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CONSUMER INFORMATION AND WORKABLE COMPETITION IN TELECOMMUNICATIONS MARKETS

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A variety of decisions today require a determination by regulators, legislators, or other public policymakers of whether workable competition exists in the telecommunications industry. Unfortunately, most decisions to date have been based on a substantially incomplete analysis, looking only at the firms that supply telecommunications service. In fact, determining whether workable competition exists (this might be an inquiry into intraLATA competition, intrastate interLATA competition, or other areas)[1] cannot take place in isolation from a detailed examination of the consumers who make up the market as well. While unquestionably the characteristics of telecommunications firms must be considered, to examine only those characteristics is to ignore much of the available relevant information upon which to make a considered decision.

An analysis that looks at consumer characteristics complements rather than supplants other currently used analyses [Horning et al. 1988; Shepherd 1988]. This supplemental approach introduces into the analysis consumer-side characteristics that are too often "forgotten," or in any event underemphasized, in an analysis of competition.[2] Implicit in this introduction is an identification of shortcomings in the contemporary argument over telecommunications competition that results from the failure to consider consumer-side issues, not as a political consideration, but as a critical factor in determining the presence of workable competition.

The fundamentals of competition theory are well known. And, clearly it is impossible (or virtually impossible) to meet the conditions of "perfect" competition. The search by policymakers, then, is not for conditions in which perfect competition can occur [Clark 1940; Sosnick 1958; Stocking 1961].

Most analysis of whether or not workable competition exists in the telecommunications industry today concentrates on evaluating the issue only from the perspective of the firm. Common approaches include examination of industry concentration[3] and firm size dispersion [Kwoka 1978]. Contestability theory, as well, depends upon a firm's

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[1] A LATA is a Local Area Transportation Area, an arbitrarily defined geographic area in which local exchange telephone companies operate. LATAs were defined by the courts in conjunction with divestiture of AT&T.

[2] Accordingly, several "traditional" issues are not discussed in this article. These issues include, for example, market concentration and size dispersion; the presence or not of services above marginal cost; and the presence or not of supra-competitive profits.

[3] See Horning et al. [1988, iv]: "In distinguishing between competitive and noncompetitive telecommunications markets, commissioners can draw upon antitrust standards and *comparisons of market concentration* in telecommunications with concentration in other markets" (emphasis added).

perspective, i.e., how one firm will modify or shape its conduct in response to the presence of a different firm as a potential market entrant.[4]

Analysts rely almost exclusively on the multiplicity of firms and the implications of such multiplicity in support of deregulation. Nearly every industry publication holds out a multiplicity of firms as evidence of workable competition. State legislation tends to be based on the same perspective in defining workable competition, even though this exclusive focus on the perspective of the firm is inappropriate. Indeed, determining whether or not workable competition is present depends as much on an examination of consumer-side characteristics as it does on structure-conduct-performance issues.[5]

A determination of whether workable competition exists must be based upon careful examination of the commercial and regulatory institutions within which consumer decisions are made. One particular consumer-side factor affecting the presence or absence of telecommunications competition --the search for and use of information-- is examined here.

DETERMINING THE MARKET

Defining the market in which competition is to be evaluated is the first step. The market involving business telecommunications consumers, for example, is substantially different from the market involving residential telecommunications consumers. Accordingly, one of those markets may be competitive while the other is not, even though the service in both is provided by the same firm. In such circumstances, the extent to which there might be workable competition has no relevance to whether there might *also* be workable competition in the residential market. A number of factors distinguish the business from the residential markets in the telecommunications industry, all of which candetermine the degree of workable competition. . These include the sophistication of search; a difference in the needs served by telephone usage; differences in the willingness to switch; and differences in the purchase cycles, including the point at which a decision is made on whether or not to switch. The sophistication of the search for and evaluation of information will be explored here.

The business community brings more sophistication to the search for telecommunications services than does the residential community. Frequently, an employee position is designated to make determinations regarding the purchase of goods and services. Moreover, the business community would likely bring a more extended search to the choice of its interLATA carrier. Business customers are more likely to contact a variety of vendors, seeking a variety of services, at a variety of prices before making a "final" decision.

In contrast, there is still substantial confusion, if not outright ignorance, in the residential community regarding the differences between intraLATA, intrastate interLATA, and

[4] What is commonly considered to be the genesis of "contestability theory" is set forth in Baumol [1982].
[5] For an excellent description of issues involving structure-conduct-performance n a regulated industry, see Hanson et al. [1974, 248-390].

interstate telephone calling and the significance that those differences hold for carrier choice. Moreover, residential customers really know very little about their local telephone bill or what they might find affordable. In one study, respondents receiving public assistance from the Michigan State Department of Social Services were asked what the maximum local bill they could afford would be; the average response was $43 [Cooper 1986, 611]. At another point in the same survey, however, these same households indicated that they could afford to absorb an increase of $24 above their current local bill of $30 a month.

Another study of local service found that residential customers have little idea of what type of service they use. Three quarters of the customers in West Virginia who were surveyed reported that they were not aware of their own local usage plan [Chilton Research Services 1986, 36]. While unlimited or flat service of some form was the most commonly cited form of usage plan, even these were mentioned infrequently [Chilton Research Service 1986, 36]. Moreover, only one in five of the customers surveyed were aware that their local phone company offered more than one usage plan. Even when provided with descriptions of various local usage plans and then asked if any of them were offered by their local telephone company, "the majority of West Virginia residents recognized that different usage plans exist[ed] . . .[but] without prompting, nearly eight in ten customers (78%) did *not* know other plans were available." [Chilton Research Services 1986, 36].

The response in Connecticut was not quite as dramatic. Nonetheless, researchers concluded that nearly one quarter (23 percent) of the households surveyed did not know what type of local service they were using. When queried about whether specific service options might be available, the percentage of households who were either "unsure" or who said that the option "maybe" was available ranged from 22 percent to 36 percent.[6]

In Michigan, where roughly half of the customers surveyed (46 percent) said they knew which type of service they had [Cooper 1986, 82], the residential customers did not reveal a reasoned or sophisticated search process for that service. Fewer than one in five households said that they had shopped for the least expensive service provided by the local Telephone Company. More disturbing for those who argue that residential customers will shop for telephone service based on price, the Michigan research found that "those on flat rate service are much more likely to have said that they don't know why they chose their service" [Cooper 1986, 89]. Moreover, the elderly (54+ years old) are three times as likely as the nonelderly to say they chose their service because they've "always had it." Finally, the Michigan research reported that many customers do not know who their long distance carrier is either. "On average, about two-thirds of the respondents correctly identified their long-distance carrier" [Cooper 1986, 82].

[6] Three options were used in the survey. One type of service has customers pay a small amount for each local call they make. A second type has a higher monthly fee that includes a limited number of local calls without a charge. After the limit is reached, a small charge is made for each call. A third type requires customers to pay a higher monthly fee than either the first or second types, but the customer may make an unlimited amount of local calls [RPM Systems 1988].

A recent study of low-income residential telephone consumers in Boston found that "many of those who subscribed to measured service probably made too many phone calls each month to benefit by this service, and those who could benefit most, people who made few calls, did not subscribe to measured service" [Quinn 1992, 6]. Indeed, of the 11 percent of the survey respondents who reported using measured service, the Boston study found that the mean number of phone calls per week was 16 (64 a month), "which is probably too many phone calls to benefit from [measured service]." Moreover, the Boston study found that "only 8 percent of those making five or fewer calls per week had measured service."

The Boston study found that those households making few phone calls tended to be the elderly.[7] For those households that made 10 phone calls or fewer per week, the average age was 59; and for those that made five or fewer calls a week, the average age was 60. The study concluded:

> It is obvious that elderly telephone users need to be better educated on the on the benefits of measured service. It is logical to conclude that these individuals may have had the same type of service for years even though their telephone usage patterns have changed. Therefore, people who are already customers need to be educated or re-educated about the costs for and benefits of various types of telephone services [Quinn 1992, 7].

As can be seen from this discussion, a "service" offered by a telecommunications carrier and a "market" to be served are not coterminous. Residential consumers and business consumers using "the same" telecommunications service nevertheless present two different telecommunications markets. In order to assess whether workable competition exists, workable competition must be tested in each.

CONSUMER-SIDE FACTORS AFFECTING COMPETITION

The existence of a competitive market depends upon the availability and exercise of consumer choice. One of the essential elements to the proper operation of a competitive marketplace is consumer knowledge. Given preferences, a consumer will use his or her knowledge of available alternatives to translate wants into satisfaction. As one economist points out, however, "the key element in this equation is thus knowledge, i.e., clear, objective standards of comparison, not vague suspicions of the merits of competing products" [Ferguson 1971/72, 2-79]. A consumer who lacks genuine information about products is forced to rely upon "indexes of quality" such as trademarks, brand names, company reputation, company size and age, and price [Scitovsky 1951, 333-335].

The Availability of Information for Consumers

[7] This indicates the type of problem arising from Michigan's findings that the elderly are three times as likely as the nonelderly to say they chose their service because they have "always had it." The type of service maintained by elderly households for this reason may well be entirely inappropriate given the consumption patterns of elderly households.

Consumer information in telephone pricing is complex, and mandated disclosure of such information has run into a variety of problems. Several approaches have been used to model expected prices. Their accuracy depends upon the designers' success in duplicating typical calling patterns.

Nevada Phone Index

In 1985, the Nevada Public Service Commission responded to deregulation and long distance competition by developing an index of relative long distance costs and by pricing a list of long distance calls Nevadans were likely to make. The index compared what $10 worth of AT&T long distance use would cost were the calls placed using other carriers. Separate indices were developed for Reno and Las Vegas. Table 1 compares rates for Reno.

Table 1. Price Comparison Index for Reno, Nevada, September 1988

AT&T	MCI	Sprint	Western Union
$10,00	$9.03	$9.52	$11.88

In addition, lists were maintained that indicated the cost of a five-minute phone call to either the largest city or the capital city in each state. Separate lists were maintained for Las Vegas and Reno, and the lists were updated monthly. AT&T objected that the true average call was less than five minutes. One carrier argued that its interstate rates were confidential and should nor be disclosed. Several resellers were uncooperative. In 1988, the Nevada Commission shortened the hypothetical phone cal to 4.5 minutes, an inducement to partial minute billing as opposed to the more common rounding up.

The system was designed and installed on DOS computer equipment. While it was initially monotonous loading the data, updates were less difficult. Standardized monthly letters went out to carriers. Generally, the larger carriers were cooperative in responding. The commission, however, eventually stopped maintaining the data, primarily due to reduced consumer requests for information. As the experience in Nevada shows, the mere "availability" of information is insufficient to generate consumer action in seeking out the information.

Telecommunications Research & Action Center (TRAC)

TRAC, a private, nonprofit organization based in Washington, D.C., provides model usage comparison charts for residential and business customers. The charts are printed in brochures and are available upon request for $1. Low, medium, and high bills are calculated, each containing an equal number of near, medium, and far distance calls. Each sample also includes three directory assistance calls.

In addition, typical residential and business bills are determined. For each, a total of 380 minutes is used. For the residential sector, 70 percent of the usage is calculated at the night/weekend rate, 25 percent at the evening rate, and 5 percent at the daytime rate. For the business bill, 70 percent of the usage is calculated at the daytime rate, 25 percent at the evening rate, and 5 percent at the night/weekend rate. Both bills include three directory assistance calls.

TRAC's brochures are visually clear, concise, and relatively easy to use. As with the Nevada index, however, for the compilation of data to be useful in any sense, the consumer must learn of the brochure's availability, locate TRAC, initiate a request to TRAC for the information, and pay for the brochure.

Consumer Action

Consumer Action, a private, nonprofit organization located in San Francisco, maintains cost comparisons for calls originating in California. Information is published and updated in a tabloid newsletter. Rate information is set out on charts indicating the origination, destination, and duration of each call by carrier. Charts are maintained for in-state long distance, out-of-state, and international calls. A Chart also compares night and weekend rates by distance (100, 300, 500, 1000, 2,000, and 3,000 miles) for the first minute and subsequent minutes. Separate charts display customer service information.

Consumer Action's charts detailed, enabling informed consumers to make fairly precise decisions about their appropriate carrier and calling pattern. Detail has its drawbacks, however; for less sophisticated or attentive consumers, the charts might prove too complicated. Consumer Action's surveys go to the organization's members, an informed public, through its newsletter. Consumer Action is also undertaking outreach to Asian and Spanish speaking communities. Others, of course, must take the initiative in requesting the information.

Florida Office of Public Counsel Drafts Long Distance Telephone Survey

In 1989, the Florida Office of Public Counsel commenced a survey of long distance rates available in Florida. The first draft of the survey included a narrative on key issues and charts setting out cost comparisons for different phone calls. In-state calls were listed for several points of origination and completion and for several time periods. Out-of-state calls were listed for representative points of origination and destination and several duration's. Separate charts listed mileage charges for the first and additional minutes. Tables were also included for sample international calls, operator-assisted calls, volume discounts, and alternative discount plans.

The initial responses from major carriers to the Public Counsel's survey, however, contained data errors by the companies requiring correction. Based on their own experience of gathering rate information, the Public Counsel staff concluded it was very difficult for consumers to make comparisons, given the absence of a stable basis for comparisons.

This lack of information, or difficulty in getting information, has numerous impacts. In addition to eliminating price and quality competition, shopping based on a lack of adequate information promotes purchases based on habit. Accordingly, large and established firms have distinct competitive advantages over smaller and relatively unknown firms. The more complex the product, the more ignorant the shopper will be. And the greater the shopper's ignorance, the greater will be the reliance on "index" shopping. "The importance of this advantage is measured by the high price that is sometimes asked and paid for the mere use of a name or trademark. In fact, the price for which established goodwill is bought and sold may be regarded as a measure of the value of oligopoly power that is due to buyers' ignorance" [Scitovsky 1950].

The Use of Information by Consumers

The theory that competition disciplines telecommunication prices depends for its accuracy upon the assumption that consumers will seek out and use information in their decision making. That assumption is demonstrably false. Instead, consumers tend to make habit purchases. The fact that "there are many things a person buys from habit and much that is bought on impulse" [Mishan 1967] is a shortcoming in the argument that consumer decisions discipline market prices.

One likely reason that consumers do not seek out and use information in shopping for telecommunications service is the existence of high hurdle rates for consumer purchases, particularly among low-income households. Neoclassical price theory assumes that a competitive market operates in a frictionless environment. When price changes occur at the producer level, consumer reaction to those changes is assumed to be instantaneous. Moreover, there is assumed to be no constraint on the consumer's reaction.

In reality, of course, there are substantial constraints on consumer reactions to price changes even when consumers know of the changes and understand their significance. Even setting aside such issues as nonprice competition, habit buying, product differentiation, and the like, and assuming that the consumer knows and wishes to act upon a full knowledge of the extent and implications of a price change, constraints exist. The issue, therefore, is whether these constraints are so significant as to interfere with workable competition.

Information "costs" the consumer time, money, or effort to obtain. When a consumer initially considers a purchase ("I think I should buy a car"), he or she is probably not aware of the various prices offered. The ensuing search is not costless, and the consumer must weigh the potential benefits of seeking the information against the costs. In theory, the larger the dollar amount of the purchase and the greater the range of prices, the more the consumer will search. In neoclassical theory, the consumer will search up to the point where the gain from further searching equals the incremental cost of the search.

A consumer's decision to change interexchange carriers involves weighing the costs of the search against the amount of the gain. In one sense, incurring the costs of the changes

involves the consumer in making an investment in the new carrier in order to gain a lower priced service. That is the essence of the argument for competition: if one firm in a workably competitive market unreasonably raises its rates, consumers will move to a lower priced firm. Against the investment in the new firm, the consumer must weigh the potential savings. The consumer will only make the investment if the savings result in a desired rate of return. The rate of return necessary to prompt consumer investment in a measure designed to save money is generally referred to as the "hurdle rate." The difference between the current carrier and the least-cost carrier, in other words, must be sufficient (i.e., must have a substantial enough spread) to meet the customer's hurdle rate. Unless this exists, no consumer action will occur.

Consumer reaction to price changes will involve a variety of identifiable costs. One genre of costs is the cost of the search. Consumers will, at the least, be required to devote time to making a determination of who the least-cost carrier is. And, there is substantial difficulty in obtaining this information and translating it into usable form. One factor that makes the search for useable information more difficult is the fact that consumers do not come naturally to this information. Because information is now presented in a manner that does not permit effective comparison, a consumer's evaluation of actual cost can only follow from the consumer's use. Additionally, it is impossible to use two carriers simultaneously and very difficult to use them consecutively. As a result, obtaining information about long distance and other competitive phone services currently involves a great deal of private search expense. The consumer must familiarize himself or herself with the components of the service, locate the various carriers, learn what specific services they provide, decide what features are most relevant, determine his or her own use pattern, and test the accuracy of the information he or she receives.

A second genre of cost is the actual cost of switching. To switch from one interexchange carrier to another, for example, will likely involve a fee of from $5 to $10 dollars. There is the cost of the learning curve for the new carrier. The consumer must determine to whom to pay the bill, to whom billing inquiries should be directed, to whom service complaints should be made, and the like.

A third genre of costs to be considered is the fixed investment in the current carrier. The consumer will have invested time, effort, and perhaps even money in making the choice of the carrier that he or she currently has. Any move to a different carrier will require an abandonment of that fixed investment. Once a customer goes through the effort of obtaining information and making a switch, it is unlikely that he or she will be willing to go through that process again anytime soon. The willingness to revisit the issue is made even less likely by proposals such as those involving switchback fees.

Against these costs, the consumer will weigh the potential for gain. In measuring the potential savings, the consumer will take into account the risk that the projected savings will *not* occur. As the risk increases that the projected savings will either evaporate or not arise, the consumer's demanded rate of return will increase, thus increasing the consumer's hurdle rate. The risk that projected savings will not in fact arise from differences in the rates of telecommunications carriers is great. Even if one carrier

appears to be the least-cost carrier now, there is no assurance that rates will remain in effect for any extended period and that the carrier will remain the least-cost carrier over time. With telephone rates in particular, consumers are asked to bear the risk that the investment they make in the change of carriers may or may not be rewarded with stable rates over a period of time sufficient to justify the investment.[8]

Against the known costs of changing carriers, a consumer must also weigh the fact that telephone price comparisons (and thus projected savings) cannot generally be determined in advance. Instead, price comparisons must generally be made both retrospectively and over a period of time, taking into consideration the amount of calling, the time of calling, the distance of calling, and other factors.[9] That AT&T's rates might yield a least-cost bill in January, for example does not mean that AT&T would yield least-cost service in March. This is true regardless of whether there are rate changes.

The difference between months can arise from any number of factors. First, consumers do not hold their "call basket" constant over time. Call patterns changes from month to month as consumers change the time of day of their calls, the duration of their calls, and the place being called. Second, the rates of the "1+ carrier" might well change at any time.[10] Finally, relative rates between interexchange carriers might change whether or not the 1+ carrier's rates do. In other words, in calculating the potential future savings, it is not the absolute rates that matter; it is the difference between companies.

In sum, for a consumer to change interexchange carriers in response to price changes, the savings generated by the change will need to represent a stream of revenue that will provide a rate of return on the consumer investment.[11] With rates that are not fixed or reasonably guaranteed, the stream of "savings revenue" cannot be calculated. In this instance, the economically rational consumer would project the stream of revenue based on current rates, discount it to account for uncertainty, and then make a decision based on that analysis. It is much more reasonable to assume, however that the typical residential consumer will chose to do nothing, recognizing that the savings that might appear to result from current relative rates may in fact never arise. The presence of habit and index shopping contributes to this consumer inactivity.

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[8] This risk can be constructively compared to the risk that recently developed appliance technologies, which have not yet achieved significant market penetrations, will not yield projected savings. This risk has been found to raise the implicit discount rate for consumers [Cambridge Systematics 1984, 5].

[9] A description of "search goods" (those goods whose quality and characteristics can be determined upon inspection) and "experience goods" (goods whose quality and characteristics can be determined only through use) is set forth in Nelson [1970].

[10] The 1+ carrier is the interexchange carrier reached through equal access. Accordingly, this carrier is the carrier reached without dialing an access code.

[11] In a study of conservation issues, Cambridge Systematics defines the implicit discount rate, or the hurdle rate," as "reflect(ing) the rates at which consumers make incremental investments in energy saving features in order to avoid a stream of future operating expenses born in the absence of the investment . . .Under the assumption of optimal behavior, when a consumer selects an appliance, there is a single discount rate for which the life cycle cost of the chosen appliance is less than that of any other available alternative" [1984, 1-2].

In short, three items help govern the extent of consumer responsiveness to price changes by interexchange carriers, even assuming that the consumer knows of the price change, understands its significance, and has alternatives that offer a more desirable choice. The first item is the investment that the consumer must make to effectuate the change. The costs of the search and the costs of the change are included in this investment.[12] The second is the potential savings that might arise from making the investment in the change. This is calculated by looking at the spread –i.e., the differential between the least-cost carrier and the current carrier. The third is the consumer's desired rate of return, including the risk premium demanded to compensate for the uncertainty of the revenue stream that consists of the projected, but uncertain, savings.

The competitiveness of various markets can be determined in part by the class hurdle rate for new investments. No research has been undertaken on consumer hurdle rates for telecommunications services. On energy savings expenditures, however, the residential class has a significant and generally recognized higher hurdle rate than commercial customers. Moreover, even within a customer class, hurdle rates may differ. Most empirical research on consumer discount rates has examined the effects of income on the discount rate. Universally, the research shows that discount rates fall as income increases [Cambridge Systematics 1984, 34]. Lower income households generally have less education than higher income households. Not surprisingly, Cambridge Systematics found that low-income households were more likely to respond "I don't know" to the question, "How much would you have to be able to save in energy costs per year before you would be willing to invest $100 in an energy saving device." According to the report, "low-income households are generally estimated to have higher discount rates because a larger proportion of them are unable or unwilling to determine whether an investment is advantageous" [Cambridge Systamatics 1984, 39].

This analysis holds many implications for decision-makers who are asked to determine whether workable competition exists in the telecommunications industry. If potential rate differentials are not sufficient to offer a reasonable opportunity for consumers to meet their hurdle rates, price competition may not occur. Even if prices are raised by one firm, consumers --particularly low-income consumers-- may not react. Aside from this obvious fact, the industry must also be reviewed to determine to what extent, if at all, firms are interfering with the proper functioning of the market. Raising the costs of the search will make it less likely that consumers will respond to rate changes, since the absolute level of savings will need to be greater to generate the desired rate of return. Increasing the uncertainty of the revenue stream will increase the risk of nonperformance, drive up the consumer's desired rate of return (and thus the consumer's hurdle rate), and make it less likely that any consumer response will occur.

CONCLUSION

The analysis presented here should lead policymakers to several key conclusions when considering whether workable competition exists in the residential telecommunications market. First, it is inappropriate to discuss whether workable competition exists in the

[12] Another cost might include the outstanding investment in the current carrier.

telecommunications industry as a whole. The presence or absence of competition must instead be determined for particular markets. Second, to determine whether workable competition exists in the residential telecommunications market, there must be an inquiry into whether there is adequate means for consumers to obtain market information. Decision-makers should inquire into whether, instead of having a genuine competition, residential consumers rely upon "indexes of quality" such as trademarks, brand names, company reputation, and company size and age. In addition, inquiry must be made into whether shopping for telecommunications service is based on habit, thus providing large and established firms distinct competitive advantages over smaller and relatively unknown firms.

Finally, to determine whether workable competition exists in the residential telecommunications market, there must be an inquiry into at least three factors that govern the extent of consumer responsiveness to price changes by telecommunications carriers even assuming that the consumer knows of the relative prices of each carrier, understands their significance, and has alternatives from which to make his or her "most desirable" choice. The first factor is the investment that the consumer must make to effectuate the change. The second is the potential savings that might arise from making the investment in the change. The third is the consumer's desired rate of return, including the premium demanded by the consumer to compensate for the uncertainty of the revenue stream that consists of the projected, but uncertain, savings. The workable competitiveness of various markets can be determined in part by the class hurdle rates for new investments.

Too often, in making the determinations outlined above, decision-makers and regulators examine only the characteristics of the firms that make up the telecommunications industry. Such an incomplete analysis considers consumer characteristics only as a political factor, not as contributing to the existence or absence of workable competition. This failure will yield policy responses that redound to the substantial detriment of consumers.

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