make it representative of U.S. households would not lead to any meaningful difference in conclusions. For example, the percentage of AT&T customers in Oklahoma who receive a discount varies by less than three percent as I apply or remove weights to the sample.[22]

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[21] $0.18*(1-.25).

[22] I computed weighted results as follows: I calculated the percentage of households in the sample from PNR and Associates falling into the annual income categories of under $10,000, $10,000-$14,999, $15,000-$24,999, $25,000-$34,999, $35,000-$49,999, $50,000-$74,999, and $75,000 and over. I calculated the weights that must be applied to each sample household in each income category which would make the income distribution equal to that for all households in the United States. (U.S. Department of Commerce, *Statistical Abstract of the United States—1996*, Table 711, p. 462.)

IV. CARRIER ACCESS RATES ABOVE COSTS WILL NOT HARM COMPETITION

20. All commenters agree that current rates for carrier access are above the cost of providing the service. This differential has helped to keep rates lower for other services—in particular, residence basic service. Commenters claim that this differential would give SBC an artificial cost advantage that would cause it to discriminate against competitors and expand its long distance output at the expense of competitors. (AT&T at p. 43; Baumol at ¶¶ 10-16, 41; Hall at ¶ 120; Hubbard and Lehr at pp. 57-59[23]) There are two versions of this claim, the simple version and the subtle version, so I deal with each version in turn. First consider the simple version of the claim. According to this version, to maximize overall corporate profits, the LEC's long distance affiliate would choose a price level using the true economic cost of carrier access in its calculations rather than the tariff price of carrier access that the incumbent IXCs must pay. As the argument goes, the affiliate could profitably take customers away from its competitors even if it were less efficient than its competitors. (Hubbard and Lehr at pp. 57-59; in addition, others use very general language that appears to connote the same argument—see AT&T at p. 43 and Baumol at ¶¶ 10-16, 41) This naïve argument is flat-out wrong, and I am surprised than any economist would have presented it. Think about what happens if the long distance affiliate were to take, say, 100 minutes away from a competitor. The LEC would no longer receive access revenues from that competitor. If access charges were, say, 6 cents per minute, it would forego $6.00 in access revenues. To maximize profits, the LEC corporate parent must recognize that $6.00 in lost access revenues as an opportunity cost of having its long distance affiliate carry the 100 minutes. If the affiliate cannot earn enough revenue to cover both its own costs and the opportunity cost of access, then its taking the 100 minutes away from the competitor would be unprofitable for the LEC corporate parent.

21. Consider a simple example. For illustration, assume the following:

- the price of carrier access is 6 cents per minute,
- the LEC's incremental cost of access is 1 cent per minute,
- the market price of long distance service is 16 cents per minute, and

[23] Other commenters might have this proposition in mind when they refer to "discrimination." See, *e.g.*, Carl Shapiro at p. 7.

- the incremental cost of both the LEC's long distance affiliate and the incumbent IXCs is 10 cents per minute.

22. Let us look at the problem from an accounting point of view. Consider Scenario 1: An incumbent IXC carries 100 minutes. In that case, the LEC's access revenues are $6.00, its incremental access costs are $1.00, and it earns no profits in the long distance market, so its total corporate profits are $5.00.

23. Now consider Scenario 2: the LEC's long distance affiliate carries that 100 minutes instead. The LEC no longer earns those access revenues from the incumbent IXCs. The only revenues to account for are the long distance affiliate's revenues of $16.00 (100 minutes times the price of 16 cents per minute). We have to account for two sources of costs. First, the LEC's long distance affiliate bears a cost of $10 (100 minutes times its incremental cost of 10 cents per minute). Second, the LEC bears a cost of providing access of $1.00 (100 minutes times an incremental cost of one cent a minute). For the LEC corporation as a whole, its profits are the long distance revenues of $16.00 minus long distance costs of $10.00 minus access costs of $1.00; *i.e.*, its total corporate profits are $5.00—precisely the same amount as it earned in Scenario 1, when the incumbent IXC carried the 100 minutes. To summarize, the LEC corporate profits in the two scenarios and the difference in profits are as follows:

	Incumbent IXC Carries	LEC LD Affiliate Carries	Change in Profit
Long distance revenue	$ 0.00	$16.00	$16.00
Long distance costs (neg.)	$ 0.00	($10.00)	($10.00)
Access revenue	$ 6.00	$ 0.00	($ 6.00)
Access costs (neg.)	($ 1.00)	($ 1.00)	$ 0.00
Total	$5.00	$ 5.00	$ 0.00

As you can see, the LEC corporation as a whole makes exactly the same profit in the two scenarios. The commenters' claim is wrong. The LEC corporation as a whole does not increase profit by taking business away from an equally-efficient competitive IXC.

24. In that simple illustration I assumed that the long distance market is highly competitive, so the market price equals the sum of the price of access and the cost of long distance. If the long distance market is not fully competitive, then the market price would exceed the costs of the incumbent IXCs. In that case, the LEC corporation as a whole would make more profits if the LEC long distance affiliate were to carry the 100 minutes than if the incumbent IXCs were

to carry them. But that outcome results from the lack of competitiveness in the market, not from a price of access that exceeds its incremental costs. The LEC long distance affiliate, making its own decisions and taking its carrier access bills as a cost, would make the same decisions about whether to carry traffic as the LEC corporate CEO would have made.

25. Now consider the more subtle argument. Professor Hall understands that the above naïve version of the argument is fallacious, in that he recognizes that carrier access has an opportunity cost. He says, "A local carrier has no special incentive to take long-distance business away from an independent carrier who is an access customer of the local carrier, because the foregone access charge becomes an opportunity cost." (Hall at ¶ 135) Hall also explains that the LEC would increase its profits if its long distance affiliate could somehow cause the market price of long distance services to fall and thereby stimulate demand for the LEC's carrier access services. I do not see that outcome as a problem, however, since it improves economic welfare, driving prices closer to economic costs.

26. Professor Hall does not offer a crisp explanation of why he thinks there is a problem. He claims that LEC entry into long distance results in an "equilibrium in the long distance market [that] is inefficient as a result of the access supplier's pursuit of its artificial cost advantage." (Hall at ¶ 131) Franklin Fisher first raised this concern, observing that a LEC and its long distance affiliate (an "integrated LEC") would behave differently from an unintegrated provider and might expand output even if it were less efficient than its rivals.[24] If so, there could be a loss of economic efficiency. However, as my co-authors and I pointed out in a recent paper,[25] such losses would be outweighed by efficiency gains from the expansion of industry output as long distance prices are driven closer to economic costs.[26]

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[24] Franklin M. Fisher, "An Analysis of Switched Access Pricing and the Telecommunications Act of 1996."

[25] Richard L. Schmalensee, William E. Taylor, J. Douglas Zona, and Paul J. Hinton, "An Analysis of the Welfare Effects of Long Distance Market Entry by an Integrated Access and Long Distance Provider," CC Docket 96-262 *et al.*, on behalf of USTA, *ex parte* filed March 7, 1997.

[26] We estimated that entry by a vertically-integrated LEC, maximizing total corporate profits, would increase net consumer plus producer surplus by $0.80 per line per month. There are about 100 million residence lines in the U.S.; thus, on a national basis, that represents a welfare gain for residence customers alone of about $1 billion a year. Even under an extreme assumption that the LEC's long distance affiliate might be 20 percent less efficient than the incumbent IXCs, the welfare gain still exceeds $0.60 per line per month.

27. Professor Hall makes two technical criticisms of this paper. (Hall at ¶¶ 132-134) First, he claims that our analysis "vastly" overstates the implied profitability of long distance. (Hall at ¶ 132) Second, he claims that our use of the Cournot model to test Professor Fisher's hypothesis was flawed. His criticisms are unfounded.

28. Professor Hall mischaracterizes our analysis by only counting half the access charges, claiming that the cost we used for long distance (including access charges) was 5.4 cents per minute. Professor Hall is incorrect; we used an incremental cost of 9.3 cents per minute in our calculations. Apparently, Professor Hall has not considered the charge for access on both ends of each switched minute of use.

29. Professor Hall objects to our using the Cournot model to analyze the effect of LEC affiliate entry into the long distance market in the presence of hypothetical relative inefficiencies. Although he concedes that "the Cournot model they use is widely accepted and frequently used," he claims the Cournot model "is not well suited to the long-distance industry." (Hall at ¶ 133) Cournot behavioral assumptions are a common starting point for analyses of imperfect competition. Some economists, in particular some at the FCC, believe that it is an appropriate model of competition in the long distance market.[27] However, our conclusions about the welfare-enhancing effect of integrated LEC entry into long distance are robust to changes in behavioral assumptions. My co-authors and I investigated the consequence of using the Stackelberg model, which does take into account a LEC's expectations about output changes by incumbent IXCs when it changes its own output.[28] This alternative model yields qualitatively similar results—a net welfare gain in spite of hypothetical inefficiencies on the part of the LEC affiliate.

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[27] ". . . game-theoretic analyses of competition in the long distance telecommunications industry are consistent with Cournot competition." Jerry Duvall, Doron Fertig, George Ford, "Market Performance in the Long Distance Telecommunications Industry, The AT&T Non-Dominance Petition," Revised Draft May 8, 1996, Footnote 3.

[28] For simplicity, this model used linear demand, but calibrated in the same way as reported in Schmalensee, *et al.* The LEC affiliate was assumed to be the "leader" and the incumbent IXCs were "followers," in the terminology of the model. The expected reaction of incumbents to increases in LEC affiliate output is to reduce their own output, but collectively by less than the LEC increase. The reaction function describes the response of the IXCs to the increase in output of the LEC affiliate. IXC output decreases by $1/(n+1)$ times any increase in LEC output, where n represents the number of incumbent IXCs.

30. Professor Hall misses the point when he criticizes our use of the Cournot model to investigate Professor Fisher's hypothesis. Professor Fisher claimed that an integrated LEC would have an "extra" incentive, relative to an unintegrated firm, to expand output and possibly displace more efficient incumbent IXCs. Our model shows that, under plausible assumptions, Professor Fisher is half right—the incremental profits in long distance and carrier access cause an integrated firm to select a different level of output from what an unintegrated firm would select.[29] However, Professor Fisher is wrong in his prediction that this leads to losses in economic efficiency.

31. Professor Hall fails to appreciate that the results of our welfare analysis of long distance market entry by an integrated LEC are robust to varying assumptions concerning the nature of competition. Not only does Professor Hall dismiss our analysis without justification, he also misreports the findings of Sibley and Weisman,[30] which are consistent with our results. The entry of an integrated LEC into the long distance market is procompetitive for reasonable ranges of parameter values and for reasonable assumptions about the nature of competition in the long distance market.

V. CONCLUSION

30. In conclusion, I have seen no economic information or arguments presented by commenters that alters my original opinion that SBC's entry is likely to improve the competitiveness of the market and thereby benefit consumers. That is particularly true for low-volume customers, who have not benefited from long distance competition in the way that high-volume customers have.

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[29] This is the case in spite of the technical objection that Hall has regarding the opportunity cost of lost access revenue.

[30] Using a simple model of the long-distance market, they find that combined profit maximizing behavior of the LECs in a substantial range of circumstances gives them the incentive to lower rather than raise their rivals' costs. 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,* forthcoming Vol. 17, No. 1, 1997.

Richard L. Schmalensee

Subscribed and sworn to before me this 19th day of May 1997.

Notary Public

My commission expires: September 18, 2003.

US OFFICE PRODUCTS

BEFORE THE
FEDERAL COMMUNICATIONS COMMISSION
WASHINGTON, DC 20554

In the matter of	)	
	)	
Application of SBC Communications Inc.,	)	
Southwestern Bell Telephone Company,	)	CC Docket No. 97-121
and Southwestern Bell Communications	)	
Services, Inc., for Provision of In-Region,	)	
InterLATA Services in Oklahoma		

AFFIDAVIT OF DAVID S. SIBLEY AND DENNIS L. WEISMAN

JOINT AFFIDAVIT OF DAVID S. SIBLEY AND DENNIS L. WEISMAN ON BEHALF OF SOUTHWESTERN BELL LONG DISTANCE

I. QUALIFICATIONS

1. My name is David S. Sibley and I am the John Michael Stuart Professor of Economics at the University of Texas at Austin. Prior to joining the University of Texas at Austin, I was head of the Economics Research Group at Bell Communications Research. I also served as a member of the technical staff at Bell Laboratories. I have taught graduate level courses in industrial organization at the University of Pennsylvania and Princeton University, in addition to my work at the University of Texas. During the Carter Administration, I served as Senior Staff Economist on the Council of Economic Advisers and as Advisor to the Chairman of the Civil Aeronautics Board. During the last twenty years, I have carried out extensive research in the areas of regulation, industrial organization, and microeconomic theory. I have published articles in a number of academic journals, including the *Journal of Economic Theory, Review of Economic Studies, Econometrica, American Economic Review, Rand Journal of Economics*, and the *Journal of Regulatory Economics*. I am a co-author with Steven J. Brown of the textbook entitled THE THEORY OF PUBLIC UTILITY PRICING published by Cambridge University Press in 1986 and now in its fourth printing, and co-editor of TELECOMMUNICATIONSDEMAND ANALYSIS: AN INTEGRATED VIEW published by North-Holland Press in 1989. Currently I serve as Associate Editor of the *Journal of Regulatory Economics.* I hold a B.A. in Economics from Stanford University and Ph.D. in economics from Yale University.

2. My name is Dennis L. Weisman and I am currently an Associate Professor of Economics at Kansas State University and a member of the graduate faculty. I previously served as Director of Strategic Marketing for SBC Communications Inc., and a research fellow with the Public Utility Research Center at the University of Florida. I have fifteen years of experience in the