THE DIGITAL DIVIDE CONFRONTS THE TELECOMMUNICATIONS ACT OF 1996

ECONOMIC REALITY VERSUS PUBLIC POLICY

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EXECUTIVE SUMMARY

The theory behind the Telecommunications Act of 1996 (hereafter "Telecom Act" or "Act") was that opening markets to competition, including for the provision of local phone service to consumers, would prevent abuse of infrastructure bottlenecks and monopoly power and ensure broad-based competition. Unfortunately, the Act and its implementation are contributing to a digital divide.

In the emerging digital world, the majority of consumers face price increases for many essential telephone and TV services (hereafter referred to collectively as telecommunications services) offered under monopolistic conditions. Only a small group of premier, intensive telecom users enjoy price breaks and competitive options. The sad, unintended consequence of the Telecom Act is the growth of a costly division between telecommunications "haves" and "have-nots." These market developments threaten to destroy the very goal many of the Act's supporters claimed to embrace: the opportunity to harness enormous technological advancements for the social and economic benefit of all citizens.

Today's economic reality calls into question the fundamental premises and assumptions underlying the Act. The lofty public policy goals embraced by the Act have not been accomplished:

- Instead of becoming vigorously competitive, the telecommunications and cable industries have become highly concentrated.

- Instead of significant declines in prices, we have sharp increases in cable (21%) and in-state long distance (10%), and stagnation in local phone and interstate long distance rates.

- Instead of rapid deployment of advanced technologies from increased private sector investment, we have a growing "Digital Divide" between those who make intensive use of the telecommunications network and those who do not.

FUNDAMENTAL DIVIDING LINES

A careful analysis of which groups of consumers use differing types and amounts of the key telecom and TV services demonstrates the substantial dividing line between winners and losers under the market conditions unfolding as a result of the Telecom Act (see Table ES-1).

TABLE ES-1
CHARACERISTICS OF MARKET SEGMENTS

	MODEST	MOBILE	TRANSITIONAL	PREMIER
DEMOGRAPHICS				
% OF POPULATION	45%	16%	15%	24%
% OF REVENUE	24%	16%	16%	44%
MEDIAN INCOME (000)	22.5	41.2	35.8	53.8
SEGMENT DEFINING SERVICES				
2ND LINE	NO	NO	50%	70%
INTERNET	NO	NO	62	87
CELLULAR	NO	100	10	91
3+ ENHANCED SERVICE	28%	44%	53	70
USAGE PATTERNS				
LONG DISTANCE (v. National Avg.)	30% BELOW	20% BELOW	5% ABOVE	60% ABOVE
% WITH TV SERVICES	63	76	74	86
% WITH FAX	5	10	28	50
SEGMENT BILLS				
LOCAL	$20	$25	$40	$50
LONG DISTANCE	20	25	30	50
INTERNET	0	0	20	25
CELLULAR	0	30	5	35
CABLE	20	30	30	40
TELECOM ACT TOTAL	60	110	125	200

On one side of the divide we have **Modest households**. Almost one-half (45%) of households tend to be modest users of telecommunications services. They have only one phone line. They do not own a cellular phone. They do have Internet access. They tend to buy one "vertical service" (most often "call-waiting" or "caller-ID"). They do not do a lot of long distance calling (about 20% make no long distance calls and the typical bill is about 30 percent below the national average). About two-thirds purchase cable TV, but most do not buy lots of add-ons like pay channels or pay-per-view. Their cable bill is about 20 percent below the average. Only 5% have a fax machine. Their average monthly bill for all telecom and TV services is about $60 (based on both the frequency and size of purchases).

On the other side of the divide we have **Premier households**. About one-quarter (24%) of households are heavy users of most telecom and TV services. They have the following characteristics. 70% have a second phone line. 87% have Internet access. Almost all have a cellular phone (91%). Their long distance bill is about 60% above the national average. 70% purchase at least three vertical services. 86% purchases cable TV and their average bill is about 30 percent above the national average. 50% own a fax machine. Their monthly bill for all telecom and TV services is about $200.

In between we find two smaller groups, **mobile and transitional households**. Both spend just over $100 per month. **Mobile households** have expanded their telecommunications consumption only with the addition of cellular. **Transitional households** have expanded their consumption with second lines and Internet access

Expenditure differences and economic resources are critical to the Digital Divide. The premier group accounts for approximately 45 percent of all telecommunications expenditures in the residential sector. The spending differences are driven by vast differences in income. The modest segment is made up of lower income households. Two thirds report annual income below $30,000. Four-fifths report annual income below $40,000. The median annual income in the modest segment is $22,500. In contrast, for the premier segment, three-quarters report annual income above $40,000 and 45 percent report annual income above $60,000. In the premier segment the median is $53,800. In the mobile segment it is $41,200. In the transitional segment it is $35,800.

THE FAILURE OF COMPETITION UNDER THE ACT

The Telecom Act's fundamental premise that breaking down legal barriers to market entry would unleash a barrage of facilities-based competition in which cable companies used their infrastructure to attack the local phone market, and local phone companies used their networks to attack cable, has proven wrong. Incumbent local telephone and cable monopolists have simply refused to compete with one another. Instead they have merged into larger and larger regional firms that now form tight national oligopolies.

One of the other great disappointments of the Telecom Act has been the failure of competition from alternative technologies to break down the market power of the incumbents. Congress had great hopes for this form of competition. Head-to-head competition across industries with wireline technology has failed. Cable companies have failed to successfully move into local telephony and telephone companies have all but abandoned entry into cable.

Wireless technologies have also failed to break the local monopoly. Cellular telephony and satellite video delivery are two to four times as expensive as the incumbent, wireline service. They fill premier, niche markets but do not represent effective competition for basic service that can exercise price disciplining power over the incumbents.

THE IMPORTANCE OF MARKET SEGMENTS TO THE INDUSTRY'S BUSINESS STRATEGIES

The business strategies that are clearly being pursued reinforce the emerging divide. We find that the dominant firm in each industry segment milks market power in its

core market first. It seeks the high margin customers in neighboring markets that it can leverage next. If need be, it will respond to competitive threats to its own high margin customers, but competitive entry is the last thing on the dominant firm's mind.

Local telephone companies assume that customers with small bills can be retained through preservation of their local monopoly, reinforced by increasing geographic size. Revenues from these customers will be increased through local rate increases --"rate rebalancing." Since it is extremely expensive for potential competitors to build-out infrastructure to these low-revenue customers (and all other customers are relatively more attractive), the local phone companies do not need to worry about losing this customer base/revenue stream for the foreseeable future.

When the local telephone companies decide to invest in infrastructure enhancement, their greatest earnings potential will come from premier consumers with large local phone, wireless, long distance and Internet usage. If they are allowed to upgrade their networks in a piecemeal fashion, they will have no incentive to make heavy infrastructure investment in neighborhoods with modest usage patterns for core telecom and TV services. While all major acquisitions in the industry are couched in terms of increasing local competition, they never do. This is especially true of mergers between the Regional Bell Operating Companies (RBOCs). Merger economics does not support local competition – it reinforces market power.

With an unregulated local monopoly, **cable companies** focus on driving up prices as long as no effective competition emerges. Through unchallenged monopoly at the point of sale, restrictive access to TV-viewers is leveraged by adding high-end video services and high-speed Internet access. Large investment in the infrastructure for local telephony is secondary given the costs of upgrades, the lack of competition in cable, and entry barriers to local telephony.

Long distance companies assume the small bill customers are not attractive to their rivals, and therefore can be squeezed by rate increases. The increasing use of line items and minimum bill requirements places the greatest burden on the bottom of the market. This is the least competitive portion of the long distance market, and the new monthly line-item fees are equivalent to rate increases for monthly local phone service (which remains a monopoly).

Competition is for high-volume business and residential long distance users, with the hope to add Internet access and integrate wireless users. This is oriented first toward business customers but increasingly toward the upper end of the residential market. Given the need for expensive, massive local infrastructure investment, only customers with big local bills are attractive to potential local market entrants.

THE IMPACT OF MARKET SEGMENTS ON PUBLIC POLICY

The segmentation of the consumer market, the concentration of telecommunications industries, and the business models that focus on a narrow, premier segment of the market have major significance for public policy. The Telecom Act, and major market developments since its are contributing to, rather than eliminating the enormous divide between major segments of the consumer market.

Once one understands the fundamental differences among these market segments/sub-markets, it is obvious that most of the claims made by each segment of the telecommunications industry about how relaxed regulation/public oversight enables it to enhance competition is unlikely to prove accurate for more than one-half of all consumers. In other words, neither market forces nor policy

requirements as currently configured create either incentives or assurances that cable, local telephone, long distance or any combination of these companies will bring more meaningful competitive choice or lower prices for the bottom half of the consumer TV services, local phone, or long distance markets. Nor will more advanced services be delivered, since this market segment cannot afford or does not want advanced services.

Thus, the continuous debate since the passage of the Telecom Act over the need to deploy infrastructure to eliminate the "digital divide" has been significantly misplaced. If policymakers allow the debate over the high-end markets to drive public decisions about infrastructure deployment, the digital divide will grow, not disappear. The availability of more infrastructure will expand economic opportunity at the top of the market and reduce the likelihood that companies will have to work their way down the market to increase their economic rewards. Profit maximizers will simply exploit the demand for more service in the upper end of the market more intensively.

TIME TO ADJUST PUBLIC POLICY

It is time for policymakers to stop pretending that competition is right around the corner. It is unrealistic and possibly duplicitous to pooh-pooh today's price hikes as nothing more than a short-term setback or to blame the failure of competition and the absence of promised price reductions on regulators standing in the way. Policies must be adjusted to reflect the reality that the core telecommunications and TV services that are consumed in modest quantities by average consumers are and will be provided under monopolistic conditions for the foreseeable future.

1. PROTECTING CONSUMERS AGAINST THE FAILURE OF COMPETITION

The Telecom Act must therefore be adjusted to provide consumer protections against the abuses that result from the failure to achieve mass market competition.

1. Reflecting the lack of competition to local cable companies, responsible public constraint of monopoly pricing practices must be reimposed.

2. Continued price regulation of local telephone services must be maintained for each segment of the local market that does not have effective competitive alternatives to the incumbent local phone company.

3. New pricing protections for low-volume, long distance users must be established to ensure that this segment of the market is not discriminated against with price increases that do not reflect real costs.

2. TAKING STEPS TO PROMOTE EFFECTIVE COMPETITION

In addition, the Act's legitimate pro-competitive elements should be bolstered.

4. The conditions necessary to open local telephone markets to competition must be strictly enforced. It is clear that the economic and business forces driving the industry will not deliver ubiquitous competition to the vast majority of residential consumers. The local network is clearly a bottleneck for the bulk of residential and small business customers and access to it must be insured or competition will never expand.

5. Until local competition develops throughout the consumer market, local phone monopolies must be required to allow potential competitors to connect to their networks at prices that facilitate competition and reflect only efficient costs for telecommunications equipment and services.

6. Efforts to create loopholes in the competitive regime under the guise of accelerating deployment of infrastructure should be rebuffed, since it is clear that such deployment will only meet the needs of an elite few.

7. Impediments to TV service competition should be removed by making local over-the-air network programming available to satellite and other distributors, and by preventing cable companies from expanding their monopolies to include high-speed Internet access.

3. TAKING STEPS TO PREVENT ANTICOMPETITIVE CONCENTRATION

8. Mergers among potential or likely competitors in markets that are not vibrantly competitive (e.g., the SBC/Ameritech and Bell Atlantic/GTE mergers) should be blocked.

9. Mergers that will lead to cross-subsidies that drive up prices for low-volume telecom/TV users (e.g., the AT&T/TCI merger) should be constrained by conditions that protect captive ratepayers of basic services.

10. Mergers and joint ventures that reinforce or extend bottleneck control over access to information services (e.g. private gatekeeping of access to the set top box or the digital line) should be rejected in favor of an open access paradigm.

I. A REVIEW OF THE FIRST THREE YEARS OF THE TELECOMMUNICATIONS ACT OF 1996

A. IT IS TIME TO TAKE STOCK

The theory behind the Telecommunications Act of 1996[1] (hereafter "Telecom Act" or "Act") was that opening markets to competition, including for the provision of local phone service to consumers, would prevent abuse of infrastructure bottlenecks and monopoly power and ensure broad-based competition. Telephone services – more broadly defined to include advanced telecommunications and information services (e.g., wireless, data transmission, and Internet services) – would expand in all markets to all users (with a universal service safety net for essential services). New entrants in the multichannel video market (i.e., cable, satellite – hereafter "TV services" market) would challenge the cable industry's monopoly, bringing consumers more video choices at lower prices.

Unfortunately, the Act and its implementation are contributing to a digital divide. In the emerging digital world, the majority of consumers face price increases for many essential telephone and TV services (hereafter referred to as telecommunications services) offered under monopolistic conditions. Only a small group of premier, intensive telecom users enjoy price breaks and competitive options. The sad, unintended consequence of the Telecom Act is the growth of a costly division between telecommunications "haves" and "have-nots." These market developments threaten to destroy the very goal many of the Act's supporters claimed to embrace: the opportunity to harness enormous technological advancements for the social and economic benefit of all citizens.

It is now time to review market developments since passage of the Act, to determine whether the Act is beginning to achieve its goal of broad-based competition across all telecommunications markets. When the old Bell System monopoly was broken up through settlement of the Federal government's antitrust case against AT&T (the Modification of Final Judgement), the parties agreed that this dynamic industry should be reviewed every three years to evaluate the need for policy adjustments. The first "triennial review" led to modification of the original Bell System break-up and ultimately passage of the Telecom Act. Why shouldn't the Telecom Act be subject to the same scrutiny? This paper presents a consumer oriented evaluation of the first three years of the 1996 Telecommunications Act.

[1] Pub. L. No. 104-104, 110 Stat. 56(47 U.S.C.).

B. SUCCESS IS NOWHERE IN SIGHT

Today's economic reality calls into question the fundamental premises and assumptions underlying the Act. The lofty public policy goals embraced by the Act have not been accomplished:

- Instead of becoming vigorously competitive, the telecommunications and cable industries have become highly concentrated.

- Instead of significant declines in prices, we have sharp increases in cable and in-state long distance, and stagnation in local phone and interstate long distance rates.

- Instead of rapid deployment of advanced technologies from increased private sector investment, we have a growing "Digital Divide" between those who make intensive use of the telecommunications network and those who do not.

While competition and its fruits may some day develop to serve the mass market, it is clear that at this point in time the Act has been a total failure for most consumers. The reason for this lack of success is straightforward: the fundamental assumptions applied to the industry in the Telecom Act have proven incorrect. Neither the demand-side nor the supply-side of the telecommunications industry has performed anything like Congress anticipated or hoped for.

In simple terms, Congress treated the demand-side of the consumer market as a single, homogenous market (except for basic local phone service provided to high-cost territories and low-income consumers) in the determination of what mechanical changes were necessary to promote competition for residential services. While the supply-side of the market was required to initiate fourteen specific "market opening" measures, the Act did not require the existence of effective competition before deregulation of price or ownership limits took place. Congress assumed markets would open and competition would follow, quickly penetrating all facets of the market. In reality, neither the demand-side nor the supply-side assumptions have proven correct.

On the demand-side, the consumer market is not, and has never been, homogenous. It is differentiated in similar fashion for virtually all telecommunications and TV services. For services that are not absolutely essential to function in our society, there are distinct consumer sub-markets defined primarily by income (which dominates other demographic factors, like age, level of education, cultural background, etc.) and separated by volume of usage and general orientation to the value of high-tech devices. Most importantly, people

in identifiable market segments tend to have similar usage patterns for numerous telecommunications and TV services and devices.

On the supply-side, the Telecom Act's excessive reliance on undeveloped market forces to replace price and ownership/structural regulation has resulted in industry concentration through merger, rather than an eruption of competition. The urge to merge rather than compete has engulfed virtually all facets of telecommunications, leaving consumers paying inflated prices for the services of monopolies that are becoming more, not less entrenched.

This paper explores the two fissures that have developed in the telecommunications industry since passage of the Act:

- The economic basis of the business models that are developing in the industries will not produce the ubiquitous national information superhighway that legislators promised.

- The market concentration that has overtaken the industries will doom the development of competition and the consumer benefit of lower prices and more choice that legislators promised.

Consumers experience these fault-lines first as the failure to deliver the broadly declining prices and expanding choices that were promised by the Act, but the impact goes farther. These fault-lines demand careful attention from policymakers, lest they produce an earthquake that undermines the vibrancy of a critical sector for the 21st century economy. The transformation of our society from reliance on manufacturing to dependence on information and service sectors makes the digital divide between modest/middle-American families and premier technophiles a basis for dangerous tension and unfairness between the "haves" and "have-nots."

C. THE PUBLIC POLICY IMPLICATIONS OF THE DIGITAL DIVIDE

Thus, the continuous debate since the passage of the 96 Telecom Act over the need to deploy infrastructure to eliminate the "digital divide" has been significantly misplaced. That expression has been used to refer to the possibility that some groups of consumers would be cut off from the expanding possibilities of the information age because of a failure of private sector firms to deploy the necessary infrastructure. This paper shows a digital divide from a vastly different perspective.

We present evidence that the market activities of the firms in the industry are creating a divide not on the basis of infrastructure, but on the basis of economics. The current infrastructure is more than adequate to generate a very high stream of

revenue and meet the needs of virtually all consumers. The companies appear to be interested in competing for the business of a small segment of the market – intensive users of numerous telecommunications and TV services. The group of consumers who are attractive to companies is quite small. The drive to expand the infrastructure serves the needs of this small group and leaves the rest behind.

If policymakers allow the debate over the high-end markets to drive public decisions about infrastructure deployment, the digital divide will grow, not be reduced. The availability of more infrastructure will expand economic opportunity at the top of the market and reduce the likelihood that companies will have to work their way down the market to increase their economic rewards. Profit maximizers will simply exploit the demand for more service in the upper end of the market more intensity.

This fundamental economic observation is crucial to developing sound public policy. Massive industry consolidation under a law that fails to differentiate areas of likely competitive opportunity from areas of persistent monopoly is leading to a new era of telecommunications haves and have-nots as described below.

D. TIME TO ADJUST PUBLIC POLICY

It is time for policymakers to stop pretending that competition is right around the corner. It is unrealistic and possibly duplicitous to pooh-pooh today's price hikes as nothing more than a short-term setback or to blame the failure of competition and the absence of promised price reductions on regulators standing in the way. Policies must be adjusted to reflect the reality that the core telecommunications and TV services that are consumed in modest quantities by average consumers – individually and as a package – are and will be provided under monopolistic conditions for the foreseeable future.

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2. TAKING STEPS TO PROMOTE EFFECTIVE COMPETITION

In addition, the Act's legitimate pro-competitive elements should be bolstered.

4. The conditions necessary to open local telephone markets to competition must be strictly enforced. It is clear that the economic and business forces driving the industry will not deliver ubiquitous competition to the vast majority of residential consumers. The local network is clearly a bottleneck for the bulk of residential and small business customers and access to it must be insured or competition will never expand.

5. Until local competition develops throughout the consumer market, local phone monopolies must be required to allow potential competitors to connect to their networks at prices that facilitate competition and reflect only efficient costs for telecommunications equipment and services.

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10. Mergers and joint ventures that reinforce or extend bottleneck control over access to information services (e.g. private gatekeeping of access to the set top box or the digital line) should be rejected in favor of an open access paradigm.

E. OUTLINE OF THE PAPER

The paper starts in Section II with a discussion of pricing since the passage of the Act. This is the most direct way in which consumers have experienced the impact of the Act.

Section III identifies market segments and demonstrates the nature and extent of the Digital Divide.

Section IV shows how the business models applied in the industries contribute to the existence of the divide and are endeavoring to exploit it.

Section V discusses the severe problem of market concentration that has typified the industries since the passage of the Act, arguing that the resulting market power makes it all the more likely that the divide will become a permanent feature of the telecommunications industry.

II. PRICES

A. THE PREMISE AND THE PROMISE

In anticipation of growing competition in all telecommunications/TV service markets, Congress sunset cable regulation (except for a basic tier that includes local broadcast channels) in March 1999, and called for modification of telephone pricing to reflect real "costs" (consolidating subsidies in a "universal service" program to ensure affordable basic telephone services for low-income consumers, high-cost rural areas, and a new program to wire schools and libraries for Internet access). The overall deregulatory thrust of the Act made it clear that regulators should do as little regulating as possible because competition was just around the corner.

The results have been quite to the contrary. This section looks at the level of prices and documents the failure of the Act to deliver price cuts, as well as the price discrimination against the have nots that is coming to typify the digital divide.

B. CABLE RATES

Since passage of the Telecom Act in February 1996, the cumulative rise in the overall consumer price index has been about 6 percent (about 1.6 percent per year).[2] Cable rates have risen about 21 percent, almost four times faster than inflation.[3] In the few communities that have head-to-head competition between two cable companies, prices are more than 10 percent lower than where there is only one cable company.[4] If the Federal Communications Commission (FCC) had continued regulating cable rates to mirror a competitive market, the average consumer's $31 monthly bill would drop to about $28, saving consumers about $3 billion per year.[5]

The history of pricing in the cable industry leaves no doubt that an unregulated monopolist will abuse its market power (see Figure 1). During the two periods when rates have not been constrained by regulation (1986 -1992 and 1996

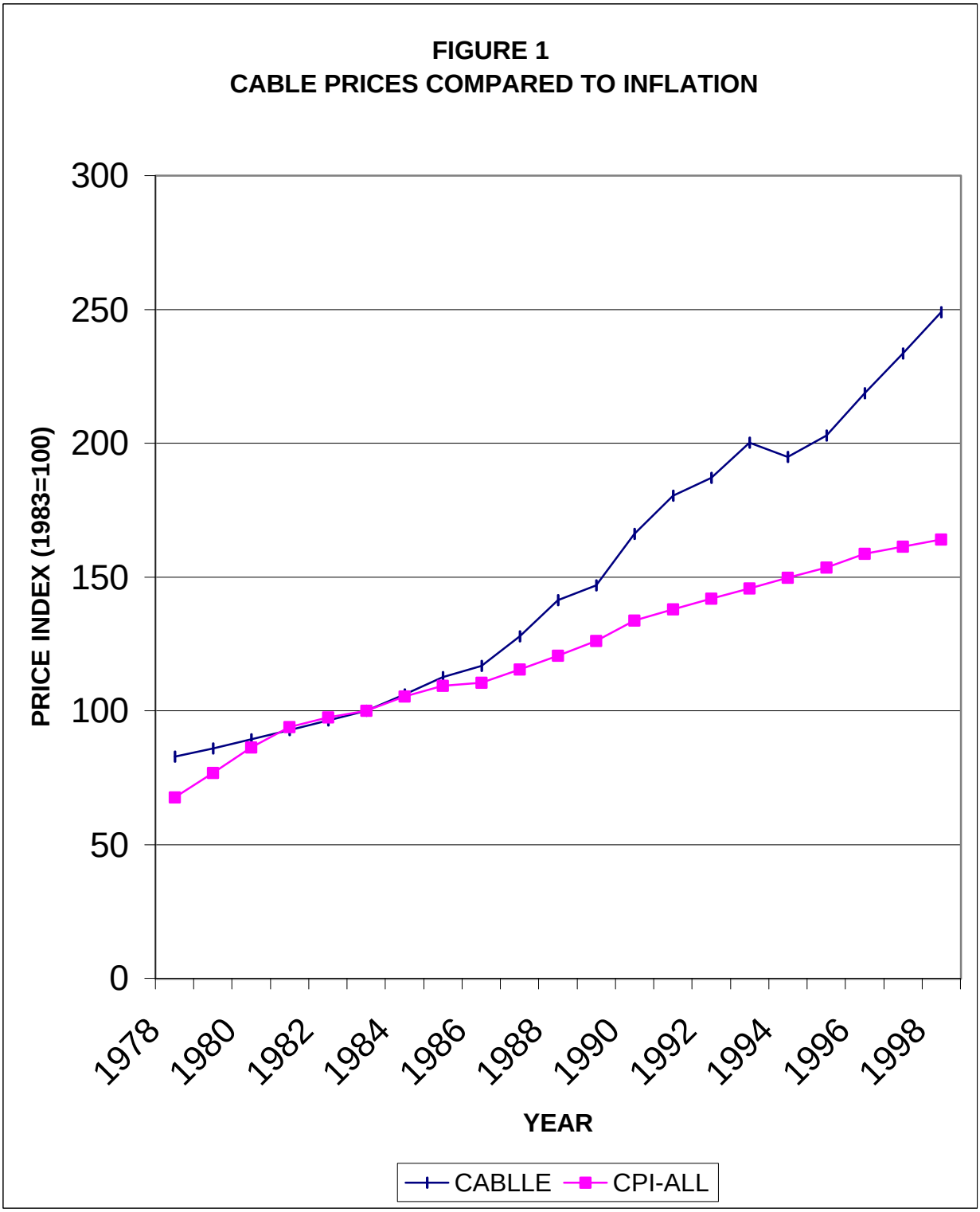
[2] Bureau of Labor Statistics (BLS) Consumer Price Index – Urban (CPI-U).

[3] BLS, Cable Consumer Price Index.

[4] In the Matter of Annual Assessment of the Status of Competition in Markets for the delivery of Video Programming, Fifth Annual Report, CS Dkt. No. 98-102, Dec. 23, 1998, at F-4, footnote 18 (hereafter, Fifth Annual Report).

[5] Fifth Annual Report, op. cit., at Appendixes C and D.

FIGURE 1
CABLE PRICES COMPARED TO INFLATION



SOURCE: Bureau of Labor Statistics, Consumer Price Index

- present), prices have increased at more than three times the rate of inflation. During the short period of effective regulation in the early 1990s and prior to deregulation in 1984, price increases just matched general inflation.

The cable price increases are made all the more troubling because of price discrimination and bundling that have typified the industry (see Figure 2). Leveraging monopoly power at the point of sale, the industry has increased the basic service bundles, requiring consumers to buy more and more channels of less and less value. While basic service rates have skyrocketed, premium service prices have been stable. Those with discretionary income are spared, while the customers of the most popular bundled programming are whacked.

C. LONG DISTANCE RATES

Long distance companies saved more than $1 billion in 1998 by adding new monthly fees on consumers' bills.[6] They enjoyed an additional cut in their costs in July of $700 million due to reduced access charges. This comes atop access charge reductions from prior years. In spite of these substantial reductions in costs and shifting of costs into monthly charges, the consumer price index for interstate long distance has been flat since the passage of the Act.[7] In fact, long distance companies have been increasing basic service rates, which may be paid by as many as one-half of all residential ratepayers. To the extent that discounts have been offered, they have gone to high volume users and those able to make purchases through the Internet. If the FCC does not require long distance companies to pass along regulatory cost savings proportionately to all customers; consumers will pay more that $3 billion in monthly fees in 1999 that are not offset by per-minute rate reductions.

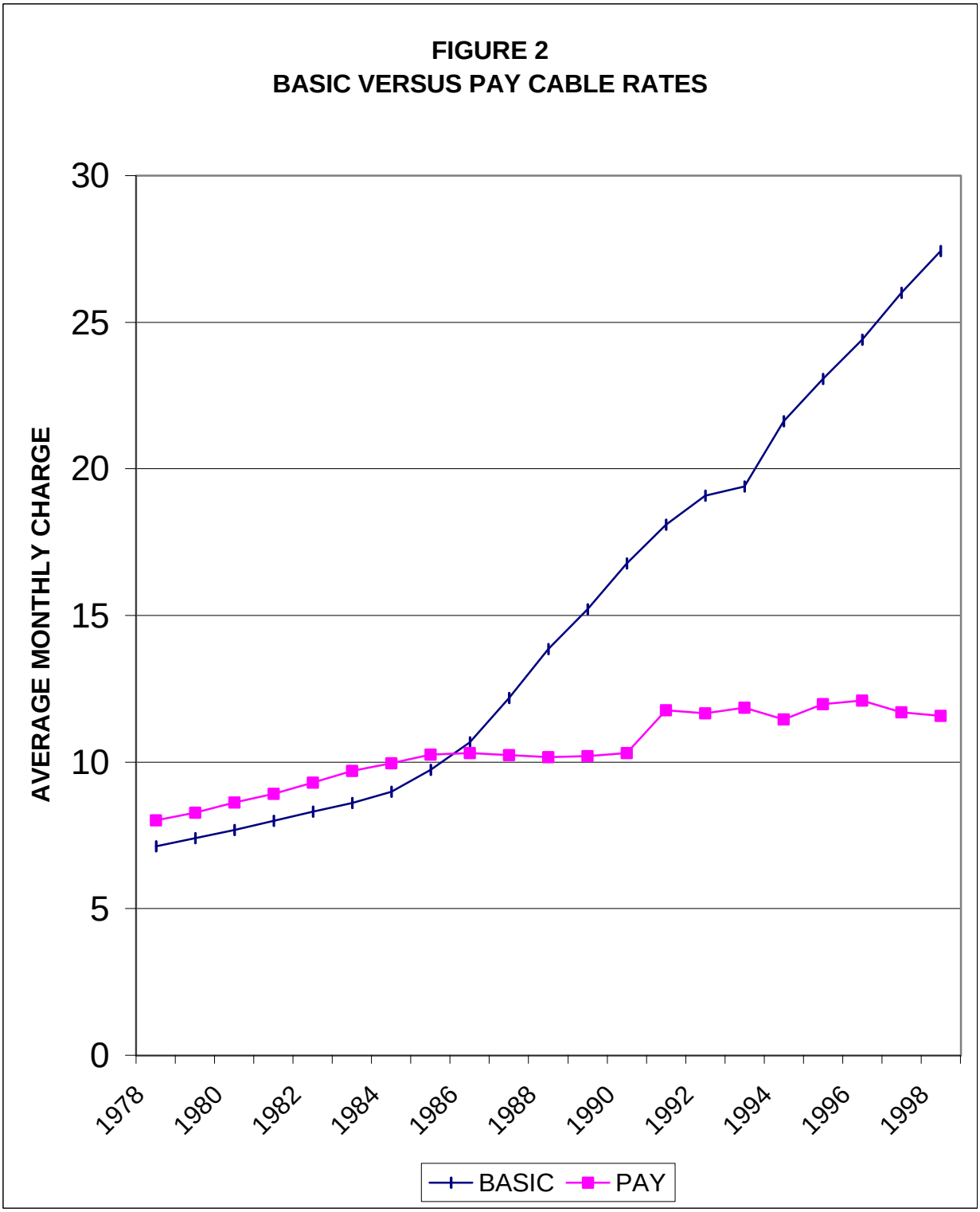
Figure 3 shows the very sharp difference in the price treatment afforded low volume and high volume users. Even in the residential sector, high volume users are paying about 40 percent less than low volume users. This price discrimination is one of the elements of the Digital Divide that will be discussed in the next section.

The Digital Divide has become deeply embedded in long distance pricing. Rates for Internet billed long distance service are less than one half the charges that basic service customers face. By Internet-billed service we mean long distance

[6] Although different long distance companies have recovered these costs in different ways (per line, on a percent of bill) the charges generally are just under $1/mo. for "federal access" and another $1/mo. for "universal service."

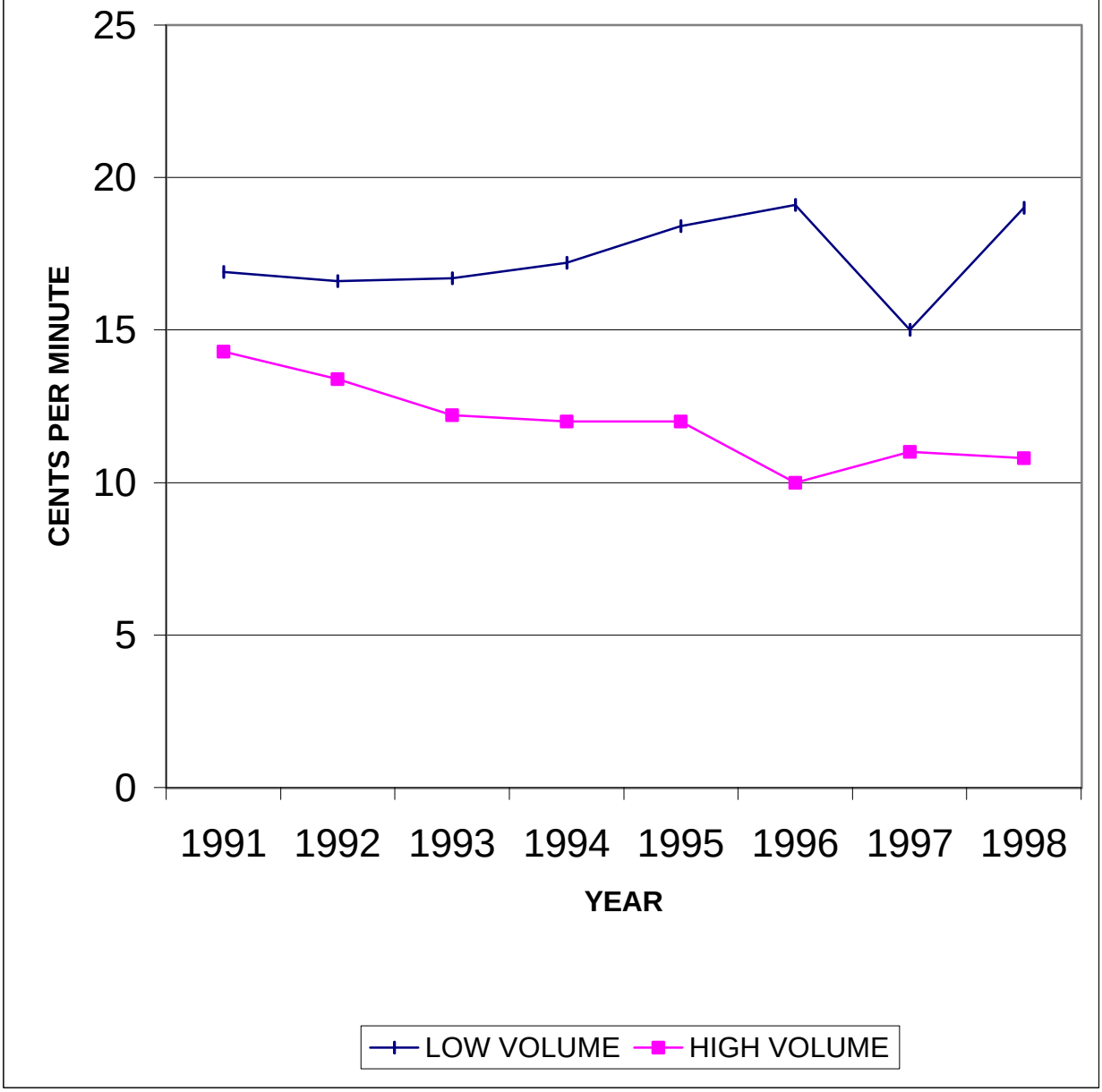
[7] BLS Intrastate and Interstate Indexes

FIGURE 2
BASIC VERSUS PAY CABLE RATES



SOURCE: Kagan, HISTORY OF CABLE TV SUBSCRIBERS AND REVENUES

FIGURE 3:
PRICE DISCRIMINATION BETWEEN LOW AND HIGH VOLUME LONG DISTANCE USERS



SOURCE: FCC, REFERNECE BOOK OF RATES,Table 2.4

service that is provided over the traditional telephone network, but which is ordered over the Internet and paid for by credit card. The long distance companies have stumbled upon a price discrimination mechanism akin to the Saturday night stay in the airline industry. Someone who uses the Internet is likely to be a high volume consumer and, by accepting credit card billing, is low cost to serve.

Figure 4 shows paper-billed and Internet-billed rates for three major national long distance companies – AT&T, MCI, and GTE. GTE is included since it is a local exchange company that has been allowed into the long distance industry and it has a national presence. The analysis is based on national average calling patterns with the average rates calculated by the TRAC, Webpricer software. AT&T's basic rates are over twice as high as MCI's Internet-billed rates. Moreover, for both AT&T and MCI, Internet-billed rates are about 20 percent lower than paper-billed discounts. GTE's rates are substantially higher than the traditional long distance company discounts at virtually all levels of usage. This clearly shows that letting local companies into long distance will not dramatically increase competition.

D. LOCAL TELEPHONE RATES

Local rates have risen 3 percent since the passage of the Telecom Act[8] and remain subject to full regulation by state public service commissions. However, local phone companies keep claiming that rates should rise substantially in a more competitive environment – as much as a doubling of local rates in some instances:

> …in Florida, the local telephone, long-distance and cable TV industries have joined hands in a common pursuit: They've helped lawmakers draft legislation that would increase local phone bills in the state by 50 percent to 100 percent, on the theory that higher rates will make the business attractive enough to inspire competition."[9]

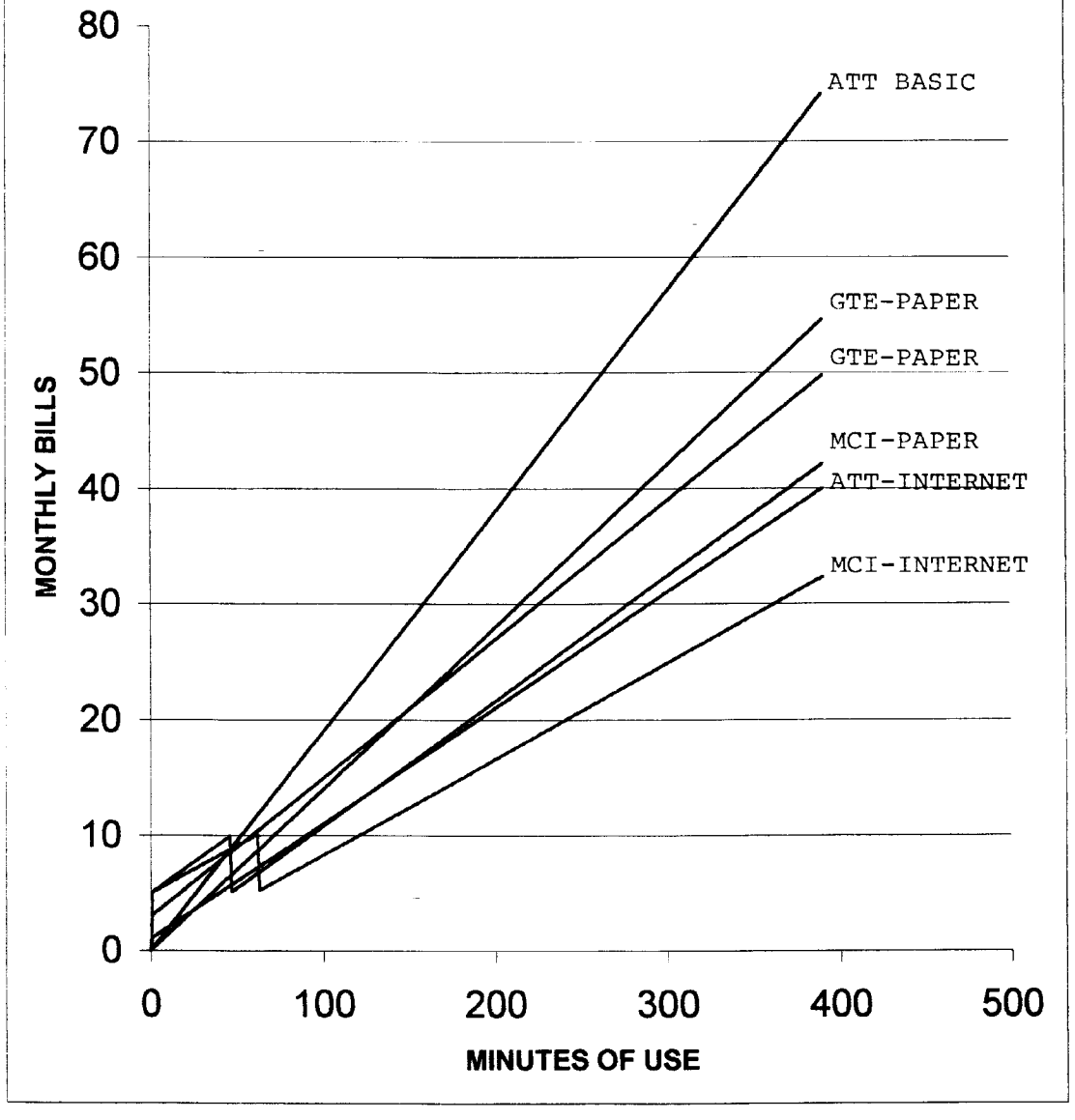
Eleven states have raised basic rates by an average of $1.00 to $3.50.[10] The states deciding to raise local rates exceed those who have rejected such

[8] BLS local phone index

[9] Mike Mills, "Fla. Seeks Higher Phone Rates to Expand Market," Wash. Post, Mar. 8, 1998

[10] Staff Draft, Report of the Florida Public Service Commission on the Relationship Among the Costs and Charges Associated with Providing Basic Local Service, Intrastate Access, and Other Services provided by Local Exchange Companies in Compliance with Chapter 98-2777, Section 2(1), Laws of Florida and The Conclusion of the Florida Public Service Commission as to the Fair and Reasonable Florida Residential Basic Local Telecommunications Service Rate, In Compliance with Chapter 98-277, Section 2(2)(A), Laws of Florida, February 15, 1999, p. 12.

FIGURE 4
LONG DISTANCE BILLS
WITH VARIOUS OPTION PLANS



Plan prices are from TRAC Webpricer. Usage distribution is national average: 34% weekday, 31% off-peak, 16% Saturday, 20% Sunday

increases by two-to-one. Rate rebalancing is pending in many others and is a high priority of telephone companies throughout the nation. Congresses' promise to lower rates is failing badly in the realm of basic local service.

Rates for intrastate, intraLATA long distance calls have risen about 10 percent since the passage of the Act.[11] This is an area in which local companies dominate and have significant pricing flexibility. It is also an area in which the Act closed the door on increasing competition, until after the local market was opened. Freezing competition in intraLATA long distance had the effect of reversing the trend of declining intraLATA prices, as shown in Figure 5. Ironically, Congress gave local companies an extra incentive to resist competition by freezing intraLATA competition. The longer they keep their local markets closed, the longer they preserve their pricing power in intraLATA service.

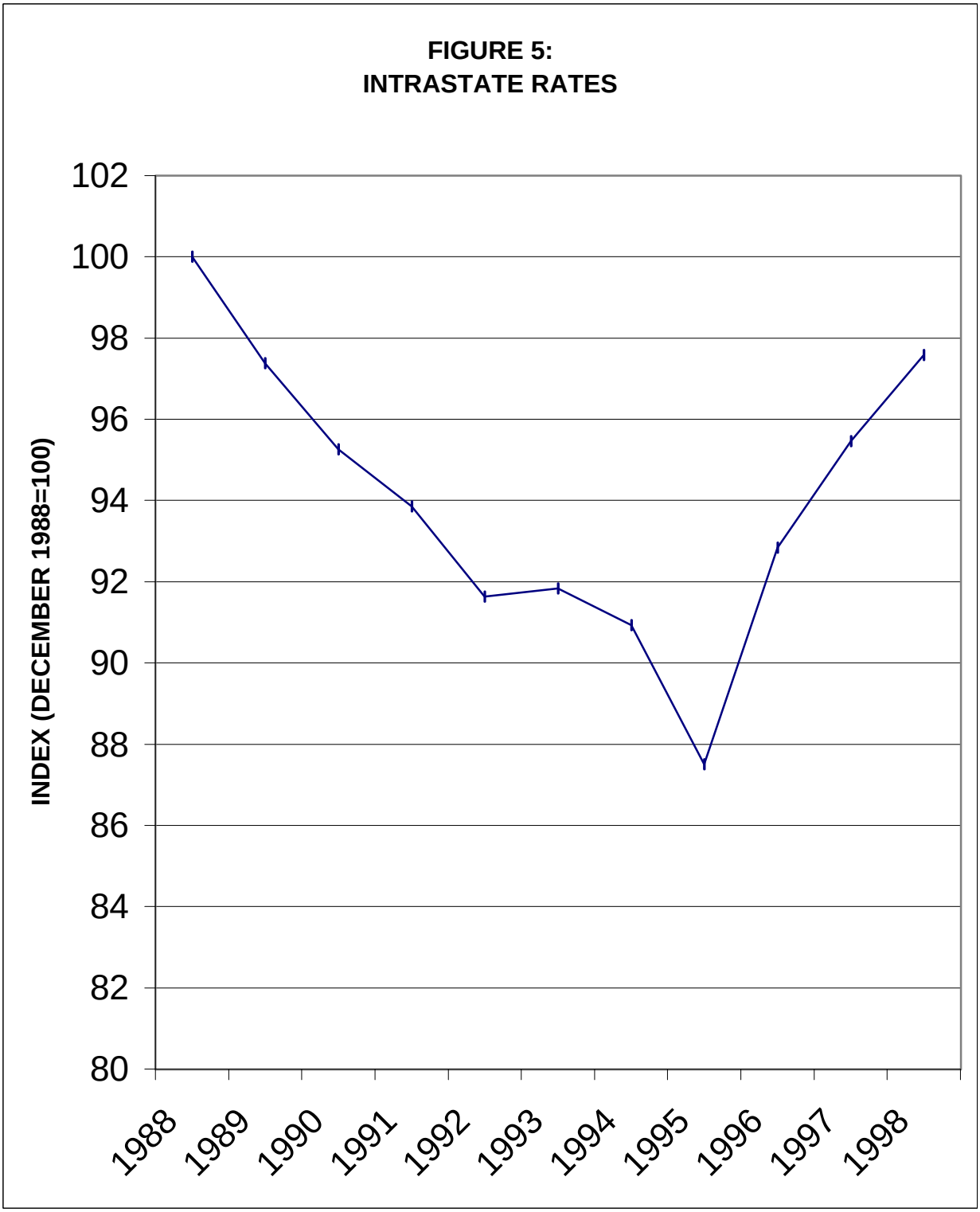
E. OTHER TELECOMMUNICATIONS SERVICES

While prices for these basic services have been rising, prices for many of the less essential, or previously luxury telecommunications devices and services are declining (see Figure 6). For example, competition has been driving down prices for computers (the overwhelmingly dominant customer premise equipment necessary for Internet access), wireless phones/service, and (as noted) large volume long distance usage.

These new "bargains" are for higher-priced, less used items that the majority of consumers cannot afford, have no desire to use, or are precluded from taking advantage of by price discrimination. This pricing pattern contributes to a world in which intensive telecom users are winners – the "haves" – and modest telecom users pay higher bills – the "have nots."

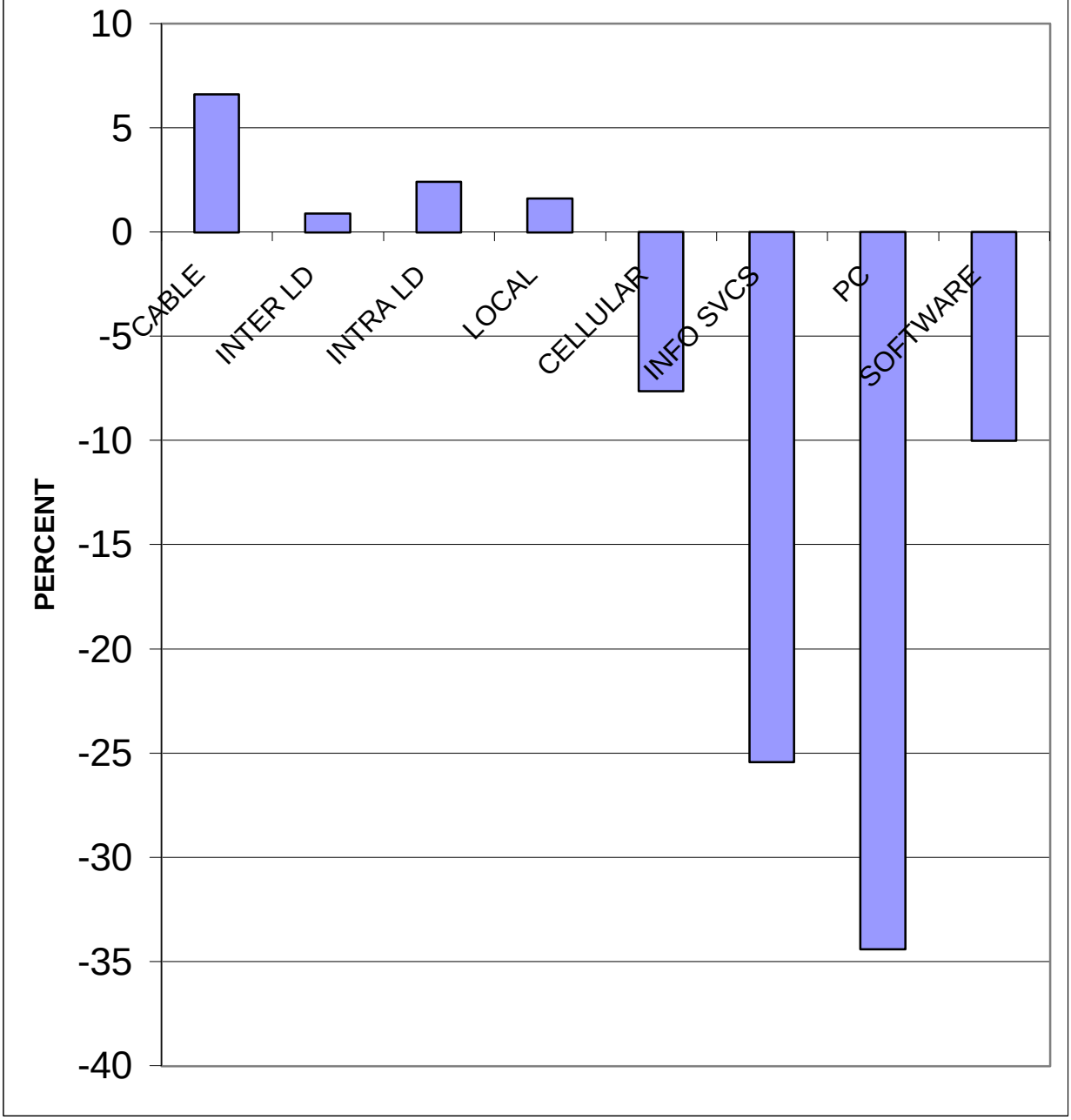
[11] BLS Intrastate and Interstate Indexes

FIGURE 5:
INTRASTATE RATES



SOURCE: Bureau of Labor Statistics, Consumer Price Index

FIGURE 6
1997-1998 PRICE CHANGES:
VARIOUS COMMUNICATIONS COMPONENTS



SOURCE: Bureau of Labor Statistics, CPI

III. THE DIGITAL DIVIDE: CONSUMER USAGE PATTERNS AND BUSINESS MODELS

A careful analysis of which groups of consumers use differing amounts of the key telecom and TV services demonstrates the substantial dividing line between winners and losers under the market conditions unfolding as a result of the Telecom Act.

A. FUNDAMENTAL DIVIDING LINES

Based on data from a detailed public questionnaire in Florida, other surveys, and corresponding usage data gathered from the FCC, consumers fit into one of four groups (see Table 1 and Appendix A for a more detailed discussion of the identification of these groups).

In order to identify market segments, we used three primary discretionary telecommunications services -- second line, Internet, and cellular (See Table 1). We believe that these are driving the business models of the market participants.

First, we identified the group of customers who had only one telephone line, no Internet usage and no cellular phone. These are the items that identify customer groups for business purposes. In order to take a second line, have Internet or a cellular phone, the consumer is committing to a monthly expenditure of at least $20. The group that does not make one of these expenditures is called the **modest** group. This groups accounts for 45 percent of all respondents.

This first cut at the data also revealed a second group. Approximately 16 percent of respondents who had a single line and no Internet, but had taken cellular service. After reviewing the other characteristics of this group, we called them **mobile**. This group has resources to buy an expensive discretionary service, but has only added mobile communications.

In order to differentiate the top forty percent of the market, we added consideration of vertical services (e.g. Call Waiting, Caller-ID). We identified consumers who take three or more vertical services as making another major purchase. Three or more vertical services tend to come in packages costing around $10 per month. Thus, for the top market segment we use four discretionary purchases – second phone line, cellular, Internet or a large package of vertical services. Respondents who had three of these four discretionary services are considered to be **premier**.[12] This group accounted for 24 percent of the respondents.

[12] As noted below, this is the term U S West uses to refer to this segment.

TABLE 1
CHARACERISTICS OF MARKET SEGMENTS

	MODEST	MOBILE	TRANSITIONAL	PREMIER	
DEMOGRAPHICS					
% OF POPULATION	45%	16%	15%	24%	
MEDIAN INCOME (000)	$22.5	$41.2	$35.8	$53.8	
SEGMENT DEFINING SERVICES					
2ND LINE	NO	NO	50%	70%	Three of these four
INTERNET	NO	NO	62	87	
CELLULAR	NO	100	10	91	
3+ ENHANCED SERVICES	28%	44%	53	70	
USAGE PATTERNS					
LONG DISTANCE BILL	30% BELOW AVG.	20% BELOW AVG.	5% ABOVE AVG.	60% ABOVE AVG.	
% WITH TV SERVICES	63	76	74	86	
% WITH FAX	5	10	28	50	

SOURCE: See Appendix A

The remainder of the respondents is called **transitional**. They had one of the major discretionary services and two of the four in total. They were quite likely to have Internet. They represented 15 percent of the respondents.

Thus, without fracturing the percentages too much, we can talk of a market segmented as follows:

Bottom of the Market	= 60% split between Modest (45%) Mobile (16%)
Top of the market	= 40% split between Transitional (15%) Premier (24%)

In both consumption patterns and business strategies, the digital divide is best comprehended by the contrast between the modest segment at the bottom and the premier segment at the top.

B. CONSUMPTION OF TELECOMMUNICATIONS SERVICES

Although we used the joint probability of consuming big ticket items to define the market segments, the consumption patterns we observe across a broad range of telecommunications services reinforce the basic pattern (see Figure 7).

On one side of the divide we have modest households. Almost one-half (45%) of households tends to be modest users of telecom and TV services. Their average monthly bill for all telecom and TV services is about $60 (based on both the frequency and size of purchases). Typically, they have the following characteristics. As noted, they have only one phone line, do not own a cellular phone and do have Internet access.

- They tend to buy one “vertical service” (most often “call-waiting” or “caller-ID”).

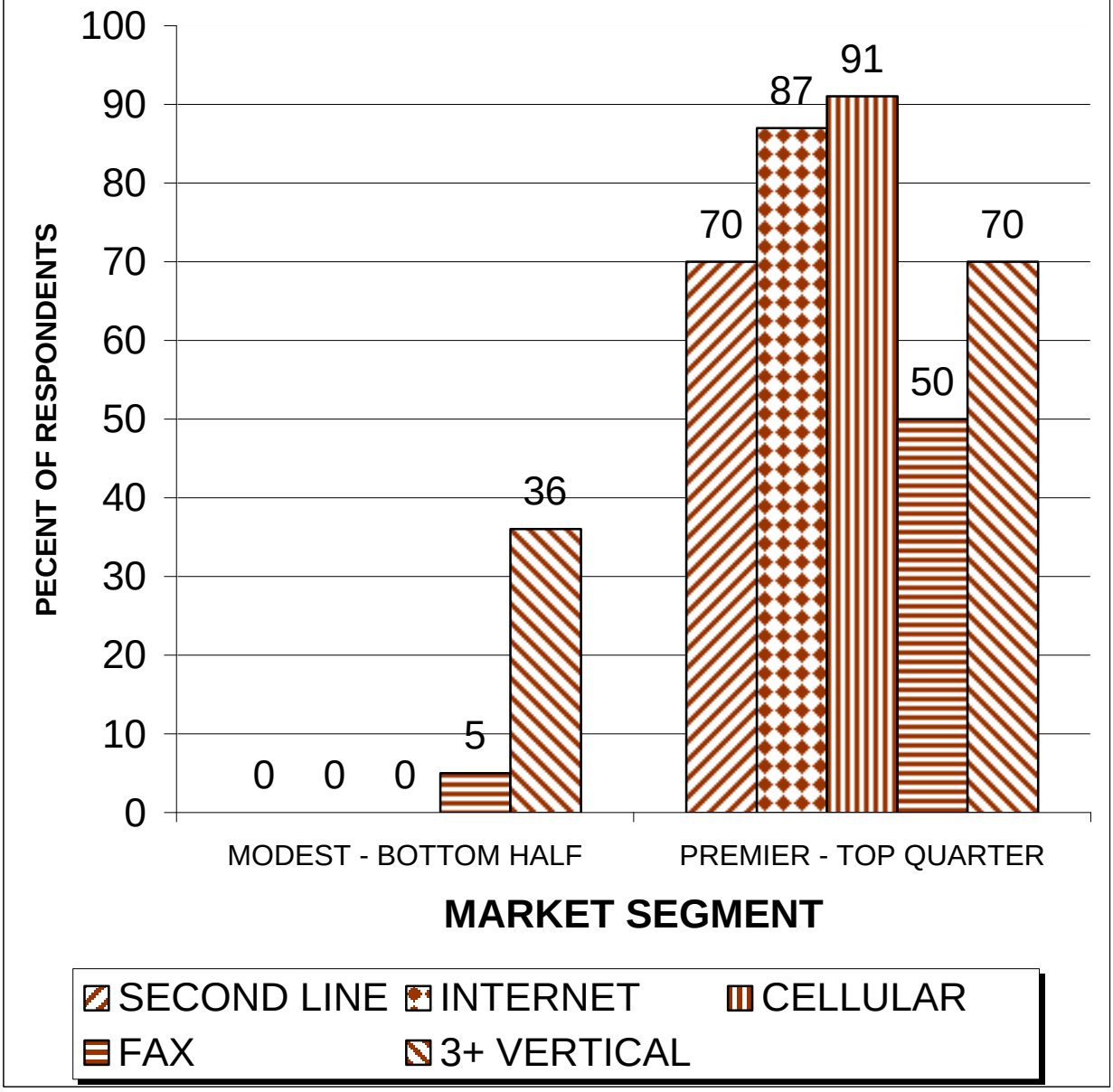
- They do not do a lot of long distance calling (about 20% make no long distance calls and the typical bill is about 30 percent below the national average).

- About two-thirds purchase cable TV, but most do not buy lots of add-ons like pay channels or pay-per-view. Their cable bill is about 20 percent below the average.

- Only 5% have a fax machine.

On the other side of the divide we have Premier households. About one-quarter (24%) of households are heavy users of most telecom and TV services. Their monthly bill for all telecom and TV services is about $200. They have the following characteristics. As noted, 70% have a second phone line. Almost all of these consumers have Internet access (87%) and a cellular phone (91%).

FIGURE 7
THE DIGITAL DIVIDE:
SERVICES USED IN THE PAST MONTH



SOURCE: Florida PSC Survey

- 70% purchase at least three vertical services.

- Their long distance bill is about 60% above the national average.

- 86% purchases cable TV and their average bill is about 30 percent above the national average.

- 50% own a fax machine.

In between, we find households split between Mobile and Transitional households. About 30% of consumers are beginning to use telecom and TV services more intensely but it remains unclear whether they will move into the premier group.

The mobile group spends about $110 per month, with very little expenditure on discretionary wireline telecommunications services. As noted, they do not have a second line or Internet access, but all have a cellular phone.

- Just under half (44 percent) have three or more vertical services.

- Their long distance bill is slightly below the national average.

- Three-quarters subscribe to TV services and those that do pay a bill that is slightly below the national average.

- Only ten percent have a fax machine.

The transitional group spends about $125 per month, with a lot of that on discretionary wireline telecommunications services. They have this higher expenditure in spite of somewhat lower income than the mobile group.

- Half have a second line.

- A majority has Internet (62 percent).

- Very few have a cellular phone (10 percent)

- Just over half (53 percent) have three or more vertical services.

- Three-quarters subscribe to TV services and their bill is above the national average.

- Their long distance bill is slightly above the national average.

- Just over one-quarter have a fax machine.

C. EXPENDITURES ON TELECOMMUNICAITONS SERVICES

Expenditure differences are critical to the digital divide. Combining the subjective reports of expenditures with national data for expenditures, we estimate the typical bills as depicted in Table 2. The average bills identified in the table reflect both the frequency of the bill and the amount of the bill. For example, two-third of the

TABLE 2
TYPICAL MONTHLY TELECOMMUNICATIONS BILL

		MODEST	MOBILE	TRANSITIONAL	PREMIER
% OF POPULATION		45%	16%	15%	24%
LOCAL		$20	$25	$40	$50
LONG DISTANCE		20	25	30	50
TELEPHONE TOTAL		40	50	70	100
INTERNET		0	0	20	25
WIRELINE TOTAL		40	50	90	125
CELLULAR		0	30	5	35
CABLE	30	20	30	30	40
TELECOM ACT TOTAL	110	60	110	125	200

SOURCE: See Appendix A.

modest segment is assumed to have a cable bill of $30, so the segment average is $20. They are not intended as precise, to the penny estimates, but order of magnitude estimates, consistent with industry analyses (see Appendix A for a

discussion of the derivation of the estimate). We observe dramatic differences in the expenditures in the market segments.

For telecommunications service we estimate a monthly bill of $20 for local service for the modest group. We include an average of less than one vertical service for the modest segment. The Long distance (intraLATA and InterLATA) is estimated at $20 for the modest segment. The total telephone bill is $40 for the modest segment. To this we add only $20 for cable. The average total telecommunications bill for all households in this segment is $60.

For the mobile segment we estimate a local bill (basic plus vertical) of $25. Long distance is estimated at $25. The total telecommunications bill is $50. To this we add $30 for cellular and $30 for cable. The total bill is $110.

We now jump across the divide to the transitional group. The transitional group spends about twice as much on wireline services. The higher bill is driven by the second line and Internet, but not long distance. The much higher wireline expenditure in this group leads us to distinguish it from the mobile segment. The total bill is about $125 per month.

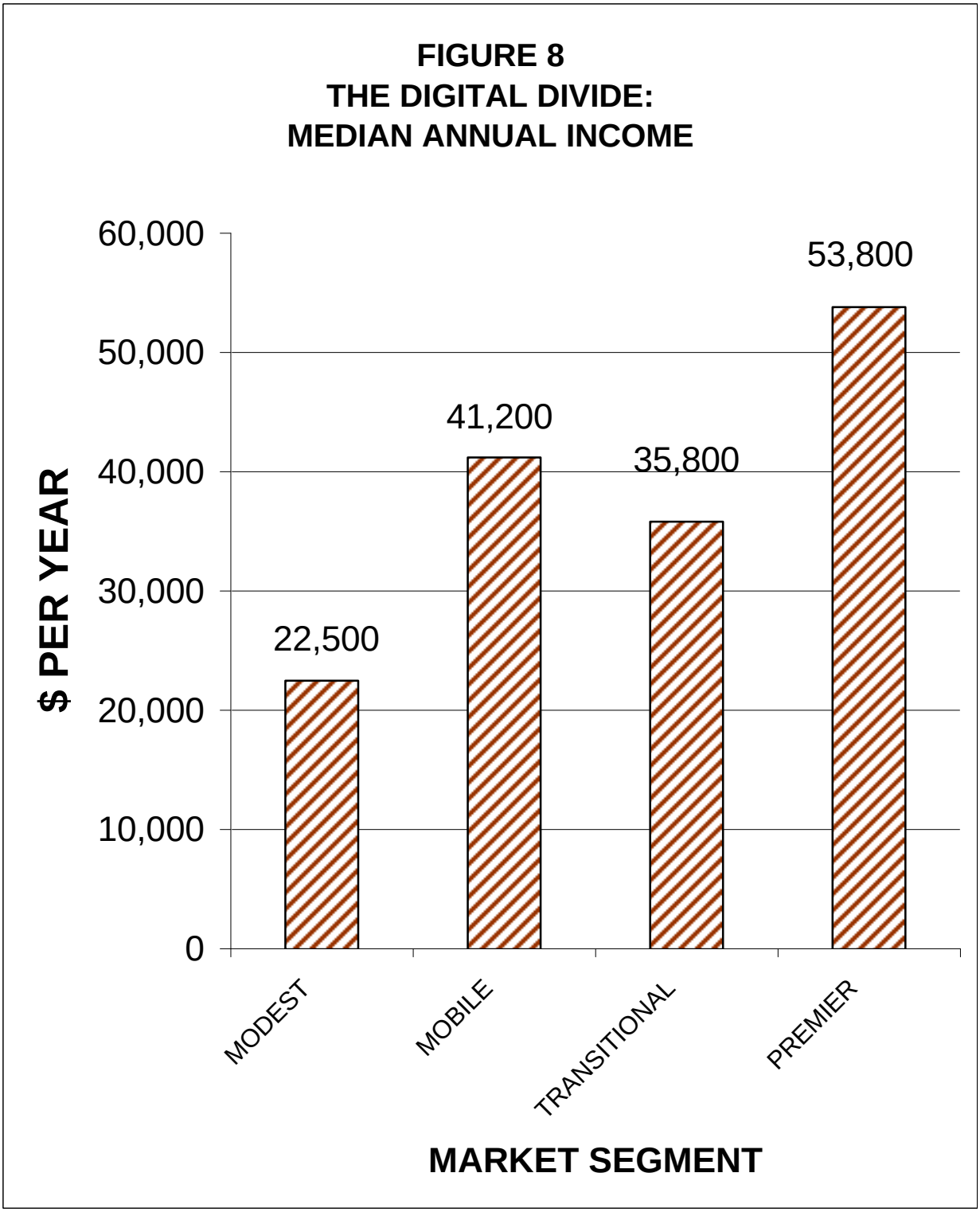
In the premier segment the bill is much larger. Because this segment consumes telecommunications services intensively, all parts of the bill are much higher. Local service is about $50 per month, driven up by the prevalence of second lines and vertical services. Long distance is estimated at $50 per month, driven up by higher levels of usage. The telephone bill is estimated at $100 per month, while the total wireline bill is about $125 per month. This is about three times as high as the modest group and over twice the mobile group. The addition of Internet, cellular and high cable expenditures drives the bill up to about $200 per month.

D. ECONOMIC RESOURCES IN THE MARKET SEGMENTS

These spending differences are driven by vast differences in income. The modest segment is made up of lower income households (see Figure 8). Two thirds report annual income below $30,000. Four-fifths report annual income below $40,000. The median annual income in the modest segment is $22,500. In contrast, for the premier segment, three-quarters report annual income above $40,000 and 45 percent report annual income above $60,000. In the premier segment it is about $54,000. The Mobile group has a median income of just over $41,000. The transitional group has slightly lower income, $35,800.

Moreover, it is important to point out that race, ethnicity and age are not the key factors that affect the decision to take most services. Income is the most important factor. The Digital Divide is first, and foremost, an economic divide.

FIGURE 8
THE DIGITAL DIVIDE:
MEDIAN ANNUAL INCOME



SOURCE: Florida PSC Survey

To conduct this analysis, variables were created based on the presence of a service in the household and the demographic characteristics of the household – race (Black) ethnicity (Hispanic) and age (presence of at least one household member over 65) and income. These variables were assessed to determine the importance of these factors in explaining the presence of the services in the home in terms of the simple correlation coefficient and the amount of variance explained by each variable in a multiple regression approach.

In all cases, except one, income is positively related to consumption and far outweighs the other factors. Income is always directly related to consumption and significant in all cases, except for vertical services (see Appendix A for the results of these analyses). The one exception where income is not significant and where other factors are more important is vertical services. Here Blacks are more likely to take the services and households with at least on older member are less likely.

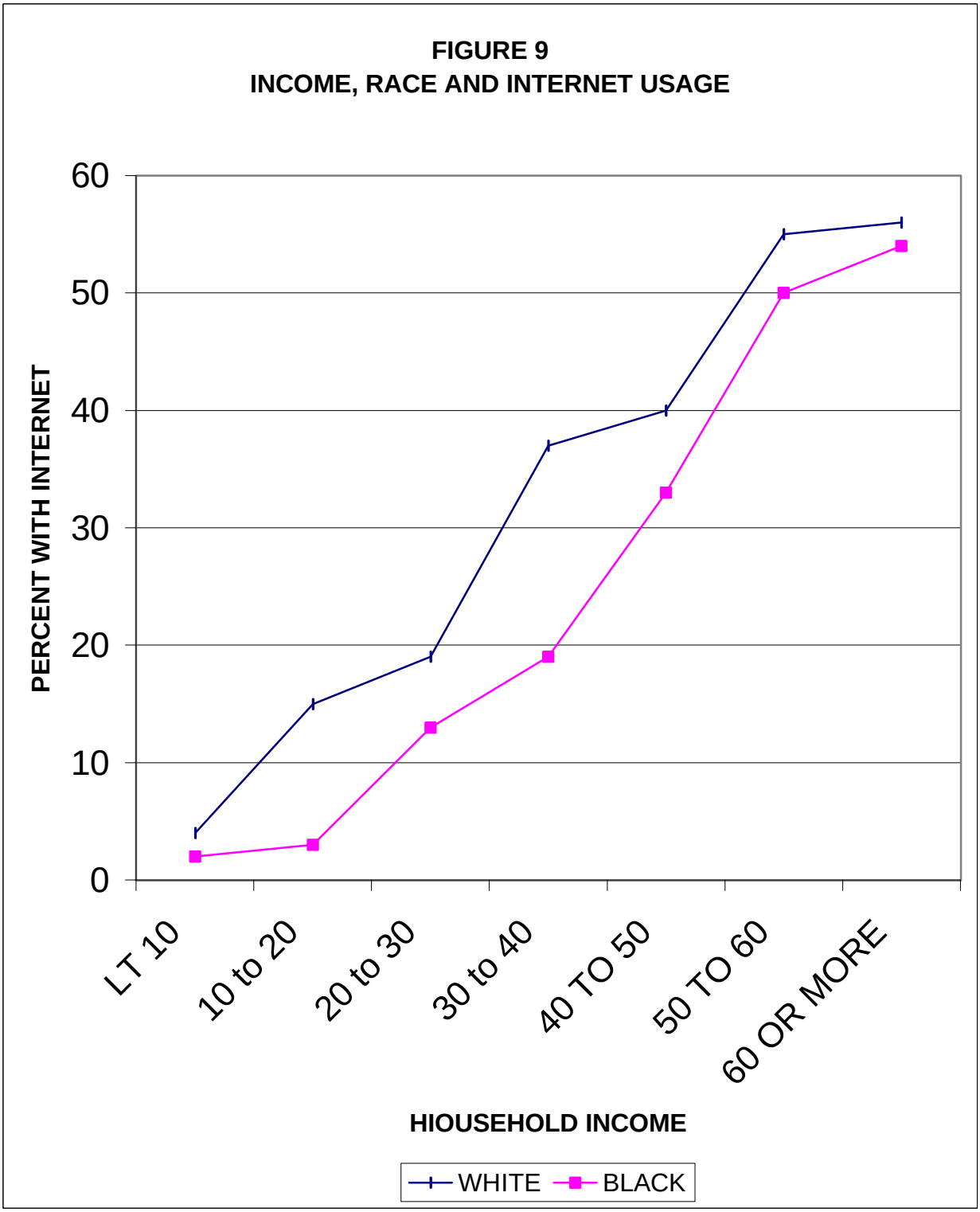
To elaborate on this observation, a cross tabulation of Internet use, income and race was prepared (see Figure 9). Internet was chosen, since it is frequently the focal point of public policy debates about the "Digital Divide." At the top and the bottom of the income distribution there is little difference between the races.

We observe that among upper income households (Black and White) just over half of all households have Internet services. Above $50,000 the difference between Blacks and Whites is no more than 5 percentage points. Even in the $40,000 to $50,000 category, the difference is only 7 percentage points. Among very low-income households (income below $10,000) virtually no one has Internet access. Blacks (98 percent) and whites (96 percent) lack access.

We observe that lower middle income Blacks lag behind in Internet access. The largest difference occurs at incomes between $10,000 and $40,000. On average, the difference is about 15 percentage points. In this range it can be said that Whites are about twice as likely to have access. Thus, there is certainly an important public policy issue for this population segment, but it should be placed in the context of the overwhelming importance of income as a determinant of access.

The presence of children in households was also considered. The presence of children increases the consumption of telephone services, but not enough to alter the earlier economic analysis. In the modest segment, households with children have bills about 25 percent higher than those without. This raises their bills just to the national average. The effect of children is smaller as the level of consumption rises. The presence of children has effect on the percentage of households in the groups with cellular. Households with children are less likely to have Internet access.

FIGURE 9
INCOME, RACE AND INTERNET USAGE



SOURCE: Florida PSC Survey

This analysis leads to the conclusion that bill differences are what drive the business strategies and the likelihood of competitive entry. Income is what drives the willingness and ability to spend on these services.

IV. THE DIGITAL DIVIDE: ECONOMIC REALITY AND BUSINESS STRATEGY VERSUS PUBLIC POLICY

A. THE IMPORTANCE OF MARKET SEGMENTS TO PUBLIC POLICY

The segmentation of the consumer market has major significance for public policy. It rests on the fact that the residential market is composed of several very separate sub-markets. Some of these sub-markets are likely to attract competitive options because they involve high volume/spending on the demand side (which spurs suppliers to make costly infrastructure, marketing, etc. investments in the hopes of attracting the most lucrative business). Other groups of consumers use and spend little, offering suppliers little incentive to serve these groups. As a result, the Telecom Act, and major market developments since its passage (most importantly mergers among local phone companies and the proposed AT&T/TCI combination), are contributing to, rather than eliminating the enormous divide between major segments of the consumer market.

Once one understands the fundamental differences among these sub-markets, it is obvious that most of the claims made by each segment of the telecom industry about how relaxed regulation/public oversight enables it to enhance competition is unlikely to prove accurate for more than one-half of all consumers. In other words, neither market forces nor policy requirements as currently configured create either incentives or assurances that cable, local telephone, long distance or any combination of these companies will bring more meaningful competitive choice or lower prices for the bottom half of these markets. Nor will more advanced services be delivered, since this market segment cannot afford or does not want advanced services.

While policymakers may not have been aware of this economic reality during consideration of the Telecom Act, they must accept responsibility for devising a policy based on promises that are unrealistic under current market conditions. If those promises are to be kept, different policies must be pursued.

By analyzing usage patterns for each of these service areas, we show which sub-markets are attractive to each service vendor, and each combination of vendors. This also shows who gets left out unless there is policy intervention to protect specific groups of consumers. By describing the business models of the industry segments, we understand where the economic resources lie and where market forces drive business activity.

We find that the dominant firm in each industry segment milks its market power in its core market first. It seeks the high margin customers in neighboring markets that it can leverage next. If need be, it will respond to competitive threats to its own high margin customers, but competitive entry is the last thing on the industry's mind. As recently pointed out by David Ignatius in the Washington Post:

> Business executives proclaim their love of competition, but if they're smart, they do everything possible to avoid it – for the simple reason that it lowers prices and profits. Instead they seek market niches they can dominate – the less competition the better. [13]

B. LOCAL EXCHANGE COMPANIES

Local telephone companies assume that customers with small bills can be retained through preservation of their local monopoly, reinforced by increasing geographic size. Revenues from these customers will be increased through local rate increases --"rate rebalancing." Since it is extremely expensive for potential competitors to build-out infrastructure to these low-revenue customers (and all other customers are relatively more attractive), the local phone companies do not need to worry about losing this customer base/revenue stream for the foreseeable future.

When the local telephone companies decide to invest in infrastructure enhancement, their greatest earnings potential will come from premier consumers with large local phone, wireless, long distance and Internet usage. If they are allowed to upgrade their networks in a piecemeal fashion, they will have no incentive to make heavy infrastructure investment in neighborhoods with modest usage patterns for core telecom and TV services.

U S West's Investor Handbook describes this business strategy precisely. In the introductory words of the CEO

> A single voice connects with the world. That's how it starts. And that's how it started – our business that is. But today it's much more than a voice. It's a wireless or "uncorded" phone, a connection to the Internet, a fax, an e-mail, a conference call with a host of voices, a video image on a high-speed data, high-bandwidth line…
>
> Let me explain how I intend our consumer business to grow in the next few years.

[13] Op-ed, Washington Post, Jan. 6, 1999

> Today our average residential customer spends about $40 a month with us. That customer buys dial tone on one or two lines, along with some value-added features like *Caller ID* or *Voice Messaging*, and some short-haul long distance.
>
> Many of our premier customers are adding the data equivalent of dial tone – "Web tone" – which includes Internet access and high-speed data services. These same high-value customers are also using our PCS service. When we enter the interLATA long-distance business, we'll start to see another revenue stream from these customers. And eventually, we'll have a video offering to add to their monthly services.
>
> We'll combine these services not just in a "bundle," but in a uniquely integrated, inter-related package.
>
> And we estimate that will add up to $200 of potential monthly revenue from our highest-value customers.[14]

While all major acquisitions in the industry are couched in terms of increasing local competition, they never yield that result. This is especially true of mergers between the Regional Bell Operating Companies (RBOCs). Merger economics does not support local competition – it reinforces market power.[15]

Incremental infrastructure investment supports delivery of more services to high-volume business and local residential customers by adding Internet access in order to present a bundle of services that attracts large long-distance customers (intra and interLATA) and wireless users. The same premier segment may be attracted through marketing satellite TV (DBS) to consumers with demand for many channels, specialized programming (e.g., sports) and have higher income (can afford the up-front costs of satellite hookup).

"One-stop-shopping" is really only "bill bundling" not infrastructure integration. Voice and data are delivered over enhanced copper. Wireless is a separate product delivered over a separate technology. TV services (to the extent needed) are delivered to the very premier market with DBS, yet another technology. There is nothing about the combination of these services by one vendor through one bill that will break the digital divide between "haves" and "have-nots."

[14] U S West Investor Handbook, pp. 1…3.

[15] The Consumer Case Against the SBC-Ameritech Merger, January 22, 1999.

C. CABLE

With an unregulated local monopoly, cable companies focus on driving up prices as long as no effective competition emerges. Through unchallenged monopoly at the point of sale, restrictive access to TV-viewers is leveraged by adding high-end video services and high-speed Internet access.

Large investment in the infrastructure for local telephony is secondary given the costs of upgrades, the lack of competition in cable, and entry barriers to local telephony. For example, even a combination of AT&T with cable giant TeleCommunications Inc. (TCI) is likely to focus on network upgrades that generate maximum revenue from high-volume long distance users and cable customers who desire high-speed Internet access – a small group of consumers (who probably also own a cellular phone). Widespread investment in telephony would be necessary only if infrastructure costs decline significantly. Even the most optimistic scenario presented by AT&T in its merger with TCI indicates that upgrades will cost $700 - $900 per household to offer high-speed Internet access and ultimately local phone service.[16]

When a dominant firm in one sector acquires a dominant player in another (e.g. AT&T/TCI), industry structure is affected. Based on infrastructure costs and economic structure, there is no reason to offer discounted cable service to anyone who is not a high volume user or high-end customer for the foreseeable future. Competition will occur only for high-speed Internet users, big long distance users, wireless users before there is any interest in incurring the expense to upgrade cable plant for voice telephony for the bottom half of the market. This is true at least as long as cable does not face price competition for basic/expanded basic services, which appears to be the case for the foreseeable future (most of the local phone company efforts to retail TV services involve an expensive DIREC TV package targeted at high-end consumers).

D. LONG DISTANCE CARRIERS

Long distance companies assume the small bill customers are not attractive to their rivals, and therefore can be squeezed by rate increases. The increasing use of line items and minimum bill requirements places the greatest burden on the bottom of the market. This is the least competitive portion of the long distance market, and the new monthly line-item fees are equivalent to rate increases for monthly local phone service (which remains a monopoly).

[16] Seth Schiesel, "2 Industries Unite to Pave Way for High-Speed Web Access," New York Times, Jan. 4, 1999.

Competition is for large-volume business and residential long distance users, with the hope to add Internet access and integrate wireless users. This is oriented first toward business customers but increasingly toward the upper end of the residential market. Given the need for expensive, massive local infrastructure investment, only customers with big local bills are attractive to potential competitors (Sprint Ion or SBC "national-Local" or, in the wholesale local market, MCI/WorldComm).

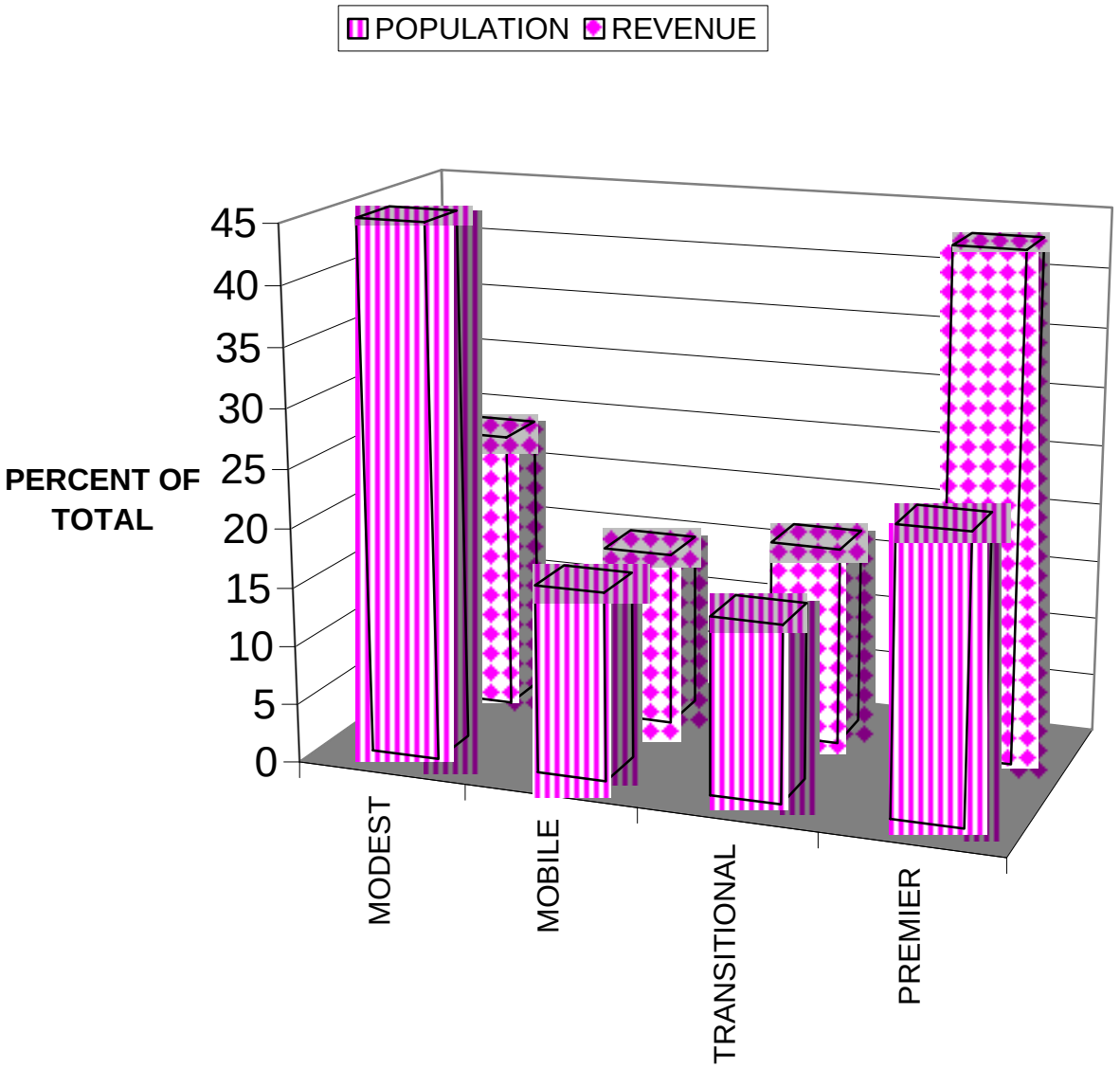
AT&T's high-end strategy is illustrated by a recent announcement offering a monthly charge of $30 plus usage at $.10 per minute. This telecommunications bundle precedes the addition of cable TV and high-speed Internet access, which will be added through the merger with TCI. The strategy was accompanied by the following analysis.

> Surveys by Forrester Research have found that only 8 to 10 percent of all consumers are so taken with bundling that they're willing to switch providers to get it… Those customers, however, tend to be the ones who spend the most on communications services.
>
> By playing to those with big bills, … AT&T is shifting its focus from amassing the most customers to earning the greatest profits. The company estimates that 30 million households spend at least $2,000 a year on communications, and that's whom it is trying to attract.[17]

The analysis in this previous section identifies approximately 23 million households in the premier segment that spend an average of just under $2,400 per year. That market segment is the target because, while it represents 24 percent of the population, it represents about 44% of total revenues (see Figure 10). If one focuses more narrowly on telecommunications revenues (excluding cable) the concentration is even greater. As estimated above, the premier segment spends an average of just under $1900 per year no wireline, Internet and cellular. It accounts for 46 percent of the total household expenditure in the residential market. The premier and transitional groups together account for almost two-thirds of the revenues. The top of the market is where the competitive action will grow.

[17] Jon Healey, "AT&T's New Calling Package Bundles Various Services," San Jose Mercury News, January 28, 1999.

FIGURE 10
THE DIGITAL DIVIDE:
REVENUE IN MARKET SEGMENTS



SOURCE: See text.

V. INDUSTRY STRUCTURE: CONCENTRATION VERSUS COMPETITION

A. THE FAILURE TO ELIMINATE THE LOCAL MONOPOLY

1. LOCAL TELEPHONE

The Telecom Act's fundamental premise that breaking down legal barriers to market entry would unleash a barrage of facilities-based competition in which cable companies used their infrastructure to attack the local phone market and local phone companies used their networks to attack cable has proven wrong. Three years after the passage of the 96 Act, incumbent local exchange companies continue to possess a near total monopoly.

Across the nation, incumbents retain a 97 to 98 percent market share. Even this extremely high market share understates the total dominance of the incumbents. These figures include total service resale. As a general proposition resale cannot be considered to contribute to effective competition as a market disciplining force because competitors utilizing resale are wholly dependent on incumbents. The ability of pure resellers to compete on price is completely constrained by the resale discount.

Facilities-based competition, which is the only form that can be considered relevant to producing the price and infrastructure promises in the Act, is virtually nonexistent. On a national basis, far less than one percent of all lines have been captured by competitor facilities. In most cases facilities-based competition accounts for a few tenths of one percent of the local market. In the residential segment, it does not exceed even one-tenth of one percent. To the extent that there is competition, it is almost entirely restricted to the large urban areas.

In local telephone markets, wireless remains between thee and four times more expensive for the average residential customer. "One-wire" integrated cable-telephone networks have proven too expensive and unworkable.

Congress understood that it would take a long time to build competing facilities in the local telecommunications market, so it opened less ambitious paths to market entry. Congress demanded that new entrants be allowed to use existing bottleneck facilities at cost-based, nondiscriminatory rates, terms and conditions. These have been thoroughly frustrated by the refusal of the incumbents to cooperate and tied up in courts and in administrative proceedings. The result is that these approaches have failed to break the local telephone monopoly.

The incumbent local exchange companies (ILECs) continue their pattern of anticompetitive, market foreclosing behavior. Disputes over the implementation of market opening requirements promise to drag on into the foreseeable future. The barriers to entry stem from on simple source, the obstacles that the incumbents have erected and defended.

Almost three years after the passage of the 96 Act and over two years after the Local Competition Order, the complete failure of market opening is stunning. Not one company has even come close to meeting the standards in the Act. At best, we find companies have met half of the 14 point market-opening checklist items. Moreover, the most important technical conditions have not been met. Operating support systems simply have not produced the non-discriminatory treatment of competitors that is necessary to allow local competition to grow. Recombination of unbundled network elements has been refused. Incumbents refuse to accept the performance standards and performance penalties that the Department of Justice has identified as necessary to ensure non-discrimination on an ongoing basis. Incumbents have not complied with the spirit or the letter of the affiliate transaction rules.

2. CABLE

In cable TV there are only a handful of communities with more than one cable company. Alternative technologies have not proven to be effective competitors. Direct Broadcast Satellite (DBS) costs at least twice as much. Over-the-air broadcast delivers a different, more restricted product.

Out of 8000 plus cable systems, head-to-head competition exists in fewer than 150. Cable TV competition has been undermined by ever increasing concentration of ownership and the integration of programming and distribution. The incumbents never compete against one another. Weak restrictions on ownership and weak competitive access rules have rendered independent entry into the cable TV business virtually impossible. The result is a complete lack of competition.

In the cable industry we find that a few firms control well over half the market. They are highly regionalized, so that there is no threat that a large national firm will invade a competitor's territory. Distribution has become so highly concentrated at the national scale that a successful launch of programming requires the implicit consent or support of the major national players. An independent programmer cannot get in front of enough eyeballs to make a go of it without access to the dominant systems.

B. THE FAILURE OF CROSS-TECHNOLOGY COMPETITION

1. WIRELINE

One of the great disappointments of the Telecom Act has been the failure of competition from alternative technologies to break down the market power of the incumbents. Congress had great hopes for this form of competition. In fact, the only facilities-based competitor for local telephone service actually mentioned by the Act's Conference report was cable TV.[18] Similarly, Congress devoted a whole section to telephone competition for cable through open video systems. Neither of these has proven effective competition.[19]

Cable companies have rolled out experiments, but they have gained virtually no market share. They now seem content to allow AT&T to buy or partner through joint venture a combined offering, which, as we have noted, is not likely to reach very deeply into the residential sector. Open video systems are non-existent.[20]

With the failure of wireline competition to develop across industries, attention has focused on wireless competition. The incumbents in both industries have sought to make the case that wireless technologies (cellular/PCS in telephone; DBS in cable) are effective competitors. Economic analysis shows that this conclusion is vastly premature.

2. WIRELESS TELEPHONY

PCS costs the average residential consumer 3 to 4 times more than local exchange service costs and is attractive to, at most, a small percent of residential subscribers. This hardly seems consistent with this broad view of "meaningful facilities-based competition" referred to in Conference Report. PCS is much more expensive than basic local service and priced in a fundamentally different fashion.

- The basic monthly charge for PCS offerings is at least 50 percent higher than local exchange service.

- PCS service is measured service; local exchange service is generally flat rate.

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[18] Pub. L. 104-104, Conference Report, p. 148.

[19] Title II, part 5.

[20] Fifth Annual Report, Appendix C.

- PCS charges not only for outgoing calls, but also for incoming calls, which is never the case with wireline service.

Given the clearly different pricing levels and pricing structures for the two services, One can only compare a package of services which includes not only basic local and toll, but also virtually all enhanced services (call waiting, call forwarding, speed dialing, etc.). Using this complete package, LECs claim that there are some customers who could save money by switching to PCS to replace landline services. Unfortunately, any such customers are a very small, peculiar and irrational lot. The customers who are the market for PCS as a substitute for local exchange service would have the following characteristics:

- Subscribe to basic service,
- Take an unlimited intraLATA long distance calling plan
- Take a full package of vertical services including call waiting, call forwarding, speed calling, etc., and
- Almost never use the phone or any of the services for which they are paying.

Once a customer uses the phone to make and receive more than one call per day, PCS is more expensive. Why people who barely ever use the network would need all the enhanced services is hard to imagine. Indeed, a service like call waiting would be useless, since there is almost no chance that the line would be busy when a second call is received. Such irrational behavior cannot be assumed to prevail in the marketplace.

For the average consumer, PCS is out of the question as a substitute for local exchange service. Even with the packages recently offered the average monthly bill would on the order of $200 for all calling. Consider AT&T's new service as an alternative to wireline. The average consumer would spend $30 per month for the service and $140 for use (1400 minutes of use at $.10). This does not include charges for incoming calls, extension phones, or a second line. The problem with cellular is that wireline local calling costs about $.016 per minute, one-sixth the rate for the AT&T package.

The solution, of course, is to not use the cellular for local calls. Rather, use it for long distance, outgoing calls, plus travel. Could such a dedicated long distance line replace one of the local wirelines? Local usage is not alleviated, nor is an Internet connection replaced. The wireline is not replaces. This is truly a cellular, long distance substitute.

The $200 per month for the package compares to an average monthly bill at present of $75 for basic service, toll and vertical service (Internet costs should not be included). Even for the premier group the average expenditure on local, long distance and cellular is only $135. In order for AT&T's package to be attractive, even in this segment, the consumer would have to have the full range of vertical services ($10), high cellular bills ($60+) and high long distance bills ($100). The survey data indicates that about 3 percent of the respondents fit into this category.

Thus, although cellular has achieved a high market penetration, it does not represent an economic substitute for wireline local telephone service. It is a different commodity that provides different functionality.

3. DIRECT BROADCAST SATELLITE TV

Incumbents in the cable industry make the same argument about satellite that local telephone companies make about cellular. Their argument is even less convincing. Not only is satellite a much more expensive product with different characteristics than cable, it has not even gained a substantial market share.

Figure 11 is drawn to scale to give a feel for the structure of the multichannel video programming distribution market (MVPD) as defined by the Department of Justice and the Federal Communications Commission. DBS has a very small market share of the MVPD market – about 9 percent. More importantly, because of its limitation in delivering local broadcasting, 40 percent of DBS subscribers also subscribe to cable. Thus, only 6 percent of MVPD households have DBS and not cable.

DBS fills a niche at the high end of the market. Many subscribers buy cable in order to get a full complement of local programming. DBS's large channel capacity and high front-end costs dictate the packaging of large numbers of high priced channels and/or long term contracts. As a result, DBS is a small competitive fringe that is not capable of disciplining cable TV pricing. DBS still costs twice as much as cable.

Earlier we noted the rapid rise in cable prices. In fact, the presence of DBS has done nothing to restrain cable price increases. They have been as rapid, in real terms, as at any time during the history of the industry.

Figure 12 shows that cable makes much more money by increasing prices for basic cable than competing in the DBS niche. The vast majority of cable customers are victimized by cable pricing because the high-cost, high-capacity DBS offering exceeds their means or their needs. The revenue gained by increasing cable prices to existing subscribers since the Telecom Act exceeds the revenue lost to all DBS-only subscribers by almost 3-to-1 and new DBS-only

FIGURE 11
MARKET SHARE AND MARKET OVERLAP
IN THE MULTICHANNEL VIDEO PROGRAMMING DISTRIBUTION MARKET

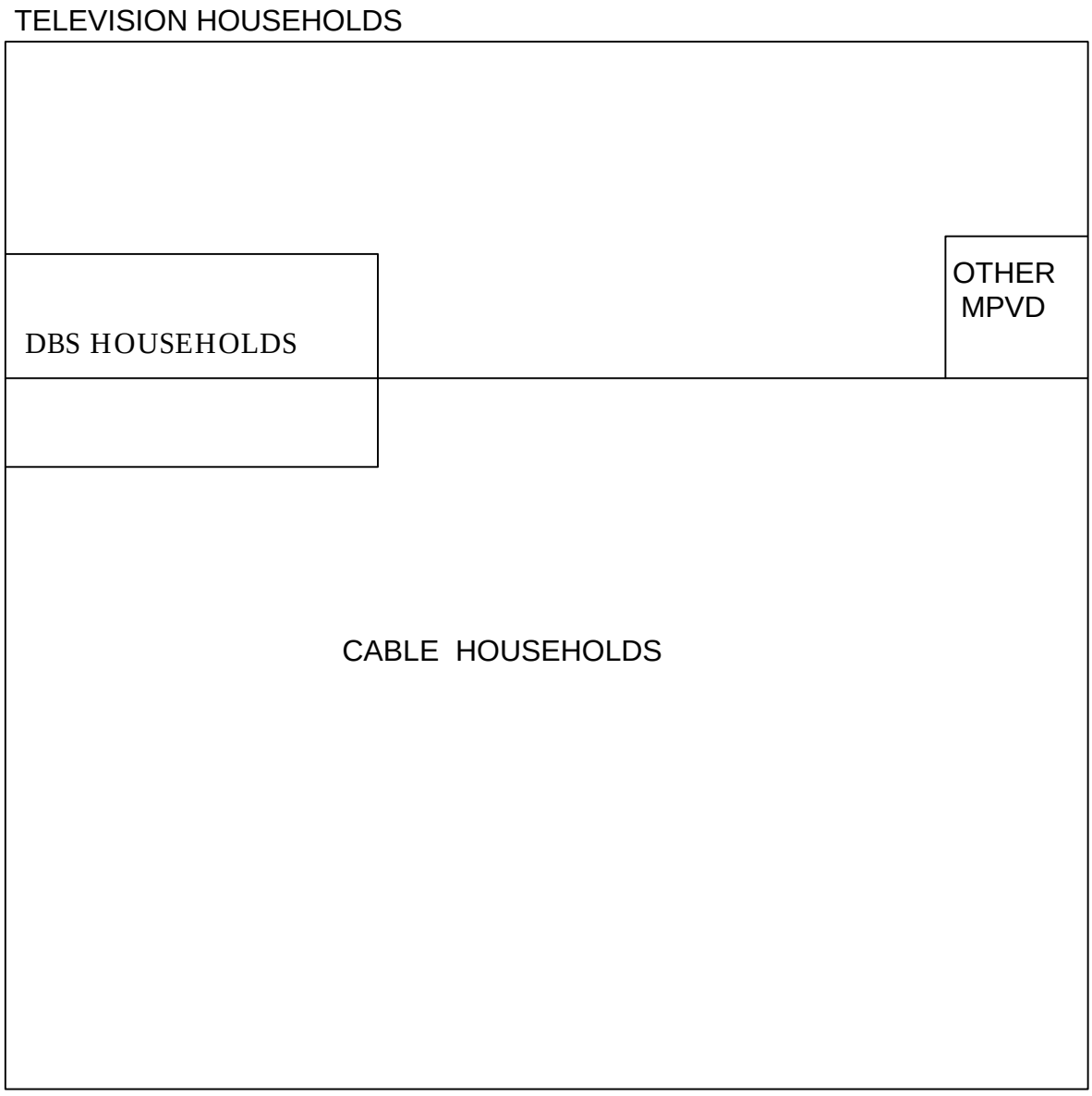
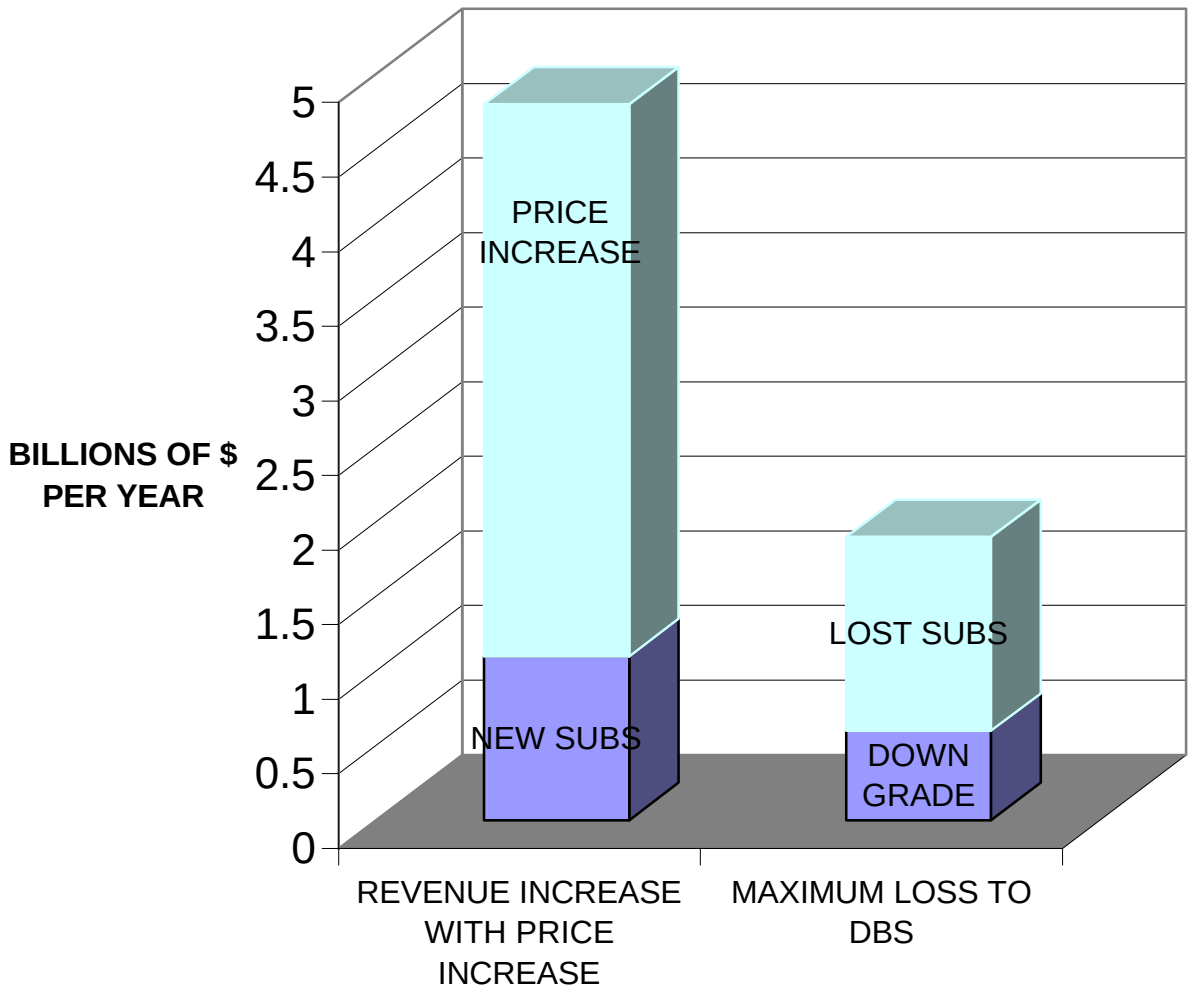


FIGURE 12
CABLE MAKES MORE BY RAISING PRICES THAN COMPETING IN THE DBS H IGH-END NICHE MARKET



SOURCE: FCC, Fifth Annual Report, Appendix C for subscribers. Assume $5 increase since 1/1/96.

subscribers by almost 4-to-1. Cable revenues added from new subscribers at the higher prices, just about equaled cable revenues lost to all DBS-only subscribers and exceed cable revenues lost to new DBS-only subscribers. Because DBS still costs twice as much as cable, DBS simply cannot constrain cable pricing abuses.

C. NATIONAL MARKET CONCENTRATION

With no cross-industry or cross-technology competition for basic services incumbent wireline companies have set about preserving and enhancing their market power.

1. BUILDING REGIONAL MONOPOLIES AND A NATIONAL OLIGOPOLY

Since the passage of the Telecom Act, the seven Baby Bells have not only made it impossible for new entrant to compete within their territories; they have refused to attack the service territories of their sister companies. Instead, they have consolidated in five companies, with a proposal to go down to four and to pull in the largest independent (GTE) into the RBOC tent. First, SBC merged with Pacific Telesis, then Bell Atlantic merged with NYNEX. SBC has bought out one of the independent companies (SNET) and is proposing a huge merger with yet another Baby Bell (Ameritech) that would give it control of almost one-third of the national market in a monopoly that stretches from Chicago to Houston.

The Bell Atlantic-NYNEX-GTE merger and the proposed SBC – Ameritech mergers add a layer of regional monopoly on top of a monopoly at the point of sale. They create end-to-end networks that give the incumbents a decided advantage if they are allowed to enter the long distance business.

Cable TV concentration has been advanced not only with a series of small sales and trades of systems, but also with several huge mergers and joint ventures. The two largest cable TV companies, Tele-Communications Inc. (TCI) and Time Warner, which serve more than one-half of all cable households, are now tied together through Time Warner's purchase of Turner Broadcasting Corp. (with TCI maintaining a 9 percent stake in Time Warner). The market power of the dominant firms in the industry was then extended dramatically when TCI joined with Rupert Murdoch's New Corp. and Cablevision Systems Corporation to eliminate the threat of rivalry from the two largest industry players who had not previously been part of the cartel.

Concentration in distribution is also being leveraged into other markets. The same few firms that dominate cable TV distribution dominate production of programming. They have no incentive to bargain at arms length and they control enough of the market to exercise price leadership. The dominant firms in production do not have to fear competitive programming since their control over eyeballs enables them to

frustrate entry. They can increase their overall profits by increasing programming prices, since they reap rewards from sales to both integrated and non-integrated distributors.

Competitors who are not affiliated with the dominant local/regional monopolist have little ability or incentive to compete on price. Independent cable operators can pass price increases for programming through to consumers due to inelastic demand and lack of competition at the point of sale. The lack of competition in programming also means that there is nothing they can do about it. Since they cannot find lower priced alternatives, they pay the increase to programmers and pass it through to consumers. Independent programmers do not compete on price because (1) they will not risk losing access to the eyeballs controlled by the integrated programmers and (2) they can live comfortably by following the leader. Everyone raises their own prices and lives comfortably under the umbrella established by the dominant firm.

The increasingly large regional telephone monopolies have begun to exhibit the same characteristics. They have begun to try to control the success of upstream entities be leveraging their monopoly at the point of sale and favoring integrated firms. They have tried to do this in their joint marketing arrangement for long distance service (U S West and Ameritech) in which they give an advantage to one supplier over others. Similarly, in seeking to have their high speed networks substantially deregulated, the local exchange companies hope to gain an ability to choose the internet service providers who will have access to their huge base of subscribers. Table 3 summarizes the abuses identified by commenters in the Section 706, advanced services proceeding at the FCC.

This leveraging goes well beyond advanced services, however. The monopoly at the point of sale is being leveraged to gain advantage in selling the full range of telecommunications services.

2. QUANTITATIVE MEASURES OF NATIONAL MARKET POWER

The stunning increase in concentration in these two industries can be summarized with two common measure of market concentration – the four firm concentration ratio and the HHI index. Both indices are based on the share of each firm in the market. The four firm concentration ratio relies on the shares of the largest four firms in the industry. The HHI utilizes information on all firms in the industry. The Department of Justice uses the HHI to classify markets. To understand these measures, we offer the following observations.

TABLE 3

CONCERNS EXPRESSED BY THIRD PARTIES ABOUT THE FCC PROPOSAL TO EXEMPT ILEC ADVNACED SERVICE AFFILIATES

	REGULATORS					INDEPENDENT SERVICE PROVIDERS							
	FTC	IURC	TEX	MN	NY	UTAH	ISPC	IAC	RHY	AOL	ADH	ITAA	NNI
ANTICOMPETITIVE BEHAVIOR													
DENIAL/DELAY OF SERVICE				9		6	6	9	2,3	6,8		iv	
STEERING/SLAMMING				10,11		10,11	9	9		6,8			
INFORMATION ABUSE			3	3		9,16	7,15	14		6,8			
BUNDLING/TYING		5	14		7	13,15	11	9			27	16	
DISCRIMINATORY INTERCONNECT		14				8,9	7	10,11	9	6,8	26	13,15	
AFFILIATE RELATIONS													
BOARD OF DIRECTORS		10	2								24	8,9	
LOGO	5,7			3		16							
ASSET TRANSFER			4,8	16				13			22	12,13	
BYZANTINE RELATIONS		7											
PRICE SQUEEZE		8					11			6,8	21		
JOINT MARKETING	11	10		8,10	7	10	7	11		6,8		6.15	
CROSS SUBSIDY/LOOP COST SHIFT	6	16	5					9			23	15	
FAILURE TO PROMOTE GOAL OF UBIQUITY													
LACK OF OBLIGATION/TARGET		11		5,20									1
UNDERMINING PUBIC NETWORK		12,16			6								
NO DEMONSTRATION OF NEED													
COMPETITION HAS NOT FAILED		5,13									8	4	
REDUCED INCENTIVE TO OPEN LOCAL				5									

NUMBERS REPRESENT PAGE REFERENCES.

COMMENTORS ARE AS FOLLOWS: FTC = FEDERAL TRADE COMMISSION, STAFF OF THE BUREAU OF ECONOMICS; IURC = INDIANA UTILITY REGULATORY COMMISSION, TECHNICAL STAFF OF THE PUBLIC SERVICE COMMISSION OF WISCONSIN; TEX= PUBLIC UTILITY COMMISSION OF TEXAS MN= MINNESOTA DEPARTMENT OF PUBLIC SERVICE; NY= STATE DEPARTMENT OF PUBLIC SERVICE, UTAH= COALITION OF UTAH INDEPENDENT INTERNET SERVICE PROVIDERS; ISPC= INTERNET SERVICE PROVIDERS' CONSORTIUM; IAC= INTERNET ACCESS COALITION; RHY= RHYTHMS: NETCONNECTIONS, INC..: AOL= AMERICA ONLINE; ADH= AD HOC TELECOMMUNICATIONS USERS COMMITTEE; ITAA= INFORMATION TECHNOLOGY ASSOCIATION OF AMERICA; NNI=NEW NETWORK INSTITUTE

A monopoly would have an HHI score of 10,000. The single firm has a 100 percent market share. Two firms (a duopoly) that split the market equally would have an HHI of 5,000. The two firms have a market share of 100 percent. The Department of Justice identifies a market with an HHI of 1,800 or higher as highly concentrated. An HHI of 1667 depicts a market with six equal sized firms and the four firm market share would be 66 percent.

The Department of Justice defines a market with an HHI above 1,000 (the equivalent of ten equal sized firms) but below 1,800 as moderately concentrated. In a market with ten equal sized firms, the four firm concentration ratio would be equal to 40 percent. Markets with a HHI of less than 1,000 are unconcentrated.

As the Table 4 shows, developments in the cable and local telephone industries are extremely troubling. In the early 1980s, on the eve of deregulation in cable and divestiture in telecommunications, the industries were not very concentrated. Cable had an HHI of 357 and a four firm concentration ratio of 28 percent. Local

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TABLE 4
INDICES OF CONCENTRATION AT THE NATIONAL LEVEL

	(A)		(B)	
YEAR	LOCAL TELEPHONE		CABLE TELEVISION	
	4-FIRM	HHI	4-FIRM	HHI
1984	52	1003	28	357
1995	52	1123	55	1098
CURRENT	80	1972	66	1622
WITH SBC /AMERITECH	81	1994		
WITH GTE /BELL ATLANTIC	81	2106		
WITH BOTH	89	2521		

a) FCC, Statistics of Common Carriers, various issues for line counts. HHI figures are based on the Bell system and the major independents, including GTE, Sprint, SNET, Frontier, and Cincinnati Bell Alltel.

b) Sylvia M. Chan-Olmsted and Barry R. Litman, "Antitrust and Horizontal Mergers in the Cable Industry," Journal of Media Economics, Fall, 1988, at 8, 9, 19; for 1983; Federal Communications Commission, In the Matter of Annual Assessment of the Status of Competition in Markets for the Delivery of Video Programming, CS Docket No. 97-141, Fourth Annual Report, December 31, 1997, Appendix E, Table E-4., for 1995 and 1998. !998 adds pending TCI mergers and joint ventures to its column.

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telephone had an HHI of 1000 and a four firm concentration ratio of 52 percent, right at the level of moderately concentrated.

By 1995 concentration had advanced in both industries. Both had moved into the range of moderately concentrated. The activity since the 1996 Act has compounded the structural problem. Including pending mergers and joint ventures, the telecommunications industry exceeds the level of highly concentrated, while the cable TV industry is approaching that level. Both industries must be considered tight oligopolies at a national level.

The flip side of abusive prices described in Section II is excessive profits. This is the second critical measure of the performance of these monopoly industries to which analysts turn. One of the measures that has been used most frequently to estimate this excess in the cable industry is Tobin's Q, which measures the excess paid to incumbents for the assets of the industry in comparison to what it would cost a new entrant to build a new network. If competitive entry were feasible, incumbents could not command these monopoly rents in the sale price.

The comparison of sale prices to reproduction costs has been charted in the cable TV industry for some time (see Table 5). It shows clearly that these rents increased dramatically with the deregulation of the industry. With the recent purchase of large local exchange companies and the development of cost proxy models, we now have the ability to make similar comparisons in the local telecommunications industry. The monopoly rents being collected in the telecommunications industry are just slightly below those of cable TV industry – falling in the range of 60 to 100 percent – and pricing has not been fully deregulated.

The profits of the large local exchange companies have been extremely high since the passage of the Act (see Figure 13). While other corporations in the economy have been earning about 16 percent, the RBOCs have earned over 25 percent. The earnings of long distance companies have been unstable, although AT&T has been above the average in all three years since the passage of the Act.

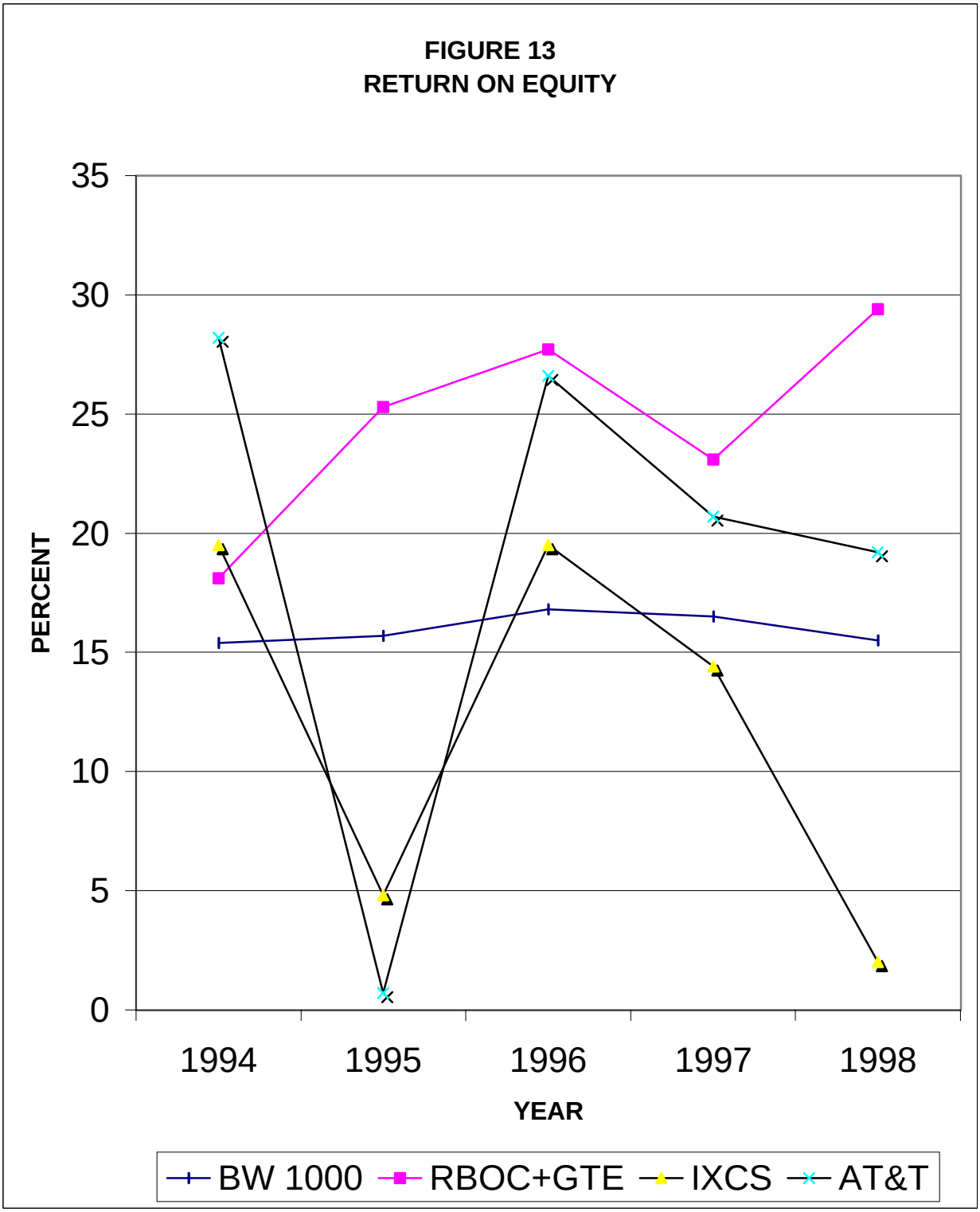
TABLE 5
TRENDS IN TOBIN'S Q

YEAR	CABLE TV		LOCAL TELEPHONE	
	System Sale Price (a)	Reproduction Cost	System Sale Price(g)	Reproduction Cost (h)
1983	1026	645 (b)		
1986	1341	400-723 (c)		
1988	1998	490-603 (d)		
1992	1766	706 (e)		
1994	1869	828 (f)		
1997	1899		1400-1450	700-900

SOURCES:

a) Kagan Associates Inc., Cable TV Master Database, various issues.
b) H. L. Vogel, Entertainment Industry Economics (Cambridge University Press, Cambridge, 1986).
c) Shooshan and Jackson, Opening the Broadband Gateway: The Need for Telephone Company Entry Into the Video Services marketplace, October 1987.
d) Shooshan and Jackson, Measuring Cable Industry Market Power, March 2, 1990., Leland L. Johnson and David P. Reed, Residential Broadband Services By Telephone Companies? (Santa Monica, Rand, 1990).
e)David P. Reed, Residential Fibre Optic Networks (Artech House, Boston, 1992), Tables 5.3 and B.8).
f) Bell Atlantic, In the Matter of the Application of The Chesapeake and Potomac Telephone Company of Maryland and Virginia for Authority Pursuant to Section 214 of the Communications Act of 1934, as amended, to Construct, Operate, Own and Maintain Facilities and Equipment to Provide a Commercial Video Dialtone Service within a Geographic Territory Defined by the Maryland and Virginia Portions of the Washington Local Access Transport Area, December 1994 Exhibit 3. U.S. West, In the Matter of the Application of U.S. West, Inc., for Authority Pursuant to Section 214 of the Communications Act of 1934, as amended, to Construct, Operate, Own and Maintain Facilities and Equipment to Provide a Commercial Video Dialtone Service in Portions of Colorado Springs.
(g) Purchase prices of SNET.
(h) Forward looking investment cost of as estimated by BCPM 3.0 and Hatfield 5.0a proxy cost models.

FIGURE 13
RETURN ON EQUITY



SOURCE: Business Week

APPENDIX A:

A. OVERALL DESCRIPTION OF THE DATA AND USAGE PATTERNS

Although one frequently finds accounts of consumer ownership or usage of specific telecommunications products, most surveys and data sources do not cover the full array of services which appear to be driving the investment and business decisions of telecommunications companies. To the extent data with broad product coverage exists, it is frequently proprietary.

One recent data set that is in the public domain is a large survey of consumers in the state of Florida. The survey was conducted on behalf of the Public Service Commission, so it is free of industry biases. The survey asks questions about all of the services that need to be analyzed to conduct the market analysis we contemplate (see Table A-1). Unfortunately, it did not obtain bills from respondents, so billing data is lacking, but for purposes of describing the subscription to each type of service, it is quite useful.

The survey was conducted in mid-1998. It included telephone responses from almost 1600 respondents. This is a very large state survey. National public opinion polls (e.g. Gallup, ORC) generally use fewer respondents to cover the entire nation). While this is the base of the analysis, other surveys and accounts of the penetration of specific services were also used to develop the market segments discussed in the text.

The usage patterns appear to be typical of the nation (see Table A-1). This is consistent with Florida's household income, which is just at the national average.

TABLE A-1
USE OF TELECOMMUNICATIONS SERVICES

SERVICE	PERCENT OF RESPONDENTS
TWO OR MORE LINES	20
INTERNET	30
CELLULAR	39
3 OR MORE VERTICAL SERVICES	49
CABLE TV	66
SATELLITE TV	10
MULTI CHANNEL TV	72
LONG DISTANCE USAGEPAST MONTH	86

Approximately 20 percent of the respondents report having more than one line. This figure is slightly above the national average figure. At year-end 1997, there were just over 108 million lines reported for 96.5 million households. There are approximately. This suggests only a 12 percent penetration of second lines. However, the industry reported very strong second line growth in 1998. BellSouth claims second lines of about one-sixth of customers company-wide.[21]

The respondents report an average of 1.9 vertical services. This is consistent with national average figures.

Approximately 30 percent of respondents report having Internet service at home. This is exactly at national average figures from recent surveys. For example, the Pew foundation identified about 41 percent of respondents as Internet users with 74 percent of these reporting usage at home.[22] Thus, 30 percent go on line from home. Similarly, a survey by CTAM gives a figure for 1998 online services of 27 percent.

Approximately 39 percent of the respondents said they have cellular service. The most recent estimate is that there are 55 million cellular subscribers in the nation. This suggests a higher penetration because there are approximately 98 million households in the U.S. with telephone service and about 7 million business establishments. However, many of these are likely to be business accounts. The CTAM survey gives a figure for cellular of 38 percent for 1998.[23]

Approximately 66 percent of the respondents report having cable TV service. This is close to the national average of 67 percent for June of 1998 in the FCC's Fifth Annual Report (Appendix C).

Approximately 10 percent of the respondents report having satellite service. This is close to the national average figure of 7 percent for DBS and 11 percent for all satellite delivery systems given by the FCC. The CTAM survey gives figures of 69 percent and 13 percent, respectively.

Four percent of the respondents report having both cable and satellite. Therefore, 72 percent of the respondents have at least one multichannel TV service. This finding that 40 percent of satellite owners (4 out of 10) also have cable in the Florida survey is identical to the CTAM finding.

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[21] Investor Relations Press Release, January 25, 1999.

[22] The Internet News Audience Goes Ordinary, The Pew Research Center, January 19, 1999.

[23] "Key Consumer Profiles," Pulse, CTAM.

Approximately 86 percent of the respondents report paying a long distance bill in the previous month. The long distance question did not distinguish between intraLATA and interLATA calls. This indicates that 14 percent placed no long distance call. This also seems consistent with national average figures. The FCC has a figure of 12 percent for 1997 (Trends in Telephone Service, Table 15.2).

The Florida survey appears to be right on target with broad national consumption patterns.

B. EXPENDITURES ON TELECOMMUNICATIONS SERVICES

As briefly noted earlier, the Florida survey did not obtain actual billing data from respondents. Subjective billing data was gathered from respondents in different forms (some were grouped, some were precise dollar amounts). The questions did not seek to identify specific components of the telephone bill. Therefore, responses to the billing questions cannot be used to directly estimate actual bills directly. However, the relative differences between the market segments can be applied to national average bills to outline the general spending patterns within each segment.

For example, respondents in the modest category report spending 80 percent of the survey average (mean) on local service. Their median is approximately 88 percent of the survey median. Respondents in the premier group report spending 132 percent of the survey average. Their median is 150 percent of the survey median. A similar pattern holds for cable TV bills.

For long distance the differences are larger. The modest group spends less (60 percent of the average); the premier spends more (160 percent of the average). The reason for this pattern is that local phone service and cable TV service provide connectivity to basic service. The discretionary component is smaller.

For the purposes of this analysis, we model expenditures in the following way.

1. LOCAL

The local service component is straight forward, since there is little variation in this bill (see Table A-2). We assume slightly lower than average local cost for single line subscribers in the modest and mobile categories, since they pay lower taxes and lower average subscriber line charges. We assume 1.8 average lines for the premier group and 1.6 for the transitional group. Since these are second and third lines, this group also incurs higher subscriber line charges. The figures presented in Table 2 in the text are derived as follows. Vertical services are

assumed at less than 1 for the modest segment, 1 for the mobile group, two for the transitional and 3 for the premier group at an average price of $3 per service.

TABLE A-2:

DERIVATION OF BASIC LOCAL BILL FOR MARKET SEGMENTS

Lines	Cost per line	Average cost per	Extra SLC tax and other	Vertical	Estimated Typical Bill
1	$20<	$20<	$0	$3<	$20
1	20	20	0	3	25
1.6	20	32	3	6	40
1.8	20	36	4	10	50

The final column presents the typical bill for local service.

2. LONG DISTANCE

Long distance usage is more problematic (see Table A-3). FCC data suggests two-thirds of households make 30 or fewer minutes of long distance calls per month. This is based on only households that places a call. This suggests that as

TABLE A-3
DISTRIBUTION OF INTERLATA LONG DISTANCE USAGE

USAGE CATEGORY	PERCENT HH	PERCENT USE	AVG. USE
ZERO	12	0	0
LESS THAN 30 MINUTES	58	13	5
30 – 500	26	53	105
MORE THAN 500	3	34	925

many as three-quarters of households make fewer than 30 minutes of calls in a given month. These households account for 13 percent of all minutes. In this market segment, the average number of minutes per month is only 5. At the upper end, 3 percent of all households account for 34 percent of all minutes. These households place an average of 925 minutes per month. The distribution of respondents to the Florida study across usage levels exhibits a sharp difference between the modest group and the premier group (see Table A-4).

TABLE A-4
DISTRIBUTION OF INTERLATA LONG DISTANCE BILLS

USAGE CATEGORY	MOD	TRAD	TRANS	PREMIER
ZERO	21	11	10	6
LESS THAN 30 MINUTES	59	59	56	47
30 – 500	19	23	24	31
MORE THAN 500	1	8	10	16

The extremes of long distance usage do not coincide perfectly with the three market segments we have identified. That is, only 80 percent of the modest category reported a long distance bill in the bottom 67 percent of bills. Only 16 percent of the premier segment report a bill in the top 3 percent. Utilizing the distribution of self reported bills in the survey, the FCC bill analysis, and the FCC national average bills, we estimate the interLATA long distance bill for each segment. Based upon the mean, median and the distribution of bills from table A-5, we estimated the difference between the long distance bill in each market segment and the national average as shown in the table.

3. OTHER SERVICES

The other services are less complex. Here we use the median as reported by the survey respondents, taking into account the fact that those that do not subscribe.

TABLE A-5
VARIOUS ESTIMATES OF RELATIVE LONG DISTANCE USAGE

	SEGMENT USE COMPARED TO AVERAGE			
	MEAN	MEDIAN	MINUTES DISTRIBUTION	ESTIMATES TYPICAL BILL
MODEST	-36%	-23%	-65%	-30%
MOBILE	-13	-20	+9	-20
TRANSITIONAL	=	+5	+30	+5
PREMIER	+42	+60	+98	+60

C. REGRESSION RESULTS

Only statistically significant effects are shown (correlation coefficients at the .001 level; regression effects at the .01 level, see table A-6).

TABLE A-6
DEMOGRAPHIC FACTORS AFFECTING USE OF DISCRETIONARY SERVICES

	DEPENDENT VARIABLE					
	VERTICAL	LONG-D	CABLE	FAX	INTERNET	CELLULAR
CORRELATION COEFFICIENT						
INCOME		.24	.29	.32	.40	.43
BLACK	.27	-.18	-.21	.11	-.17	-.13
HISPANIC		-.10				
ELDERLY	-.24				-.15	-.13
REGRESSION % OF VARIANCE						
INCOME	1	6	8	10	16	18
ETHNICITY	7	2	2	.5	.5	
ELDERLY	5				2	1