ISSUES AND OPTIONS FOR THE DEREGULATION OF CUSTOMER PREMISES EQUIPMENT AND FOR THE DIVESTITURE OF A BELL OPERATING COMPANY

Jane L. Racster
Senior Institute Economist

THE NATIONAL REGULATORY RESEARCH INSTITUTE
The Ohio State University
2130 Neil Avenue
Columbus, Ohio 43210

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FOREWORD

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Douglas N. Jones
Director

EXECUTIVE SUMMARY

The Federal Communications Commission (FCC) has ordered the deregulation of new customer premises equipment (CPE) beginning January 1, 1983. The FCC has also ordered the eventual detariffing and deregulation of embedded CPE. In addition, the recent settlement of the Department of Justice antitrust suit calls for the divestiture from AT&T of the 22 wholly owned Bell Operating Companies (BOCs) and the removal from these companies to AT&T of all CPE and interexchange services.

There are many serious issues that a state public utilities commission must address in implementing these two decisions. Two of the most serious of these are the division of resources and their associated costs between regulated services and CPE (for the deregulation of CPE), and the division of these costs for the AT&T divestiture between local exchange services on the one hand, and interexchange and CPE services on the other. The goal in dividing these costs should be to retain all costs necessary to provide the local exchange company services and no unnecessary costs. This is a particularly difficult goal to achieve due to the presence of many joint and common costs (i.e., costs shared by more than one category of service) and because of the indivisibility of some of these costs. There is a very real possibility that the local operating companies will be left with excess capacity. If so, a commission has at least two choices for dealing with the excess capacity. One, the costs of the excess capacity can be disallowed for ratemaking purposes. Two, future rate increases can be restrained until the company can show increased sales of regulated services sufficient to utilize the excess capacity.

At least four methods exist for dividing costs among the service categories. These are the traditional method, a fully distributed cost study, the use of cost equations, and the use of revenue earned to determine the amount of costs to be removed.

The traditional method involves a line item analysis of the accounts and a negotiation procedure between the company and the commission staff. This is a particularly time consuming process.

A fully distributed cost study (FDC) involves the direct assignment of all costs capable of direct assignment and the use of ratios for allocating all remaining costs. This approach yields results more quickly than does the traditional method but may yield results that are less easily applied. That is, the FDC procedure can estimate an amount to be allocated from each account to each service but may not specify precisely which expenditures are involved. Such a cost study does provide a benchmark for estimating excess capacity after the deregulaton and/or divestiture.

The use of cost equations for identifying the costs of each service is an appealing concept. It would allow the allocation of the costs to each service and allow for changes in costs due to changes in the quantities of the services over time. However, extended analyses of a 22 year data base for Ohio Bell Telephone Company resulted in inconclusive results.

The data base proved inadequate for the purpose of dividing CPE and non-CPE costs. This occurred primarily because any reasonable representation of CPE costs tracked so well with the representation of local exchange service costs that the results would not allow a meaningful assignment of costs between these two services. However, such analyses can be useful for forecasting, for evaluating test year data, and for the development of monitoring tools for use after deregulation and divestiture.

The fourth alternative for dividing costs between CPE and core company accounts is to base the costs removed on the revenue earned from CPE. When the commission and company agree that the CPE has been tariffed at cost-based prices and the revenue earned from CPE matches the revenue requirement for CPE, then it is logical to assume that the removal of all CPE services and revenue should be accompanied by the removal of an equivalent amount of costs. An advantage of this method is simplicity. More important, the company is given greater flexibility. Some investment and expense items are fungible between CPE and monopoly services. That is, they can be used effectively by either type of service. Also, as mentioned earlier, some costs have indivisibilities that prevent their being reduced in the same proportion as the service offering. With this method of division of costs, the company may select from the various accounts what it considers the most appropriate items and can do so while serving the best interests of the monopoly segment. The only constraint on the company is that the total amount of costs removed must equal the specified totals for expenses and investments.

A detailed analysis of the components of each investment and expense account was undertaken. This is useful as background information for those commissions using the traditional method for dividing costs. It is also useful for those commissions utilizing a fully distributed cost study, since the analysis identifies those costs capable of direct assignment and also suggests methods for allocating the other costs. The analysis indicated five accounts that will be particularly difficult to divide. They are Account 640--General Commercial Administration; Account 643--Sales; Account 645--Local Commercial Operations; Account 662--Accounting; and Account 665--Other General Office Salaries and Expenses. In the case of Ohio Bell, these are all large accounts with significant rates of growth over the five year period 1977-81. Only limited amounts of these accounts are capable of direct assignment from the subaccounts. These accounts are involved with administrative services, sales, and accounting for local network services, CPE, and interexchange services, and they contain joint and common costs. Special studies by the company are needed to permit a reasonably correct assignment of the personnel and other costs charged to these accounts. These studies would also assist in the assignment of investment assets used for these functions.

Another major issue in implementing the deregulation of CPE relates to embedded CPE. The FCC has proposed four methods that could be used alone or in combination for the deregulation of embedded CPE. They are the sale of embedded CPE to existing subscribers, sale to a third party, the transfer to an unregulated entity, or the retention of embedded CPE under tariff until retirement.

Sale to a third party does not appear to be practical in most cases, since such a third party would need large amounts of capital and an extensive CPE support system.

Retaining embedded CPE under tariff until it is retired would unduly delay the full development of competition in this market. Also, it is unlikely that there could be temporal matching of the removal of CPE-related costs with the various levels of CPE retirement over time.

The sale of embedded CPE to existing subscribers offers several advantages. The subscriber is given more options, sooner than would otherwise be available. The sale price can be determined under tariff. The competitive nature of the CPE market would be improved by reducing any dominant firm's ability to control or influence prices of both embedded and new CPE. Also, sale to existing subscribers would move the competitive arena to that of new CPE and thus help reduce any inequalities among competitors due to a captive customer base.

The transfer of embedded CPE either to a CPE subsidiary or to an unregulated segment of the company (via separate accounting procedures) would speed the process of deregulation, although it does not offer the same advantages to subscribers as are found with the sale option. However, such a transfer will probably ultimately be necessary even if the sales option is adopted, since not all customers can be expected to purchase their CPE.

Under the terms of the AT&T divestiture, the Bell Operating Companies will be restricted to offering local exchange service, exchange access, yellow pages, and new CPE. Their ability to enter other markets appears to be highly dependent on whether such entry would enhance or retard competition in those markets. An analysis of growth rates of selected costs, service offerings, and population for the five Bell companies in the Great Lakes region indicates that costs and particularly operating expenses are growing more rapidly than service offerings (other than toll calls). Also, the population growth rates in the headquarters cities were negative for the period 1976-80. This fact, coupled with the rise in unemployment and the growing number of bankruptcies in this region, would suggest that there may be little growth in demand for local telephone services. In order to prevent ever-increasing rates, the companies need to seek additional revenue sources (particularly those which will utilize existing assets) and seek to hold down the growth in costs. This makes it particularly important for a commission to scrutinize the division of costs for divestiture as well as the determination of the mandated new exchange boundaries, both of which can have significant influence on a local company's long-term cost position. Also, the proposed regional organizations for the Bell companies have the potential to add to the costs for each company. A regional management level will be added, and this will increase personnel, communications, and travel costs among companies, and may decrease each company's autonomy and thus decrease its ability to react quickly to local conditions. Also, the regional structure may create financial problems for an individual company, depending on the extent to which financial transactions of one company are influenced by the financial health of all companies in the region. The net benefits of a regional organization to the ratepayers and local companies appear to be minimal if,

in fact, net benefits exist. Consequently, any ongoing costs associated with the regional structure should be examined to see if they reflect definite benefits to local ratepayers.

A state commission can play an active role in helping the operating companies enter new markets. A company's ability to enter these markets will be influenced by its potential ability to abuse its monopoly power. Consequently, those commissions which are active in promoting competition, where possible, can enhance the companies' prospects for entry into new markets. The promotion of competition includes monitoring the companies for anticompetitive activities and aggressively collecting and analyzing the data needed to measure competition and to judge the effects of further deregulation. Also, the enforcement of state antitrust statutes should be pursued by the appropriate agencies. If the recent past is any indication of the future, then one can expect the development of additional suppliers and the consequent potential for competition for more and more telephone services.

What is needed for regulating telephone companies in the future is the ability to track the growth of competitive suppliers, cost-based pricing so that proper price signals are given, innovative regulatory strategies to cope with quasi-competitive markets, and the ability to determine those markets which can achieve workable competition and those which at best would be tightly oligopolistic. A start toward resolving these problems would be made if each state commission would mandate the collection of more extensive data bases and ongoing analyses. Telephone company cost data must be collected on a functional basis, and disaggregated usage and demand data are also needed. In addition, cost and demand data from alternative suppliers are necessary for full analyses. The difficulties inherent in separating accounts for the deregulation of CPE point up the need for functional cost data. The difficulty in determining when the CPE market is workably competitive reinforces the need for more and disaggregated demand and usage data. In an industry with large amounts of common and joint costs, disaggregated usage data would provide the possibility of more clearly defining marginal costs.

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PREFACE

The telephone industry is currently undergoing massive structural and regulatory changes. The AT&T divestiture will reorganize the dominant provider of telephone service and will alter the structure and procedures for the provision of interexchange services. The FCC is pursuing a policy of encouraging competition whenever feasible. These changes will have great impact on local ratepayers and the state regulatory processes.

This report, sponsored by the Public Utilities Commission of Ohio, addresses two of these changes, the deregulation of customer premises equipment and certain aspects of the AT&T divestiture. The report is not intended to give final answers to the many questions raised by these two major structural changes. It is, instead, designed to serve as a blueprint for working through the implementation of these structural changes. It identifies the major issues, explains their implications, and identifies the data needed to resolve the issues. Specific reference is frequently made to The Ohio Bell Telephone Company because this is the only telephone company in Ohio undergoing both deregulation of CPE and divestiture. However, the material presented has wider application, which we believe can be useful to any state regulatory commission for both Bell and non-Bell telephone companies.

TABLE OF CONTENTS

Appendix Page

LIST OF TABLES

LIST OF FIGURES

CHAPTER 1

ALTERNATIVE PROCEDURES AND POLICIES FOR DIVIDING ACCOUNTS BETWEEN REGULATED AND DEREGULATED SERVICES

Introduction

The deregulation of customer premises equipment (CPE) was ordered in the original Federal Communications Commission (FCC) decision in the Second Computer Inquiry (Computer II).[1] Three recent developments have altered the original decision and created uncertainty regarding the treatment of embedded CPE. These are (1) the most recent Computer II ruling, October 7, 1981;[2] (2) recent decisions of the Joint Board to Consider Changes in the Separations Manual;[3] and (3) the proposed settlement of the Department of Justice (DOJ)--AT&T antitrust suit announced January 8, 1982,[4] and adapted to incorporate modifications proposed by the presiding judge and subsequently accepted by the parties on August 24, 1982.[5] These decisions are discussed in detail in later chapters and are briefly described in the following paragraphs.

The latest FCC ruling on Computer II mandates that as of January 1, 1983, all new customer premises equipment be deregulated and, in the case of the Bell operating companies, be transferred to a fully separated subsidiary (FSS). Existing, or embedded, CPE would remain with the regulated segments of the telephone companies and be offered under tariff. An FCC task force was established to work out methods for ultimately deregulating embedded CPE.

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[1]Federal Communications Commission, Docket 20828, Second Computer Inquiry, Final Decision, adopted April 7, 1980.

[2]Action by the Commission by Memorandum Opinion and Order on Further Reconsideration (FCC 81-481), October 7, 1981.

[3]FCC CC Docket No. 80-286.

[4]United States v. American Telephone and Telegraph Company et al., no. 74-1698 (D. District of Columbia, January 8, 1982), Modified Final Judgment.

[5]United States v. American Telephone and Telegraph Company et al., no. 74-1698, (D. District of Columbia, August 24, 1982).

The Joint Board,[6] in November 1981, adopted a proposal to freeze the CPE component of interstate costs at its level on January 1, 1983, and to phase out this amount from the separations process over a five-year period. The FCC adopted this proposal in February 1982.

The settlement of the AT&T antitrust suit calls for all CPE (as well as interexchange facilities and services) to be retained by AT&T. The Bell Operating Companies are to be divested from AT&T and, after the divestiture, will engage only in exchange communications and exchange access services. The settlement calls for drawing new larger exchange boundaries. All traffic within these new boundaries is considered exchange communications, and traffic between these exchanges is considered to be interexchange traffic.

There is an implied conflict in the treatment of embedded CPE between the Computer II provisions and the proposed antitrust settlement. The FCC currently contends that the divestiture agreement will not alter the Computer II rulings. The FCC interpretation of the proposed settlement is that while AT&T will own the embedded CPE, it will continue to be offered under tariff and regulated by the state commissions until the FCC makes a determination as to how to deregulate embedded CPE. While there is uncertainty surrounding the treatment of embedded CPE, the uncertainty pertains to when it will be deregulated, not whether it will be deregulated.

The new need to divide costs among services is common both to deregulation of CPE and the divestiture. The remainder of this chapter discusses the issues and procedures involved in making these cost allocations. Chapter 2 discusses other issues that are specific to the deregulation of CPE, while chapter 3 discusses specific issues of the divestiture. Chapter 4 contains a summary and some conclusions regarding the future regulation of telephone companies.

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[6]The Joint Board was established by the FCC for the purpose of recommending changes in the existing procedures for separating jurisdictional costs from interstate costs. Its membership consists of both state public utility commissioners and FCC commissioners.

Regardless of when embedded CPE is deregulated, it is important to determine the magnitude of investment, expenses, and revenue currently associated with the provision of CPE. This determination should be made as soon as possible prior to deregulation and/or the transfer to AT&T. There are two reasons for this. One, the advent of competitive segments of telephone companies after January 1, 1983 will create pressures to alter the pricing strategies for embedded CPE. New price structures for the embedded equipment may or may not fully recover the associated costs--depending on the company's goal and the customers' demand response to changing price structures. Given this, it is important to isolate the core company's[7] investment, expenses, and revenue from those associated with CPE activities. Second, the advent of competitive segments can lead to reassignment of cost elements among the various services, and this reassignment may not accurately reflect the sources of cost causation. For example, Ohio Bell recently altered its policy regarding company cars for marketing personnel by providing a car allowance rather than a company car. If the cars that were being used for marketing CPE are now assigned to the core company and are not replacements for cars already in use, then the core company has picked up a cost that was actually created for the provision of CPE. This particular example represents a small number of dollars, compared to total company costs, however, it illustrates that the opportunity does exist to reassign many costs--primarily labor, land, buildings and office space, and support equipment in line with the goals of the parent company. The total value of such reassignments could have a significant impact on the core company, whose best interests may conflict with the goals of the parent company. An early allocation of costs, combined with a separation into subaccounts, would help to minimize any adverse impact. It should be noted that this same concern also applies to the division of costs needed for the divestiture of the operating companies from AT&T.

Ideally, the goal in implementing the deregulation of CPE (as well as in implementing the divestiture) should be to retain for the core company

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[7]The term core company, as used here, refers to the regulated portion of the local operating company that will exist after deregulation of CPE and after the divestiture.

all costs incurred in providing exchange communications and exchange access services and no unnecessary costs. The process of implementation can be viewed as having three stages. The first is the division of all investment, revenue, and expense accounts between CPE activities and core company services. The second is the division of the CPE segment between those costs related to new leases and sales of CPE and those costs related to embedded CPE. The third is the selection of procedures for removing embedded CPE and its costs and revenues from the core company.

With the recent unbundling of rates, the division of the revenue accounts is a fairly straightforward calculation. The difficulties arise when one attempts to divide the expense and investment accounts, since many of the costs are joint or common costs, that is, shared by both CPE and core services.

This means that a commission must make a decision as to whether to pursue the removal of all CPE related costs or only the direct costs associated with CPE. The indirect costs, such as administrative and clerical personnel, some land and building space, shared vehicles and work equipment, data processing equipment, and legal and accounting staff not used directly and solely for the provision of CPE, can only be estimated. These costs may be difficult to remove quickly because some items are indivisible and because of social concerns about laying off employees rather than letting attrition reduce the workforce. However, these indirect costs can be a significant amount of money, and if one wants to minimize the costs allocated to network ratepayers, they should be removed. To the extent they are retained by the core company, there will be excess capacity and unnecessary costs. Two alternatives for dealing with this situation are to disallow any such investment and expenses for ratemaking purposes or to accept these expenses and allow no growth in these expenditures (for ratemaking purposes) until the core company services have grown sufficiently to utilize the excess capacity fully.

In the case of independent companies that do not establish separate CPE subsidiaries, separate accounts must be established for CPE activities.

The problem of common and joint costs can be handled by estimating the size of these costs and applying a fixed percentage for overhead to the CPE activities.

The first step in making a division of the accounts is to determine the perspective from which the division of accounts shall be approached. Two alternatives are (1) to identify and estimate all costs associated with network exchange services and assume the rest are CPE-related costs, or (2) to identify and estimate all costs associated with CPE activities and assume that all others are necessary for the provision of network exchange services. In any division of costs among telephone company services, there tends always to be some residual costs that cannot clearly be identified with any one service. This is particularly true for the allocation of joint and common costs, and the choice of the allocation factor used will determine which service receives the residual costs.

The choice of the first alternative (above) would prevent or at least minimize these residual costs being allocated to the regulated company or would at least minimize the allocation of residuals to the core company. As a consequence, this alternative works in the best interest of the ratepayers, regulators, and the regulated company. The regulated company retains no unnecessary costs that might increase its vulnerability to future competition in the local loop and is also protected from other negative financial consequences of excessive costs; the ratepayer will be paying only for the costs associated with the services he uses; and the regulator is better able to meet his goals of preserving the financial health of the regulated company while at the same time meeting the equity and cost concerns of ratepayers. (Again, these same considerations apply to the division of accounts needed for the divestiture of the Bell Operating Companies from AT&T.)

Alternative Methods for Dividing Accounts

Regardless of the perspective from which costs are allocated, there appear to be four identifiable methods for making the actual division of accounts. One might be described as the traditional procedure, a second

is the use of ratios, a third is the use of functional equations, and the fourth is to base the amount of costs to be removed on the amount of revenue earned from CPE.

Traditional Procedure

The traditional method would require a line item examination of the accounts. This could be done by the company with the commission staff scrutinizing the results, the staff could make its own analysis in addition to the company's, or it could be done in a series of joint meetings with the staff and company. A task force composed of persons with engineering, accounting, and economic expertise might be utilized either to monitor the company's cost allocations or to perform the staff allocations. The traditional method of line item analyses and confrontation/compromise between the commission and the company should yield a high degree of precision in the allocation procedure. The disadvantage is that it is a lengthy, time-consuming process.

Fully Distributed Cost Study

A second method for dividing the accounts would be the direct assignment of costs whenever possible and the use of relevant ratios for the allocation of the remaining costs. Many direct assignments can be made from the subaccounts in the Uniform System of Accounts. This would be essentially the same approach as that used in the fully distributed cost studies conducted at The National Regulatory Research Institute (NRRI).[8] However, since the factors composing a proper cost allocation for a permanent division may be different from those which constitute a fully distributed cost (FDC) study for ratemaking purposes, alternative ratios to those used in the NRRI studies are needed. For example, in an FDC study for ratemaking purposes, some share of test desk equipment might be allocated to CPE. Yet, in a division of assets, this equipment would stay with the core company and any use of it with respect to CPE would be on a billed services basis.

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[8]Clark Mount-Campbell and Michael Wong, Interactive Cost Allocation System Version 2.2, Ohio Bell Case Number 81-1433-TP-AIR, August 2, 1982, the Public Utilities Commission of Ohio, Columbus, Ohio.

This method has the advantage of being easier to apply and yielding results more quickly than the traditional method. However, it may also yield results that are less easily applied than those results obtained with the traditional method. That is, a fully distributed cost procedure can designate an appropriate amount to be allocated to each type of service but may not specify precisely which expenditures are involved.

Appendix A contains a description of the investment and expense accounts and suggestions for allocating each account. This information can be used to apply a fully distributed cost study. It can also be used as a reference if the traditional method is used to divide accounts.

Cost Equations

A third method for dividing accounts is the use of functional equations, that is, the development of equations that would identify the relationships between each service and the various categories of costs. This might be considered the theoretically "ideal" method for designating costs. Proper cost functions would enable one not only to allocate costs among services but also to identify changes in costs as the volume of services changed. They would also lay the groundwork for marginal cost analyses and a better understanding of the long-run cost characteristics for telephone companies today.

Because of the many advantages to using cost equations, considerable effort was expended to construct them for The Ohio Bell Telephone Company (OBT). Twenty-two years of physical, financial, and usage data from the annual Form M reports were collected, stored in the computer, and subjected to extended analyses.[9] The analyses consisted of numerous plots, correlation analyses, and regression equations with the goal of estimating the degree of influence of CPE activities and core company services on each type of cost. Unfortunately, the data base proved inadequate for this purpose. The primary problem is that any reasonable variable used as a proxy for CPE has such a high correlation with the variables used to

[9]A second data base composed of the year-to-year changes in the observations has also been created.

represent core company services that the results would not allow a meaningful assignment of costs between these two types of services. It remains a possibility that such analyses may yield information on cost relationships for toll and local services or for other types of cost analyses.

The analyses undertaken did provide substantial information about the company. One use to which the data could be put is forecasting; for example, the data base could be used to forecast many of the core company expenses and investments, and these forecasts could be useful for evaluating test year data filed in rate cases. The data base and analyses can also be used in constructing a RAm type model for telephone companies.[10]

As an example, a time trend analysis was undertaken to forecast the expense for cable repairs, that is, to examine the cable repair expense per mile of cable. Cable includes all forms of cable plus aerial wire. The resulting model is given below:

$$Y = 49.99 - 8.36T + 1.42T^2$$

where

Y = dollars of maintenance expense per mile of cable

T = Time = 1 for 1960

Using this model, the estimated maintenance expense per mile of cable for 1982 (T = 23) is $608.89. Figure 1-1 contains a plot of the actual and predicted values for 1960-88.

A second model was constructed to examine the relationship between repair expense and miles of wire in cable. That model is as follows:

$$Y = .50 + .04T$$

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[10]A RAm model is a regulatory analysis model constructed to provide financial analyses and forecasts. Such a model was constructed for use with electric utilities by Temple, Barker and Sloan, Inc., and subsequently modified by The National Regulatory Research Institute.

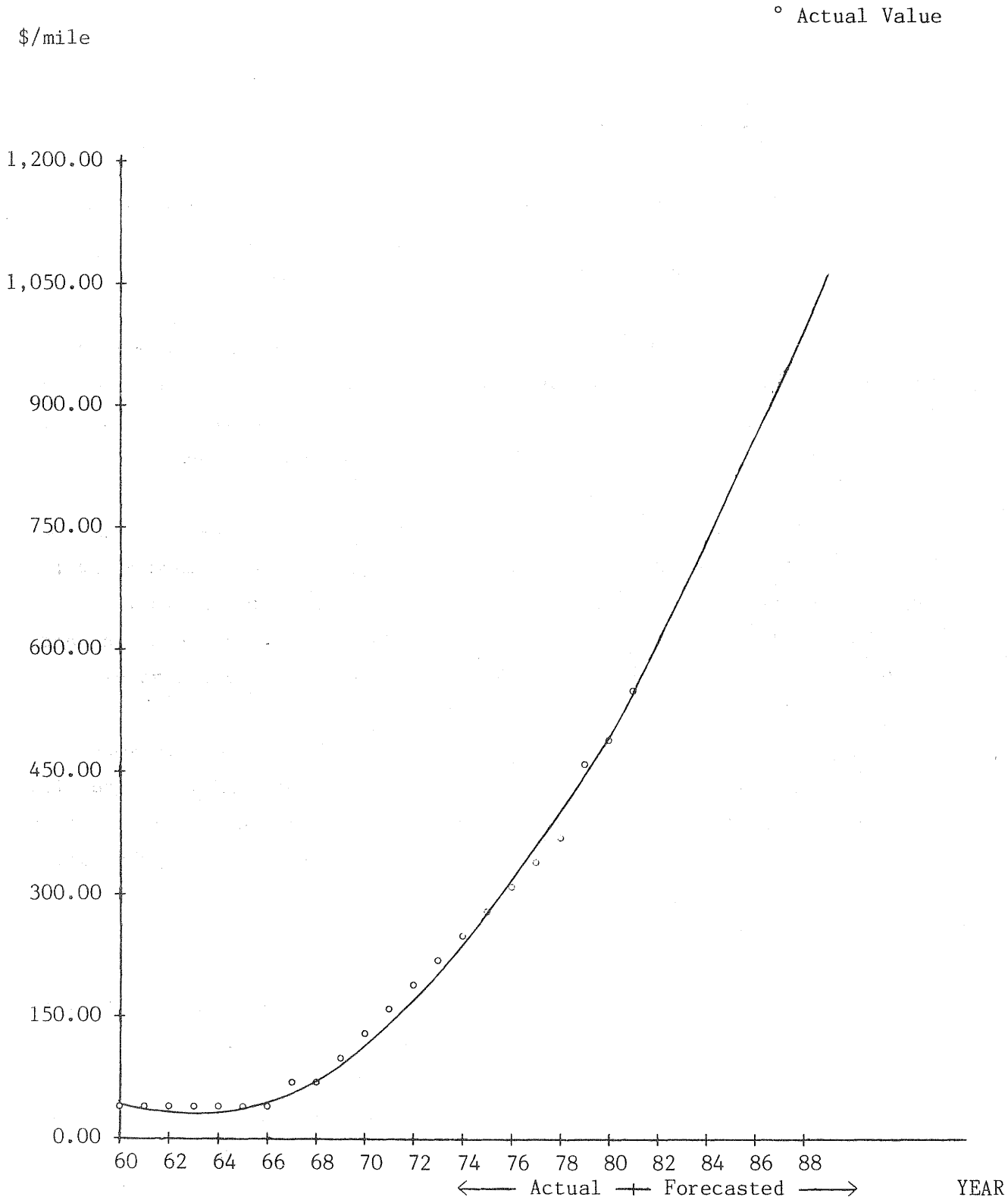

Fig. 1-1 Actual and predicted values of maintenance expense per mile of cable, 1960-1988
Source: author's calculations

where

Y = dollars of maintenance per mile of cable
T = Time = 1 for 1960

Using this model, the estimated maintenance cost per mile of wire in cable including aerial wire for 1982 is $1.42. Figure 1-2 contains a plot of the predicted and actual values for this model for 1960-88.

A simple or multiple regression fit of a dependent variable with time is one method of constructing forecasting models. There are other methods that differ basically in their ability to account for temporal correlation in the observed values, which the regression methods do not do.

Although the models resulting from the regression fit were quite good, the residuals indicate systematic variation, suggesting a refinement in the analysis relating to this systematic variation could be beneficial. Appendix B contains the statistical analysis, a plot of the residuals, and a plot of the predicted and actual values for each of these two models.

Similar types of analyses could be done for many of the telephone company variables if this would be useful to commission staff. In addition to forecasting for the purpose of evaluating test year data, it is possible that some monitoring tools might be developed for use after deregulation.

Revenue-Based Procedure

The fourth alternative for dividing costs between CPE and core company accounts is to base the amount of costs removed on the amount of revenue earned from CPE. When the commission and company agree that the CPE has been tariffed at cost-based prices and the revenue earned from CPE matches the revenue requirement for CPE, then it is logical to assume that the removal of all CPE services and revenue should be accompanied by the removal of an equivalent amount of costs.

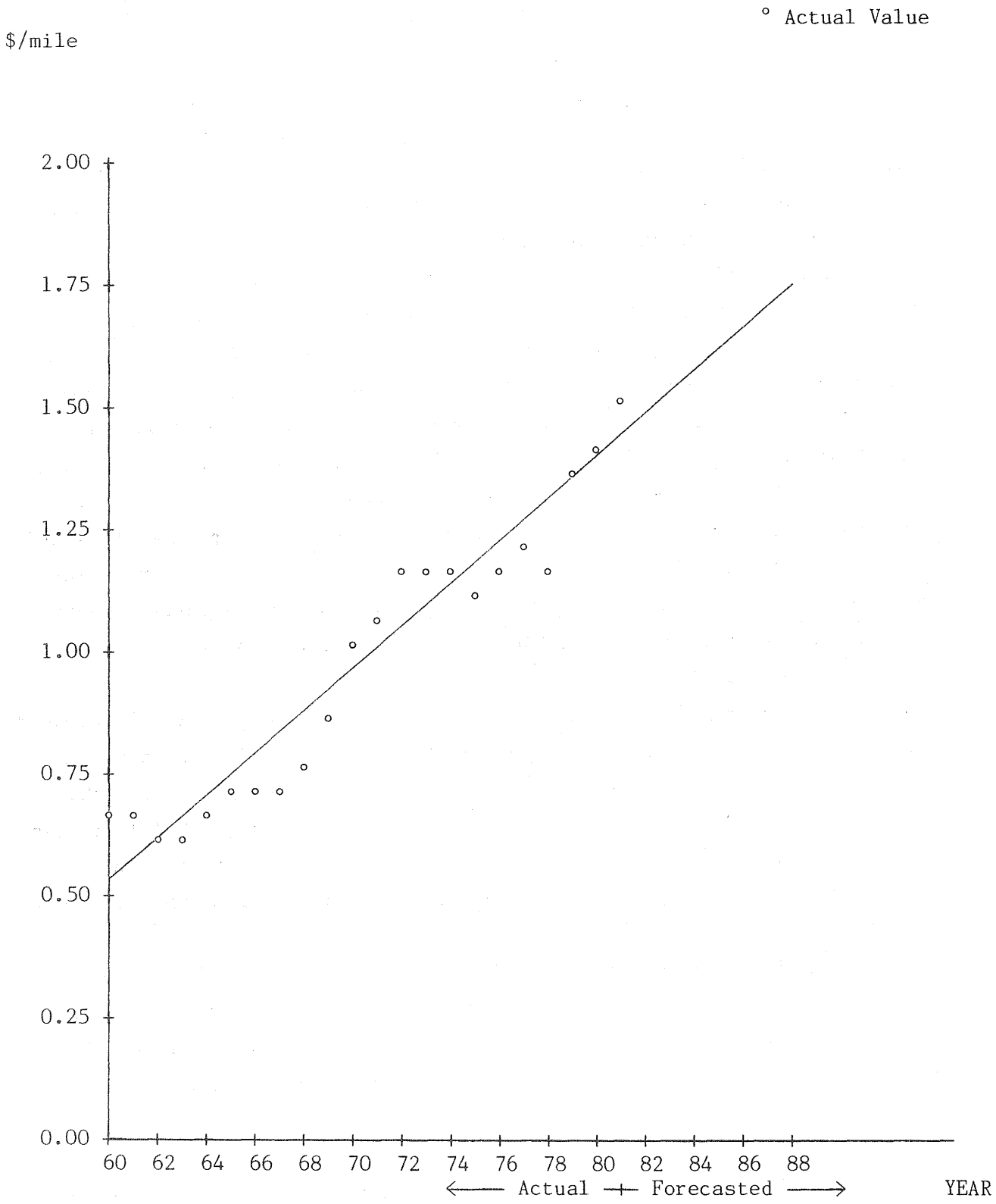

Fig. 1-2 Actual and predicted values of maintenance expense per mile of wire in cable, 1960-1988
Source: author's calculations

To accomplish this, one needs first to identify the value of all assets used in the provision of CPE and calculate the return on this capital. Taxes on CPE are then calculated. These taxes and the return on this capital are subtracted from revenues to leave the expenses associated with CPE. Both the company and commission are then aware of the total amount of expenses and investment to be removed from the regulated segment of the company. One advantage of this method is simplicity. The calculations needed are minimized, which saves time and expenditures for regulators. A second advantage is that the company is given greater flexibility. Some investment and expense items are fungible between CPE and monopoly services. That is, they can be used effectively by either type of service. Also, as mentioned earlier, some costs have indivisibilities that prevent their being reduced in the same proportion as the service offering. With this method of division of costs, the company may select from the various accounts what it considers the most appropriate items and can do so while serving the best interests of the monopoly segment. The only constraint on the company is that the total amount of costs removed must equal the specified totals for expenses and investments.

A combination of method 2 and 4 is also possible. A fully distributed cost study would be utilized to allocate costs between CPE and other services. The resulting total of CPE costs would become the amount that must be removed from the core company. This differs from method 2 in that the commission determination of costs to be removed is based only on the totals of the FDC study rather than on specific amounts from each account.

The difficulties associated with this method arise if the CPE is not tariffed at prices known to be equal to costs. In this case, the use of this method would either fail to remove all CPE related costs or would remove an excess amount, and risk leaving the company deficient in assets or personnel.

Another problem involves the relationship between actual CPE revenues and the CPE revenue requirement. If these two are identical, then there is no problem. If they are not, then the commission must decide which should

serve as the basis of the cost allocation. The revenue requirement was, presumably, calculated on the basis of costs incurred to provide CPE. If actual revenues do not match this, it will likely be because the demand response to price changes was not accurately estimated. The question then becomes whether the drop (or increase) in demand and revenues was matched by a drop (or increase) in associated costs. If this is presumed to be what has occurred, then actual revenues should be used as a basis for calculations. If not, then revenue requirement should be used as a basis for calculation.

A final problem is related to the existence of flexible pricing. Under flexible pricing, the commission approves a minimum price for an item of CPE and allows the company to raise the price (typically to a specified maximum) without going through formal rate case proceedings. Assuming that the minimum price is set at a cost based level, then this is the price that should be used in calculations for this method of dividing costs. However, to the extent that prices have risen above the minimum and thus are in excess of the CPE-related costs, then the loss of revenue from the removal of CPE will be greater than the amount of costs removed and there will be an impact on the monopoly ratepayers.

Summary of Account Allocations

Four identifiable methods for allocating costs among services have been discussed. In order to select and apply any one method, an understanding of the individual accounts is needed. Each investment and expense account in the Uniform System of Accounts (USOA) was examined. A complete description of each account and an identification of those components of the account that are associated with each of three categories of service--CPE, interexchange service, and local or core company services --is found in Appendix A. This appendix is designed to serve as a reference for those who choose to use the traditional method for allocating costs. The appendix also contains suggestions and information needed to devise appropriate ratios for applying a fully distributed cost study. A summary of these account descriptions is found in the following paragraphs.

Investment Accounts

Much of Accounts 231 and 234 (station connections and large PBXs) will be allocated to CPE. The exceptions are company-used CPE and some relatively small percentage of the account associated with coin telephones, circuit private line equipment, and WATS equipment. However, since these accounts reflect embedded CPE, none of these accounts would be transferred initially when new CPE is deregulated. That CPE used for company operations would be retained, and its value needs to be identified by the company.

The remaining investment allocations to CPE consist of portions of Accounts 211 and 212--(land and buildings), 261--(furniture and office equipment), and 264--(vehicles and other work equipment). Much of the administrative and marketing office space accounted for in 261 and 264 and allocated to CPE should be removed at the time new CPE is deregulated. The remaining investment items would be removed as embedded CPE is deregulated. Portions of this latter type of investment should enter into calculations of the cost of any shared services, such as maintenance, utilized by the CPE subsidiary.

Investment allocations to AT&T for interexchange services would consist primarily of central office equipment and outside plant used for interexchange traffic. Under the proposed agreement, this consists of class 3 and class 4 offices used solely or predominantly by Long Lines and any interexchange outside plant currently owned by the Bell Operating Company as well as any associated land, buildings, furniture and office equipment, and vehicles and other work equipment.

In summary, a substantial percentage of the existing investment accounts will be retained by the operating companies following both deregulation of CPE and the divestiture.

Repair and Maintenance Expenses (Accounts 602, 603, 604, 605, 606, 610, 611, 612)

These expenses totaled $385,725,001 in 1981 for Ohio Bell and represented 33.9 percent of total operating expenses that year. Most of

these accounts will stay with the regulated company following both deregulation and divestiture. The major exception is Account 605 - Repair of Station Equipment, and the major part of this account will ultimately be allocated to CPE. The other repair and maintenance expenses that should be removed with CPE and the interexchange services are primarily a share of building and grounds repair expense, and repair expenses associated with interexchange switches and the interexchange outside plant. Some of the remaining expenses may enter the calculations for either the access charge or various billed services. The only CPE-related repair and maintenance expenses that will be removed when new CPE is deregulated are those associated with the land and buildings that are removed at that time. The other CPE-related repair and maintenance expenses should be removed either when embedded CPE is deregulated or when it is removed to AT&T. The interexchange related repair and maintenance expenses should be removed when the divestiture occurs.

Depreciation Expenses (Accounts 608, 609, 613, 614)

Depreciation expenses totaled $215,888,574 for Ohio Bell in 1981 and represented 18.98 percent of the company's total operating expenses. Again, most of these accounts will stay with the operating company, since most of the plant investment will be retained for local telephone operations. Of the amounts allocated to CPE, only some of that related to buildings, furniture and office equipment, and vehicles and other work equipment will be removed when new CPE is deregulated. The rest will be removed either when embedded CPE is deregulated or when the CPE is assigned to AT&T for the divestiture. Similarly, the interexchange share of depreciation expenses will be removed at the time of divestiture.

Traffic Expense (Accounts 621, 622, 624, 626, 627, 629, 630, 631, 632, 633, 634, 635)

Traffic expenses totaled $78,941,979 in 1981 for Ohio Bell and comprise 6.9 percent of total operating expenses for that year. Very few

of these expenses are related to CPE. Those which are will, in general, either be removed when embedded CPE is removed or will be used for calculating charges for billed services. Several types of traffic expenses are related to interexchange traffic. However, these are most likely to remain with the operating company and either enter into access charge calculations or be covered by the fees for services billed to interexchange carriers.

Commercial Expenses (Accounts 640, 642, 643, 644, 645, 648, 649, 650)

Commercial expenses totaled $186,952,227 for Ohio Bell in 1981 and represented 16.4 percent of the total operating expenses. The largest share of these expenses should be allocated to CPE. However, since some of the costs are joint costs, it will be more difficult to assure the full removal of CPE-related costs. The expenses associated with direct marketing efforts will be removed at the time new CPE is deregulated. The others will be removed when embedded CPE is assigned to the subsidiary or to AT&T. Any interexchange related costs are most likely to be assigned either to access charge computations or to calculations for billed services.

General Office Salaries and Expenses (Accounts 661, 662, 663, 664, 665)

General office salaries and expenses totaled $102,201,911 for Ohio Bell in 1981, representing 8.98 percent of total operating expenses that year. The biggest allocation to CPE from this account comes from the accounting department, Account 662. Again, it will be difficult to ensure the full removal of the CPE related costs because these are primarily joint costs. However, the amount involved is sufficiently large to justify the effort involved. Most of these costs will be removed with embedded CPE rather than new CPE. The costs in this category that are associated with interexchange costs are primarily those involved in various billed services for interexchange carriers.

Other Operating Expenses (Accounts 668, 669, 671, 672, 673, 674, 675, 676, 677)

This category of operating expenses totaled $167,394,868 in 1981 for Ohio Bell and comprised 14.7 percent of total operating expenses. The amount of these costs that are allocated to CPE is primarily dependent on the number of employees and value of assets associated with CPE and interexchange services, since this category includes insurance and relief and pension expenses. Once the asset and employee division among the three types of services (CPE, interexchange, and local) is made and agreed upon, then the account divisions are easily audited. Some of these expenses will be removed with the deregulation of new CPE, but many others will await the removal of embedded CPE and interexchange services. In addition, the license fee expenses will be removed upon divestiture. It should be noted, however, that similar expenses may be incurred after divestiture due to the proposed creation of a centralized service organization for the divested operating companies.

The allocation of these investment and expense accounts for CPE deregulation and the divestiture will have long-term implications for the cost position of the local operating companies and consequently for the rate levels of regulated services. The removal of all CPE-related costs and, in the case of BOCs, all the costs of interexchange services, will be difficult due primarily to the many joint and common costs involved. Five accounts that will be particularly difficult to divide have been identified. They are Account 640--General Commercial Administration; Account 643--Sales; Account 645--Local Commercial Operations; Account 662--Accounting; and Account 665--Other General Office Salaries and Expenses. In the case of Ohio Bell, these are all large accounts with significant rates of growth over the five-year period 1977-81. Only limited amounts of these accounts are capable of direct assignment from subaccounts. These accounts contain charges for administrative activities, sales, and accounting activities performed for local network services, CPE, and interexchange services and they contain joint and common costs. Special studies by the company will be needed to allow a reasonably accurate assignment of the personnel and other costs charged to these accounts. These studies would be used with either the traditional method or a fully distributed cost study and would also provide information for monitoring activities following deregulation and divestiture.

CHAPTER 2

IMPLEMENTATION PROCEDURES FOR THE DEREGULATION OF CUSTOMER PREMISES EQUIPMENT

Introduction

The FCC, in its Computer II order, ruled that as of January 1, 1983, all new CPE will be deregulated, and in the case of the Bell Operating Companies (unlike the independents), the new CPE can only be offered through a fully separated subsidiary. The FCC has not yet reached a decision regarding methods for deregulating embedded CPE but has announced it will do so in the near future. The FCC task force on implementation of the deregulation of embedded CPE has not yet issued a final report as to a time frame and method for removal of embedded CPE. However, four alternatives for detariffing and removing embedded CPE have been offered for comment. They are (1) the sale of embedded CPE to the existing user; (2) the transfer of embedded CPE to a separate subsidiary or to untariffed services for non-Bell companies; (3) the sale of embedded CPE to a third party; and (4) leaving embedded CPE with the existing company, under tariff, until it is retired. For the Bell Operating Companies, the options are somewhat limited in that embedded CPE will be transferred to AT&T at the time of divestiture (currently estimated to occur no earlier than January 1, 1984). While embedded CPE will then be owned by AT&T, it will continue to be tariffed by state commissions, until the FCC rules on the methods of deregulation and this deregulation is accomplished.

The next section of this chapter contains a discussion of the deregulation of new CPE. In the following two sections, the issues and procedures involved in the four FCC proposed alternatives for deregulating embedded CPE are examined. Other sections contain discussions of specific problems relating to the deregulation of CPE: alternative methods for valuing assets, the separations process and deregulation of CPE, inside wiring, and accounting changes for the deregulation of CPE.

The AT&T divestiture agreement calls for all embedded CPE to be transferred to AT&T at the time of divestiture. The divestiture agreement further states that only new CPE can be offered by the BOCs. The Computer

II ruling and the divestiture agreement have points of conflict, and the FCC is expected to resolve these questions in the coming year. These conflicts are discussed in the final section of this chapter.

Further complicating the deregulation of CPE is the fact that beginning January 1, 1983, the CPE component of the interstate share of investment costs is to be phased out over a five-year period. Also, an access charge decision in Docket 78-72, which the FCC anticipates announcing the beginning of 1983, may further change the treatment of CPE for interstate purposes.

Deregulation of New CPE

The implementation of deregulaton of new CPE is now rather clear cut. AT&T's fully separated subsidiary (American Bell Incorporated) has been established and its capitalization approved. Starting January 1, 1983, all new CPE, as well as all enhanced services provided by the Bell system, will be offered through this subsidiary. This will involve the transfer from the BOCs of land, buildings, furniture and office equipment, computer equipment, vehicles and other work equipment, and personnel needed for the sale or lease of new CPE. According to the supplement to the capitalization plan, filed July 1, 1982 and approved by the FCC November 4, 1982, the total net value of these assets to be transferred from Ohio Bell is $1.8 million.[1] The adjusted net value is $1.3 million.[2]

In a press release announcing approval of the supplemental capitalization plan, the FCC reported that it is preempting state actions that would "preclude transfer of assets or delay the transfer of these

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[1]American Telephone and Telegraph Company, "Supplement to Plan of American Telephone and Telegraph Company for Capitalization of American Bell Inc.," July 1, 1982.

[2]Adjusted net book value is computed by determining original book value less accumulated depreciation, then subtracting accumulated deferred income taxes and the unamortized share of any investment tax credits, and finally adding any deferred income taxes on Western Electric profits.

assets" to American Bell.[3] The FCC has agreed that the transfer of these assets will be at adjusted net book value. The issues of the appropriate valuation for asset transfer will be discussed in a later section of this chapter. With respect to the valuation of assets used for new CPE, the issue has already been determined by the FCC.

The capitalization plan for American Bell also includes the transfer from Ohio Bell on July 1, 1984 of $2.2 million (adjusted net book value)[4] of assets that are used in the installation and maintenance of CPE. Until July 1, 1984 (or until divestiture occurs), the installation and maintenance of all Bell System CPE, including that supplied by American Bell Inc. (ABI), will be done by the operating companies, and American Bell will pay the BOCs for any such services received. The previously cited FCC press notice reported that state commissions will have until September 1, 1983 to evaluate and comment on these asset transfers. A review of these asset assignments and values should be undertaken. As an example, in response to a data request necessary to perform the most recent ICAS cost allocation study of Ohio Bell,[5] the company identified approximately $22 million original book value of Account 264 (vehicles and other work equipment) as being associated with CPE. Approximately $8 million in accumulated depreciation was assigned to these particular assets, leaving a net book value of $14 million. This is in sharp contrast to the $2.4 million (net plant and equipment) for vehicles and other work equipment to be assigned under the supplemental capitalization plan. There may be several possible explanations for this discrepancy, but the magnitude is sufficient to require a more thorough analysis either to justify the difference or to require a different transfer value. Table 2-1 contains the details of asset transfers for Ohio Bell, as reported in the supplemental capitalization plan.

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[3]Telecommunications Reports, November 8, 1982, Business Research Publications, Inc., Washington, D.C.

[4]The net value of these assets, prior to tax adjustments, is $3.5 million.

[5]Clark Mount-Campbell and Michael Wong, Interactive Cost Allocation System (ICAS), version 2.2, Ohio Bell Case Number 81-1433-TP-AIR, August 2, 1982, the Public Utilities Commission of Ohio, Columbus, Ohio.

TABLE 2-1

ADJUSTED NET BOOK VALUE TO BE TRANSFERRED TO AMERICAN BELL INC., FROM OHIO BELL TELEPHONE COMPANY AS OF JANUARY 1, 1983 AND JULY 1, 1984
(Dollars in Millions)

Ohio Bell Assets	Jan. 1, 1983	July 1, 1984
Land	$ --	$ --
Buildings/Leasehold Improvements	1.2	0.6
Furniture and Fixtures	0.6	0.2
Computer Equipment	-	0.3
Motor Vehicles	-	1.4
Other Work Equipment	-	1.0
Total Net Plant and Equipment	$ 1.8	$ 3.5
Adjusted Net Book Value*	$ 1.3	$ 2.2

*Adjusted net book value means original book cost reduced by accumulated depreciation and by adjustments for accumulated deferred income taxes due to accelerated depreciation and the unamortized balance of investment tax credits, with any remaining deferred income tax on the profits of (Western Electric Company) restored.

Source: American Telephone and Telegraph Company, Supplemental Capitalization Plan for American Bell Inc., July 1, 1982, Attachment 1, p. 35.

As mentioned earlier, due to the indivisibility of some joint and common costs, the existence of long-term labor contracts and the natural conflict of interest between AT&T and the BOCs with respect to the division of costs, it is possible that not all CPE related costs will be removed. As an example, in the list of assets that will be transferred from Ohio Bell to American Bell for the provision of new CPE, no land or buildings are included. This means American Bell is taking none of the office space, phone center space, or warehouse space that is currently used in providing new CPE and that will not be needed for that purpose by Ohio Bell after January 1, 1983. In situations like this, there are alternatives that could prevent Ohio Bell from having excess capacity. For example, if no longer needed functions are currently being carried out in rented space,

the leases can be canceled; if the space is owned by Ohio Bell, then it can be rented to a third party or sold; or Ohio Bell activities can be consolidated in such a way as to free other space currently being rented.

The possibility of excess capacity continues to exist, however, and to the extent it does it can create an undue burden on ratepayers if they are forced to absorb the costs. The amount of any excess capacity can be estimated by using the results of a fully distributed cost analysis as a benchmark against which to measure the amount of costs removed. Any differential can be dealt with by either disallowing the excess costs or by restraining future rate increases until the company can show increased sales of monopoly services sufficient to utilize the excess capacity.

In summary, the role of the state commissions with respect to the deregulation of new CPE appears to be limited to the following responsibilities. For companies without a separate CPE subsidiary (primarily non-Bell companies), separate accounts and subaccounts will be needed to minimize the opportunities of cross-subsidies between the regulated and nonregulated services. Also needed is the development of methods for dealing with costs shared by both regulated and unregulated services, such as accounting, administration, installation, and maintenance. Such shared services need to be valued and some portion of their costs allocated to the provision of new CPE. This valuation could be accomplished by applying a fully distributed cost analysis to determine the amounts of common and joint costs used to provide all CPE, and then allocating these costs between new and embedded terminal equipment. Finally, the asset items of independent telephone companies that will be used in the provision of new CPE need to be valued and their transfer to untariffed services approved.

For the Bell companies, the identification and valuation of assets needed to provide new CPE have been done by AT&T and approved by the FCC. It remains for state commissions to evaluate the asset transfer proposed for the installation and maintenance of CPE and to examine and approve the amounts and method of payment by American Bell of the interim costs of these and other shared services.

The Sale of Embedded CPE

Two of the FCC proposed alternatives involve the sale of CPE either to the existing subscribers or to a third party. The sale of embedded CPE to existing subscribers, assuming it is properly priced, offers an advantage to those ratepayers. That is, the subscriber is offered greater options at an earlier time than if the embedded CPE is retained by the company until retired. Also, the removal of existing CPE from the marketplace, by sale to existing subscribers under tariff, moves the competitive arena to that of new CPE and helps reduce any inequalities among competitors due to a captive customer base. The competitive nature of the CPE market is further improved by reducing any dominant firm's ability to influence prices of both embedded and new CPE. To the extent that a firm can exert influence on both sets of prices, then the potential exists for pricing goods to meet a marketing strategy rather than to recover costs. If such a policy were followed, it is unlikely that ratepayers or existing CPE subscribers would benefit.

There are several questions to be addressed if a commission is to order the sale of embedded CPE. The major issue is the determination of sale prices, including whether to differentiate between instruments in use, those in inventory, and refurbished CPE. Two generic methods for calculating sale prices for embedded CPE are the use of book value or the use of market value. These alternatives are discussed in detail in a later section, while issues specific to the sale price of embedded CPE are discussed here.

If net book value is used as the basis for determining sale prices, it is particularly important to disaggregate and allocate depreciation not only between CPE and monopoly service assets but also among types of CPE, since the service lives and average age of various telephone instruments vary. This will help to minimize inequities among customers. Inequities are likely to arise whatever pricing method is used, however, since within a given category of CPE, some instruments will be fully depreciated while others will have accrued only minimal depreciation. The detailed analysis

and bookkeeping needed to correct this type of problem is time consuming and costly, and it may not even be possible.

An alternative would be to price at market value, but again, determination of market value for individual instruments would be rather difficult. The market value of some equipment may be less than book value, in which case the company does not recover all of its capital. Sale prices below book value could be desirable in those cases where there is no alternative use for the CPE and there is significant risk of early retirement. In this event, such sale prices would minimize the capital loss to the company. In those cases where sale price would be different from book value, a commission would need to determine whether ratepayers or stockholders would receive this benefit (or bear the loss).

A variation on the use of book value for calculating sale prices would be to modify the cost studies (such as the Bell CAPCOST program) filed by companies in support of proposed tariffs. Net book value would need to be substituted for purchase price. Maintenance costs would need to be altered to reflect only the warranty period and not the expected life of the equipment. Tax and depreciation costs would need to be adjusted to reflect the sale, and administrative expenses should be altered to contain only the direct bookkeeping costs associated with the sale. For companies that have computer programs for these cost studies, this method would be rather efficient. Alternatively, one could estimate the average taxes, warranty period maintenance, and bookkeeping costs for the sale of in-place CPE and calculate an add-on factor to net book value to determine sale price.

The sale price of multiline CPE may have to be determined on an individual basis. Many of these installations were custom engineered for a specific customer and thus capital costs will vary from customer to customer. Pricing these items may require negotiation with the customer or, at minimum, a more disaggregated analysis than is done for single-line instruments. However, sale prices could be determined, and if one's objective is to maximize the benefits of deregulation for ratepayers, then the embedded multiline instruments should be offered for sale. While many customers need and want updated technology, others may feel their needs

are quite adequately served by the older types of terminal equipment. Giving customers the opportunity to purchase this equipment gives them greater consumer choice and also allows them to escape any adverse impact from migration strategies.[6] In addition, once the warranty periods expire, maintenance costs will be borne by the purchaser and thus greater equity is achieved within the customer class.

The method and time frame for payment must also be determined. Probably the greatest convenience for subscribers is obtained by handling all facets of the sales transaction by mail, including notification, billing, payment, and delivery of warranty. Some mechanism is needed to deal with customers who move and fail either to purchase or to return the CPE. State commissions that have authorized the sale of CPE typically meet this problem with a two-step procedure. One, any premium that had been paid for the return of a telephone is no longer applicable. Two, the company is authorized to bill such customers the full sale price for each nonreturned instrument.

The commission must also determine whether the customer must make one lump sum payment or whether time payments will be allowed. Requiring one payment in full may reduce the number of subscribers who can take advantage of the sale option and consequently reduce the benefits to ratepayers. If time payments are allowed, then two issues need to be determined. (1), whether major credit cards can be used for the purchase, and (2), if the company carries the account, whether interest can be charged on the outstanding balance. If the company carries the account, the imposition of a carrying charge is a logical adjunct. The carrying charge could be determined on the basis of the company's short-term borrowing costs and the bookkeeping costs of handling the time payments.

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[6]Migration strategies refer to a firm's policies for moving customers among its various products. That is, a firm uses inducements to convince a customer to move out of one product and into a different product. Such inducements could include among other things, disproportionate relative price changes, varying intensities of advertising effort, or quality differences, both real and perceived.

An alternative to these methods of payment is to allow customer ownership following a given number of months of lease payment. This would allow ownership with no increased financial outlay by customers and would set a definite time frame for the company's responsibility for maintenance. The precise number of lease payments required could be determined by using net book cost and the present value of future lease payments necessary to recover the capital costs and interim maintenance costs.

Finally, the question of warranties must be resolved. That is, how long should a warranty period be? Should it be the same for equipment in place as for equipment in inventory? and How will repairs be handled once the warranty expires?

The California Commission has adopted a sales plan for Pacific Telephone and Telegraph Company with the following elements. The sales option applies only to single-line instruments. The sale price is calculated essentially on net book value plus transactions and warranty costs. There is one sale price for refurbished and new instruments and a lower price for those in place. Customers can use a credit card or make monthly payments to the company. The company can charge 18 percent annual interest on the outstanding balance, and there is a 6-month and 12-month pay plan. There is a 90-day warranty for in-place equipment and a 180-day warranty for equipment from inventory or refurbished CPE. When the warranty expires, the customer can have the instrument repaired at cost by the company. The cash sale price for the six major single-line instruments is found in Table 2-2.

TABLE 2-2
CASH SALE PRICES FOR SINGLE-LINE CPE, PACIFIC TELEPHONE AND TELEGRAPH COMPANY, 1982

	Standard 500 Telephone	Princess Telephone	Trimline Telephone
Rotary Dial	$ 19.00	$ 27.00	$ 34.00
Touchtone	$ 34.00	$ 41.00	$ 49.00

Source: California Public Utilities Commission

As an alternative to the sale of embedded CPE to the subscriber, the FCC has suggested the possibility of sale to a third party. Such a sale involves many of the issues discussed in the previous paragraphs, though on a much larger scale. Sale to a third party should include the sale of all embedded CPE to prevent stranded investments for the telephone company. The sale price is more likely to be a market price resulting from negotiations between the firms. Sale to a third party does not bring about the previously described ratepayer advantages of sale to subscriber. Moreover, it raises the possibility that the sale, if it were to an unregulated firm, would prevent any gradual movement to full deregulation. An unregulated entity would have the ability to set lease and purchase prices subject only to market conditions. If all subscribers were geographically situated in workably competitive markets, this might be advantageous; however, in very small towns and sparsely populated areas, the CPE market may not yet be workably competitive. Ratepayers could clearly benefit if such a sale occurred at a price well above net book value and if some of this excess were channeled to ratepayers. Finally, it is unlikely that the sale to a third party is very realistic, since this would need a firm with substantial amounts of capital and a statewide system of operations for maintenance and support of the embedded CPE.

The Transfer or Retirement of Embedded CPE

Another alternative for the removal of embedded CPE is to transfer it either to a separate subsidiary or to untariffed services. This is an alternative that can also be used with the sale option. Any FCC-regulated company that is going to continue to supply CPE when it is all deregulated and detariffed will ultimately need to do so either through a subsidiary or with the use of separate accounting procedures. The transfer of embedded CPE either to a subsidiary or to unregulated services will probably ultimately be necessary, since not all customers will take advantage of the sale option. Until such a transfer occurs, it would be inefficient to detariff embedded CPE, since there would be no controls against cross-subsidy. Transfer of embedded CPE appears to be a method of removal that speeds the deregulation process. The transfer would require the identification and valuation of all assets and personnel used to provide

CPE and the setting up of new accounts for those companies not using a separate subsidiary. Also, again, a determination is needed of what, if any, services would be shared between the regulated and unregulated segments, and a cost attached to these services.

Retaining embedded CPE until it is retired is an alternative that does away with all the asset valuation problems associated either with the transfer or sale of CPE. This option does, however, retard progress toward full deregulation of the CPE market. Another drawback is that the costs involved in offering CPE are not perfectly matched, on a unit-by-unit basis, with the units of CPE. Consequently, as CPE is retired it will rarely be possible to remove an equivalent amount of costs at the same rate, due to the indivisibility of some of these costs. One advantage of retaining the embedded CPE under tariff until it is retired is that it will continue to give commissions the ability to ensure the availability of CPE at reasonable prices. However, this market will ultimately be totally deregulated and it is questionable whether undue delay provides a net benefit to ratepayers.

The Valuation of CPE-Related Assets

Regardless of the approach used to detariff and remove from regulation the embedded CPE, an essential first step is to identify the amount of investment and expenses currently associated with CPE and to determine either a transfer value or sale price for these assets. As is well known, there are two major types of valuation procedures: the use of book value or the use of market value. Book value has the advantage of simplicity and, in the case of transfer to a subsidiary, has some logical support. That is, the assets are owned by the stockholders and the transfer to a wholly owned subsidiary does not alter ownership of the assets. This is in contrast to the sale of the assets to an unrelated firm that would occur at a mutually agreed-upon market price.

The primary sources of difficulty in computing book value are the depreciation reserves and the deferred tax accounts. The more finely the

depreciation reserves are disaggregated, the greater will be the accuracy of the book values. Similarly, the accumulated deferred income tax and the unamortized portion of the investment tax credits need to be disaggregated so as accurately to allocate these accounts to the investment items that created them. The tax allocation is further complicated by the fact that the corporate tax rate was reduced effective January 1, 1979 from 48 percent to 46 percent. Since the deferred taxes prior to this date had accumulated at 48 percent but will be paid at a 46 percent rate, a surplus exists. Tax allocations need to reflect the ratepayers' greater contribution prior to January 1, 1979.

The use of market value, while somewhat more complicated to compute, has an advantage over book value when the assets are entering a competitive market. That is, use of market value would prevent any one-time windfall (assuming market value is greater than book value) to the new CPE firm. While such a windfall may have no significant long-run impact on the competitive nature of the market, it can give a short-run advantage to the recipient. If the recipient is already a dominant force in the market, then such an advantage could retard the entry and growth of competitors.

Two questions arise with the use of market value. These are, Can shareholders be asked to purchase at market value, assets they already own in another subsidiary? and If market value is greater than book value, to whom should the difference accrue--stockholders or ratepayers? In response to these questions, it can be argued that in a monopoly situation in which the customers have historically had no alternative suppliers and whereby ratepayers have been held responsible for the full recovery of all costs, then part of the risks associated with developing and maintaining the assets and operating the business were shared by ratepayers. If so, then assets should be transferred or sold at market value and part of the benefits returned to ratepayers.

The FCC has already determined the valuation procedures for assets associated with new CPE. AT&T is currently planning to transfer BOC assets at adjusted net book value. This leaves a rather reduced area for state

commission decision making on valuation procedures. The state commissions may be able to determine the transfer value of embedded CPE and related assets unless the FCC preempts them. In addition, a state commission can hope to influence the FCC decisions regarding embedded CPE and also to affect the decisions of the federal courts about divestiture through comments and intervention in these proceedings. Finally, if the states are left in the position of simply accepting valuation procedures determined by others, there is still a need to scrutinize the determination of the assets to be transferred as well as the actual calculations and definitions used in applying the procedures.

One final issue relative to the transfer of assets is that of intangible assets, specifically with respect to the assets of the Bell Operating Companies that will be transferred to American Bell and to AT&T at divestiture. These assets include such items as going concern value, goodwill, established brand names, an established nationwide distribution system, and customer lists and data banks. At present, it appears that no payment will be made for these assets, since the stockholders of AT&T are also the owners of the BOCs. Yet these values would be acknowledged if the CPE and interexchange services were sold to any other firm. In addition, the management expertise and policies of the individual operating companies together with customer payments, including recovery of license contract fees, contributed to the development of these intangible assets, and one could argue that this should be acknowledged and a return earned by the BOCs and/or ratepayers.

If the goal of the current policy changes is to create workably competitive CPE and interexchange markets, then the failure to acknowledge these assets gives a one-time advantage to American Bell and to the newly structured AT&T which, in the short run, merely strengthens their already dominant market positions. It is difficult to place a value on these intangible assets. If the embedded CPE operations were sold to another company, then the price paid would give an indication of the magnitude of the intangible assets. Whether a payment is actually made will be a decision for the federal court. At the very least, however, special

consideration should be given to the data bases. If a decision is made that there be no payments for these data, then an alternative exists that would increase the viability of competition. That is, the information could be made publicly available. Such a decision would benefit competitors and help reduce the dominance that AT&T currently has in the market. In addition, it would enable regulators to more easily track the growth of competition and evaluate policy changes. Finally, the data bases were developed primarily with ratepayer funds and the ratepayer would get a return via the beneficial effects of increased competition.

Embedded CPE and the Separations Process

The amount of embedded CPE in Accounts 231 and 234 will be frozen as of January 1, 1983. At that time, the CPE component of interstate costs will begin a five-year phase out. This will, of course, mean a loss in interstate revenues with no matching reduction in costs, since the CPE costs relative to Accounts 231 and 234 are already fully recovered in the local jurisdiction.

Today's technology and the increased emphasis on competition in the interexchange market are beginning to blur the historical distinctions between interstate and intrastate traffic. It is becoming more difficult for the exchange carrier to distinguish between interstate and intrastate toll calls. In addition, price differentials that do not reflect actual cost differentials between these two types of calls will lead to market distortions that can impede the development of healthy competition. The failure to match prices with costs will lead to false price signals, the possibility of economically inefficient bypass or equally inefficient entry of new firms to the interexchange market, and the probability of not optimizing either consumer utility or resource use. Consequently, the CPE component of intrastate toll costs should be removed in conjunction with the interstate phase out.

It should also be noted that while the FCC has adopted a five-year phase out for CPE, the resolution of the pending access charge docket may alter the time frame of this phase out.

Inside Wiring and the Deregulation of CPE

The purpose of deregulating CPE is to allow the development of a workably competitive CPE market. One impediment to competition in the market has been the fact that inside wiring has historically been owned by the telephone company. Typically, this has meant that a customer who purchased CPE from nontelephone company sources also had to have the entire site rewired. This added an unnecessary cost and altered the true CPE price differentials among CPE suppliers.

This impediment to CPE competition can be removed by allowing the customer to purchase and own the existing inside wire. The FCC is currently investigating the deregulation of inside wiring, but some states have begun to act on this issue in the interim. Customers are being allowed to install and own their inside wiring, subject to established safety standards. The sale of existing inside wire to those customers who wish to purchase it has the added advantage of reducing the local revenue requirement as this is removed from the rate base.

Accounting Changes for the Deregulation of CPE

The most obvious accounting change relative to deregulating new CPE is the need to use below the line accounts for activities related to the provision of new CPE. This is, of course, necessary only for those telephone companies not offering the new CPE through a separate subsidiary. This is a clear-cut procedure for the direct costs of new CPE. However, for any common and joint costs used by new CPE and embedded CPE and/or exchange services, a mechanism is needed to allocate a proper share of these costs to new CPE. One way would be to use the results of a fully allocated cost study to identify the magnitude of these costs. Then, for example, a given percentage could be allocated to new CPE. This percentage could be determined based on a measure of relative usage.

Other technical accounting changes are also needed for the deregulation of new CPE. On September 23, 1982, the FCC adopted a Notice of Proposed Rulemaking (NPR) in Docket 82-681, pertaining to some of these

needed changes. The FCC proposed that telephone companies be allowed to implement these changes voluntarily on January 1, 1983. The following paragraphs contain a summary of the proposed changes.

The investment in coin and credit card telephones would be removed from Account 231 and placed in a new Account, 235, titled "Public Telephone Equipment." Initially, only new installations of pay phones would be placed in Account 235. The embedded pay phones would be removed from Account 231 only after all questions relative to the depreciation reserve on Account 231 had been resolved. The repair and maintenance expenses on these telephones (both new and embedded pay telephones) would be charged to Account 607, titled "Repairs of Public Telephone Equipment." Also, it is proposed that the depreciation accounting for Account 235 be on a retirement unit basis and a Continuing Property Record be established. Further, it is proposed that some amount of public telephone sets and other equipment be identified as operating spares for replacement purposes and capitalized and placed in Account 235. All other material used for inventory relative to pay telephones would be recorded in Account 122 "Materials and Supplies" rather than Account 231. No change is proposed for inside wiring used for pay telephones.

It is proposed that company used station apparatus and large PBXs, currently recorded in Accounts 231 and 234 should be charged to accounts on a functional basis. All such CPE used for the switching of traffic would be entered in Account 221, "Central Office Equipment," while CPE used for business operations would be entered in Account 261 "Furniture and Office Equipment." Initially, this accounting change would apply only to new company used CPE, and retirement units would be established for this equipment. Also, the FCC proposes that the previously adopted rule (October 7, 1981), which increased the limit for expensing items rather than capitalizing them from $50 to $200, also apply to the company-used items of CPE.

The FCC proposes that the wiring connecting PBX common equipment to station equipment (multiwiring or complex wiring) be detariffed in conjunction with the detariffing of CPE as ordered in Computer II. Also,

the same treatment would apply to the intrasystem wiring of those key systems that require common control equipment.

These proposed changes are changes that will facilitate the detariffing and deregulation of new CPE. Yet to be determined are those changes needed for the deregulation of embedded CPE.

The Divestiture and Computer II

The divestiture settlement has raised several questions about the Computer II decision. The FCC will address these issues, but they are also important to state regulators. A key question is whether the requirement that AT&T establish a fully separated subsidiary for the marketing of CPE continues to apply to the Bell Operating Companies in a postdivestiture world. The separate subsidiary requirement was placed on AT&T for several reasons, including the fact that AT&T was clearly the dominant CPE supplier with nationwide marketing ability and the fact that AT&T owned not only retail outlets for CPE but also a CPE manufacturing entity (Western Electric Co.) and a research and development organization (Bell Labs). The divested BOCs will not have such a cohesive nationwide organization, nor will they be allowed to manufacture CPE under the terms of the settlement. Thus the argument for separate CPE subsidiaries for the BOCs is not as strong as before the divestiture agreement.

One major argument in support of a continued requirement for a separate subsidiary is that this would help prevent cross subsidies between monopoly and competitive services. Yet the state commissions will deal with this through accounting procedures for non-Bell telephone companies and could do so for the BOCs. Neither a separate subsidiary nor separate accounting measures can guarantee an absence of cross-subsidies. The effectiveness of either approach depends in large part on the vigilance of the regulators. From the perspective of state regulators, it may be that this question should be resolved on a cost-benefit basis. That is, What are the costs versus the benefits of either approach to the local BOC and its customers?

The second major argument in support of a separate subsidiary requirement for the BOCs relates to their control over bottleneck facilities, that is, the necessary connections to the network. This control will exist whether or not a separate subsidiary exists, though one could argue that the existence of a separate subsidiary might weaken any incentive to abuse this control of the bottleneck facilities. However, two more effective measures exist for minimizing any abuse of this monopoly power. One is to require that all activities relating to the interconnection of CPE (regardless of the source of CPE) be fully separated from any BOC marketing activities, including separation of personnel and facilities. In addition, the technical information needed for interconnection must be fully and easily available to all suppliers of CPE, and the completion time standards for interconnection must be established and applied equally to all CPE, regardless of source.

The second measure that would minimize the potential for abuse of this monopoly control is for state commissions to accept as one of their responsibilities, the monitoring and prevention of anticompetitive activities by monopoly utilities. This has not, historically, been a typical function for state regulatory commissions. However, in this new era of telephone regulation, the traditional situation of monopoly provision of all services is clearly being eroded. The transition to fully workable competition may be some time in coming, though the policy of encouraging competition where feasible has been clearly enunciated. Given this, and the regulators' traditional concern for ratepayers, a strong case can be made on behalf of state regulators and other state policymakers pursuing policies that aid the growth of competition.

A second area of confusion between Computer II and the divestiture relates to the FCC's choice of a bifurcated approach to the deregulation of CPE.[7] Prior to the divestiture, the new CPE for the Bell System would have been supplied by AT&T through American Bell, and the embedded CPE would have been supplied by the individual operating companies. The divestiture settlement has now changed this, and both embedded and new CPE

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[7]Bifurcation refers to the fact that only new CPE will be deregulated in January 1983 and that the embedded CPE will be deregulated at a later date.

will be handled by AT&T. The embedded CPE will continue to be tariffed until the FCC orders it deregulated. This means that after the divestiture, AT&T will be filing tariffs with the individual state commissions. One unresolved question is whether the Bell System embedded CPE must be handled by a distinctly different entity than the organization that handles new CPE.

This bifurcated approach will give the dominant CPE manufacturer and supplier the ability to influence or control the prices of both new and embedded CPE and creates the possibility that one or the other will be priced for market strategy purposes rather than on a cost basis. This potential could work against the best interests of ratepayers and also could retard the development of competition.

A further problem with the bifurcated approach relates to the timing of divestiture and deregulation of new CPE. After January 1, 1983, the Bell Operating Companies will not be allowed to offer new CPE. They are limited to providing the embedded CPE and any CPE in inventory as of January 1, 1983. The divestiture is estimated to take place no sooner than January 1, 1984, after which the BOCs may offer new CPE. The intervening year between January 1, 1983 and January 1, 1984 poses a set of potential problems for which a state commission needs to be prepared. That is, What happens if the BOC inventory of CPE runs out before January 1, 1984? If this happens, the BOCs will be carrying CPE related costs that cannot yet be transferred to AT&T, but for which there is no source of revenue. In addition, there is the potential for anticompetitive activity. The historical relationship between the BOCs and AT&T may encourage the BOCs to recommend that customers go to American Bell for the CPE that is no longer in inventory. This works against the other suppliers of CPE and also works to increase the AT&T position in the market and thus makes the achievement of full competition more difficult. These effects can be mitigated by commission action. Customers need to be fully informed about the future changes in the CPE market. This can be done through bill inserts, media releases, or other methods. Such notification should include a statement about the alternatives available and should be approved

by the commissions as part of the previously mentioned new regulatory responsibility of promoting competition where possible. An additional measure might be a requirement for BOCs to offer a listing of a full range of alternative suppliers to customers whose CPE needs are not met by BOC inventory. The ability of this market to become competitive is of importance to BOCs, since they will be a market participant after the divestiture and must compete against the dominant position of AT&T.

The previous discussion of options for the deregulation of CPE has focused primarily on two issues: the impact of each option on the degree of competition in the CPE market, and the impact of each option on the local telephone companies and their customers. The CPE market is moving toward a workably competitive market nationwide. The speed with which this market becomes fully competitive now depends, in large part, on the treatment of embedded CPE. The sale of embedded CPE to existing subscribers is an option that can increase the pace of the competitive movement, while offering benefits to both customers and the local operating companies that expect to be participants in this market. The local telephone companies (both Bell and independent) can also benefit from commission scrutiny of the asset and personnel transfer needed for the deregulation of both new and embedded CPE.

CHAPTER 3

IMPLEMENTATION PROCEDURES AND ISSUES FOR THE DIVESTITURE OF THE OHIO BELL TELEPHONE COMPANY

Introduction

On November 20, 1974, the Department of Justice (DOJ) filed an antitrust suit against AT&T, Western Electric, and Bell Telephone Laboratories, Inc., charging violations of the Sherman Antitrust Act. Much of the case focused on the activities of AT&T relative to the customer premises equipment (CPE) market and the long-distance communications market. In the initial filing, DOJ sought the divestiture of the Bell Operating Companies and the divestiture and dissolution of Western Electric. Following a lengthy pretrial process, the trial began on January 15, 1981. On January 8, 1982, after the completion of the government's case and prior to completion of the defendant's case, DOJ and AT&T announced a proposed settlement.

Among the major provisions of the proposed settlement are that AT&T would retain Western Electric, Long Lines, and Bell Labs and that the 1956 Consent Decree would be nullified.[1] The 22 wholly owned BOCs would be divested from AT&T. In addition, all CPE, interexchange services, and yellow pages would be retained by AT&T, and the BOCs would be constrained from offering any service other than intraexchange communications and exchange access. The settlement also required the drawing of new exchange boundaries clearly delineating the line between exchange and interexchange traffic. The proposed settlement set forth various criteria to be used in drawing the new exchange boundaries. Another provision of the proposed settlement required that equality of access be available to all interexchange carriers and set forth a time-table for accomplishing this. Further, the BOCs would be required to file unbundled cost-based tariffs

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[1]One significant provision of the 1956 Consent Decree, which resulted from an earlier antitrust case, was a prohibition against AT&T entering the computer markets.

for all interexchange access services in lieu of the existing Division of Revenues process. The intent of many of these provisions was to separate the competitive (or potentially competitive) segments of AT&T from the monopoly services.

On August 11, 1982, following a period of public comments, Judge Harold H. Greene (the presiding judge in the antitrust case) filed his comments on the proposed settlement. In these comments, Judge Greene accepted the general framework and intent of the proposed settlement but suggested 10 modifications that would be necessary before he could approve the settlement. Chief among the changes suggested by Judge Greene were that the BOCs retain yellow pages, that the BOCs be allowed to market new CPE, that AT&T be prohibited from entering electronic publishing, and that the agreement allow him to review and approve the implementation of the divestiture. A settlement incorporating Judge Greene's modifications was agreed to by both parties and filed on August 24, 1982. AT&T is now required to present details of the plan for implementation of the divestiture within six months of that date.

The divestiture of the Bell Operating Companies is the result of an antitrust case against one communications firm, albeit the largest and most pervasive firm. Yet, the settlement has serious implications for all telephone companies and for all established telecommunications regulatory policies and agencies. The divestiture will lead to a reorganization of the telephone industry and the national telephone network.

The following are just a few of the ways in which this settlement will affect the telephone industry. The existing settlements process will need to be reorganized when the BOCs begin operating under the access charge and exchange boundary requirements of the settlement. New arrangements will be needed to assure the compatibility of technological configurations of the nationwide network, a task previously spearheaded by AT&T, through the cooperative efforts of Bell Labs, Long Lines, and the Bell Operating Companies. The process of changing the separations methodology and the move to nationwide access charges will be accelerated, since the BOCs will be on a fixed timetable for the establishment of their cost-based access

charges. Regulatory objectives and methods may need to change to meet the needs of newly competitive or potentially competitive markets. The existing joint planning and joint operational activities of Bell and independent companies may be affected in, as yet, unspecified ways. The Computer II ruling and its implementation will need clarification and review to the extent that there are conflicts with the terms of the settlement. In addition, there are the numerous specific effects on the Bell Operating Companies, especially those relating to their revenue and cost positions and their future role in the changing world of telecommunications.

The Division of Costs for Divestiture

The decisions taken in the implementation process will have an impact on the individual BOCs, as well as AT&T, by directly or indirectly affecting the cost and revenue positions of each company. There is an inherent conflict of interest between the parent company (AT&T) and the operating companies. AT&T, as it enters new competitive arenas, is best served by minimizing the expenses and investments it retains and by maximizing the revenue sources available to AT&T, as opposed to those available to the operating companies. Similarly, the operating companies are best served if they are divested in good financial health, with no unnecessary expenses and investments, and with the opportunity to seek new revenue sources. The presence of numerous joint and common costs in the operation of a telephone company will add to the difficulties in resolving this conflict of interest. In addition, this inherent conflict is exacerbated by the fact that AT&T retains ownership of the operating companies until the divestiture and by the close historical ties between the personnel of the operating companies and the AT&T personnel.[2]

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[2]In addition, it is useful to note that while the settlement prevents BOC entry into the interexchange market, there is no parallel restriction placed on AT&T. That is, it appears that AT&T can enter the market for intraexchange services and this possibility could also influence AT&T's decisions regarding the division of assets and the drawing of new exchange boundaries.

It appears that the objectives of the state regulatory commissions coincide with the best interests of the operating companies. That is to say that a commission that is charged with maintaining the financial health of a regulated monopoly and is also charged with seeking universal service would want to see the BOCs divested with all costs necessary to provide service, but no unnecessary costs. Given the massive nationwide impact of this settlement and the previously mentioned inherent conflict of interest between AT&T and the BOCs, it becomes imperative that each state commission become knowledgeable about the impact of the settlement within its state and seek all possible avenues to shape a public interest implementation of the divestiture agreement. While a great many of the major decisions are clear cut and either without conflict or already determined, there are many gray areas of detailed decision making that are not without conflict.

The final divestiture agreement does not contain provision for an "arm's length" procedure for implementation, though it does allow for Judge Greene's review. Yet there are still avenues open to the state commissions to influence these decisions, including comments to the Justice Department and the court, formal or informal proceedings involving the local operating companies, and legislative intervention. To be most effective, the states need aggressively to seek the ability to review all details affecting their jurisdiction and also the detailed data necessary for evaluating the implementation decisions.

With respect to the division of costs, the local companies and their customers might best be served if one makes a very literal interpretation of that section of the agreement that requires "The transfer from AT&T and its affiliates to the BOCs... of sufficient facilities, personnel, systems and rights to technical information to permit the BOCs to perform exchange telecommunications and exchange access functions..."[3] Viewing the process as a transfer of necessary personnel, assets, and related expense would leave any residual costs with the parent company and current owner.

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[3]United States v. American Telephone and Telegraph Company et al., no. 74-1698 (D. District of Columbia, January 8, 1982), Modified Final Judgment.

The AT&T plan for implementation of the divestiture is expected to be issued in December 1982 and will detail the procedures that AT&T plans to use in identifying assets and personnel to be transferred to AT&T. The implementation plan must be approved by Judge Greene, and consequently, the state commissions need to review it and analyze its impact on their jurisdictions, so as to be able to comment and seek any needed changes. Appendix A of this report details the individual investment and expense accounts and identifies the components that should be removed from Ohio Bell once the embedded CPE and interexchange services are removed to AT&T. This information can be used in analyzing the implementation plan and AT&T's final decisions regarding the assets and personnel that will go to AT&T.

In addition to the general problem of common and joint costs discussed in previous sections of this report, there are two special problems that need to be addressed. One is the disposition of jointly used facilities (typically central offices and the associated land and buildings). The settlement terms are that these facilities should go to the predominant user. However, the court may grant exceptions to this upon the request of either the Bell Operating Company or another party. There is undoubtedly more than one way to measure use as evidenced by the variety of suggested measures of use for separations purposes. Thus a commission would want to evaluate the proposed usage measure to assure it carries no inherent bias that would adversely affect the BOCs. In addition, jointly used assets that are to be allocated to AT&T should be examined to see if an exception should be sought. While the BOC can rent the use of these facilities from AT&T, there may be instances whereby the longer term interests of the BOC would be better served by their retaining ownership. For example, if it would be likely that the BOC would, in the near future, need greater capacity than would be available through lease from AT&T, and if the facility in question exhibits state-of-the-art technology, then the BOC and its customers may be better served by retaining ownership rather than facing an investment to replace the leased facility.

A question has also been raised as to whether joint use of facilities is going to impede the growth of competition in the interexchange market. Under the new structure for the provision of interexchange services, each interexchange carrier will establish a point of contact within each of the new exchange areas that it serves. Facilities that are jointly used by AT&T and the BOC offer the possibility that AT&T will enjoy a superior point of contact at a lower cost than is available to other interexchange carriers. Since the decision has been made to encourage the development of competition in interexchange services, ratepayers are better served if any impediment to competition is removed.

A second major problem of asset division relates to the ownership of class 4 central offices and the need ultimately to provide equality of access to all interexchange carriers. Some parties, in commenting on the divestiture settlement, urged that the BOCs retain ownership of the class 4 central offices. This was proposed in part because it was felt to be a preferred method of interconnection and in part because it would allow the interexchange carriers an improved concentration of toll traffic. It is felt by some parties that AT&T ownership of the class 4 offices gives Long Lines a competitive edge and thus would work against the development of competition in this market. Of more specific interest to the individual state commissions is whether AT&T ownership of these offices will eventually necessitate the BOCs construc- ting their own class 4 offices in order to meet the requirements for equality of access. In addition, it should be noted that this requirement may call for increased central office investment regardless of the ownership of class 4 offices. This could take the form of either additional equipment needed or a need to reconfigure central offices, especially where the territory served crosses state boundaries, for example, a class 5 office connecting with a class 5 office across state boundaries. It is important to obtain company estimates of the cost of any such additional investments and to determine how those costs are to be allocated among customers.

Exchange Boundaries and Exchange Access Charges

The divestiture agreement requires that new exchange areas be defined for the Bell Operating Companies.[4] The BOCs will offer intraexchange service (which may include toll calls) and exchange access services. The agreement specifies certain criteria to be used in setting the new exchange boundaries. Included in the criteria are (1) a substantial portion of only one SMSA or CMSA[5] may be contained within an exchange area, (2) an exchange area, may not cross state boundaries, and (3) the exchange area shall represent a community of interest or a common economic and social entity. Approval by DOJ and the court must be sought for any exchange area that does not fit these criteria.

The drawing of these boundaries will be of considerable importance to the future of the operating companies. The exchange boundaries implicitly set an upper limit on revenue potential and also help determine total costs for the company. Theoretically, this decision can be made by expanding the area until marginal cost equals marginal revenue. That is, one looks at the additional revenue gained by shifting the boundary outward and compares this with the additional costs. In this case, however, marginal analysis is not so simple in that the decision is subject to two public policy constraints. That is, the exchange area must be of a size that will maximize both the potential for interexchange competition and the retention of universal service. In addition, either the exchange area must be designed so as to reflect projected population growth and shifts, or a mechanism is needed that will allow future changes in exchange boundaries.

The larger the exchange area, the greater the market for exchange services. Also, the larger the exchange area, the larger the number of interexchange carriers that will seek access. However, as the exchange area increases in size, a greater amount of toll traffic is retained by the

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[4]AT&T has termed these new exchange areas LATAs or Local Access and Transport Areas.

[5]Standard Metropolitan Statistical Area (SMSA) or Consolidated Metropolitan Statistical Area (CMSA).

BOCs. There is some (unknown) optimum size that captures sufficient toll traffic for the BOCs to utilize existing facilities but still creates a network size that will encourage access by competitive interexchange carriers.

The factors affecting the optimum exchange area are numerous and variable both within and among states. While a general cost-benefit procedure can be delineated, the precise outcome cannot be determined without individual study in each state. This analysis would include, among other things, identifying costs and traffic for existing Extended Area Service (EAS) routes, costs and traffic associated with interoffice trunks, projected demand for various services, the likelihood of substantial bypass, the potential for interexchange competition, and the need for additional or replacement switches (in order to replace class 4 switches retained by AT&T or to meet the equality of access provisions).

A marginal cost-marginal revenue analysis subject to the previously mentioned constraints may yield exchange area boundaries that do not precisely fit the criteria of the divestiture agreement. Many parties commenting on the proposed divestiture remarked on the fact that the definition of local boundaries was the responsibility of state commissions. While the rationale for constraining the BOCs to intraexchange traffic and exchange access is easily understood, a question can be raised as to the appropriateness of this detailed delineation of exchange boundaries by the Department of Justice and the federal court. Putting legal questions aside, the goals of a competitive interexchange market and the retention of universal service might have been better served if the states made the exchange boundary determination based on the characteristics of each jurisdiction.

Though the boundaries will be drawn based on the enunciated criteria, there is still a role for state commissions with regard to exchange boundaries. The commissions can actively analyze their individual states

and seek exceptions to the settlement when conditions warrant it. In addition, there is the future congressional rewrite of the Communications Act that can address the issue of exchange boundaries if the existing definitions prove nonoptimal.

The analysis required to determine optimum LATA boundaries is extensive. Tentative approval or rejection by Judge Greene of these proposals is expected in December 1982. However, Judge Greene has reserved the right to reject a LATA boundary later if there is reason to believe it does not conform to the intent of the settlement. This means that any state commission has a very short time frame in which to act. There are three major questions to consider. One is whether the proposed boundaries optimize the revenue and cost positions for a postdivestiture BOC. A second key question is whether the proposed boundaries upset existing traffic arrangements between Bell Operating Companies and independent telephone companies and, if so, whether this seriously disadvantages the independent companies and their customers. Third is whether LATA boundaries that cross state boundaries will, given the new structure of the telecommunications industry, complicate the task of regulation. Given the short time frame involved, the most efficient approach to identifying any problem with the proposed boundaries would be to seek comments from the independent telephone companies and the interexchange carriers. This could be done either formally or informally. An evaluation of these comments would then give the commission a perspective on the appropriateness of the boundaries. The divestiture has the potential for significant impact on independent telephone companies. Their comments on many divestiture issues would be helpful to a commission in assessing the divestiture impact on all ratepayers in the state.

It is most important to remember that the divestiture agreement applies only to Bell Operating Companies. Nothing in the agreement prevents an independent from joining one of the new exchange areas, and nothing in the agreement requires an independent to participate in a new exchange area. Also, if an independent were to be geographically within an

exchange area due to the noncontiguous nature of the Bell franchise area, nothing in the agreement requires the independent to operate under the same constraints as the Bell Company.

In considering the position of the independents, it is useful to remember that new exchange area definitions and limitations on service offerings are required of the Bell Companies as a result of the settlement of an antitrust case against AT&T and only AT&T. There is no reason that independents should not now offer interexchange services. The prohibition against interexchange service offerings by Bell Companies resulted from the conclusion that this was necessary to prevent a "bottleneck" obstruction to competition in the interexchange market. If the independent companies do not use their control of local exchange facilities to obstruct competition in the interexchange market, then their continued offering of interexchange services can serve to increase the viability of competition in this market. Also, growing interexchange revenues may help compensate for any loss in revenues due to the move from the separations and settlements process to access charges.

The most significant impact of the divestiture on independent companies is that the structural changes required by the agreement will require changes in the settlements process. The settlements process will also be affected by the forthcoming FCC decision on access charges. The issues involved in redesigning the settlements process are too complex to take up here and will be left to future research efforts.

The determination of access charges is of paramount importance to interexchange market as well as to the future of the operating companies. Access charges will take the place of revenues from the current separations and settlements process, and the extent to which the magnitudes of access charge revenues for each company diverge from the current magnitudes of settlements revenue will impact on local rates, and thus potentially on universal service. Consequently, another natural conflict of interest arises between the operating companies and the interexchange carriers. One solution is to set access charges equal to the cost of providing access, including a share of the nontraffic sensitive costs, which

represent an opportunity cost to the interexchange carriers.[6] While there is much agreement on the merits of marginal cost pricing, there are two major problems in applying this concept to access charges. In the case of joint costs that are nontraffic sensitive costs, there is no one theoretically correct method for measuring the marginal cost of each service. In the case of traffic sensitive joint costs, the problem lies in the selection of the appropriate traffic measure to use in identifying the costs created by each service.

An underpriced access charge will lead to inefficient entry, that is, entry of firms that could not survive in the long run if access charges were set at cost. An underpriced access charge will also incorrectly increase the share of costs borne by the local ratepayers. Conversely, if the access charge is overpriced (relative to costs), then the entry of Other Common Carriers (OCCs) to the interexchange market will be retarded, and as a consequence, the development of workable competition is limited. The possibility of bypass of the local network is also increased if access charges are overpriced.

While overpricing access charges may temporarily benefit the local ratepayer (through the increased revenue), any bypass by substantial numbers of large customers will ultimately increase local rates. In addition, if workable competition is not achieved in the interexchange market, customers may well be worse off with partially achieved competition than with a fully regulated monopoly, in that the firms in a nonworkably competitive market could exercise monopoly power without any regulatory constraint.

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[6]It should be noted that there are those who contend that none of the local loop (nontraffic sensitive) costs should be allocated to interexchange carriers. Their contention is that these costs were caused by the subscriber by deciding to "hook up" to the local network. Others argue that these costs are a necessary part of interexchange service and should be shared by the interexchange carrier. Also, it is contended by some that the engineering design standards for local loop are determined by the needs of interexchange carriers and thus another reason exists for sharing the costs with the interexchange carriers.

Given the numerous alternatives for allocating joint costs and the lack of a single proven allocation method, it may well be that the correctness of any one allocation procedure will only be known after the fact, when researchers can examine its impact on entry and on service costs and demand. While the FCC is expected to rule on access charges in the near future, the amount of controversy over appropriate allocation methods suggests that the initial method for setting these charges is not necessarily one that can or should survive in the long run. The participation of state commissions in this process is vitally important. Ongoing data collection and analysis on a state-by-state basis can lead to modifications in access charges that not only aid the competitive nature of the interexchange market but also increase the viability of local operating companies.

There is also substantial merit to allowing the individual state commissions to set the access charges for their state. The degree of competition varies among the states, as do the revenue, cost, and capacity parameters for the various companies. The likelihood of bypass is variable among the states as is the employment, income, and business climate of each state. In addition, the cost of access for intrastate service is essentially no different from the cost of acccess for interstate services, assuming that operator services and other access related services are tariffed options to the interexchange carrier. Finally, the ability of the local operating company to distinguish between interstate and intrastate calls carried by OCCs is rapidly diminishing. While some argue that these factors lead to the conclusion that all access charges should be set by the FCC, others argue the alternative conclusion. That is, all access charges should be set by the state commissions that are in the best position to evaluate the individual and diverse factors relevant to their state. Access charges are, in essence, simply one more operating expense to Long Lines, and it is not usual procedure for the FCC to determine the amount Long Lines pays to any supplier of goods or services. Nationwide averaging of interexchange rates set by the FCC could still be accomplished if that is the desired goal. Within each state, the commission would have several alternatives for averaging, either throughout the state, throughout a company's franchise area, or using some system of weighted averages.

Admittedly, the idea of access charges set by the states goes counter to historical practice. It may also require some legislative changes with respect to the FCC's jurisdiction over interstate traffic. Further research may also prove the concept not feasible. Yet, it is a procedure that may actually optimize the potential for both universal service and interexchange competition and consequently certainly merits serious consideration.

Organizational Structure of the Bell Operating Companies

The costs of the Bell Operating Companies, postdivestiture, will be affected by the new organizational structure. AT&T has announced that the operating companies will be organized into seven regional companies, and a centralized services group will be formed to provide primarily technical assistance to the local companies. The regional companies will, of course, require a regional management level in addition to the management level for the individual companies. Ohio Bell will be in a five-state regional company (The Great Lakes Region), with Indiana, Illinois, Michigan, and Wisconsin. The company will be headquartered in Chicago. There is also some discussion about the possibility of a national coordinating level of management for the 22 companies. This new structure bears a striking similarity to the current AT&T structure of operating companies, the general departments, and Bell Labs, a structure that has historically served the industry well, but complicated the process of state regulation.

This regional structure has been lauded by many on two counts: first, that it would allow for economies of scale, primarily in management, and second, that it adds to the financial strength of the companies by enhancing their ability to retain their current typically triple A bond ratings and by making it easier to borrow and meet their large demands for capital.

There is clearly the theoretical possibility of gaining economies of scale with respect to technical assistance and other management activities. To the extent these do, in fact, occur, there will be a reduction in costs

for the individual companies. However, it is not at all certain that economies of scale will arise and, if they do, that the savings they create will be greater than the other additional costs created by the regional structure. Further, it is likely that those activities yielding economies of scale will be performed by the centralized services organization, and thus there would be no gain of this type from the regional organizational structure.

The regional structure creates at least one additional level of management, and this increases costs for personnel, communication, and travel among companies, as well as other management support services. The size of this added cost will be influenced by the degree of autonomy retained by each company in the region.

The centralized services group will, in essence, re-create the license fee function, though the individual companies may retain greater control over the extent to which services are purchased from this group. Again the logic for such a group rests largely on the ability to achieve economies of scale. Yet the companies within each region are quite large, and there is some point (undetermined for these companies) at which not only do economies of scale cease to arise but diseconomies of scale arise and lead to increased costs.

In considering the contention that regional companies will enhance the financial strength of the operating companies, one should note that size alone is not a sufficient criterion to justify either bond ratings or borrowing power. The company size may influence borrowing power if it results in debt instruments that are more marketable, due to the existence of a stronger secondary market. However, many other factors also influence bond ratings and borrowing power of telephone companies and many of these are not related to company size. Some of these other factors are cash flow positions, debt leverage, management expertise, the regulatory climate, quality of service, and capital spending plans. The regional structure should have only limited, if any, influence on these factors.

The regional organization, itself, is not sufficient to provide the assurance of easy access to the capital markets. The regional structure may, in fact, create financial problems for an individual company, depending on how closely the financial transactions of one company are tied to regional operations. A company in a less healthy position can benefit from a regional organization at the expense of the other companies, assuming that the debt instruments are issued in the name of the regional company.[7] For example, a company with quality of service problems requiring large investment outlays may raise the cost of borrowing for the other companies. Differences in regulatory treatment among the states may alter the bond ratings and consequently the cost of borrowing for all companies. Cash flow problems for one company can adversely impact all companies in the region. Along this line, it is useful to note the differences in growth rates (from table 3-1) among companies within the region. While there are many other data in addition to growth rates of services and costs needed to do a thorough analysis of a company's position, the growth rates can indicate trends and areas in which further analysis is needed.

Regional companies will also create the potential for jurisdictional problems and higher regulatory costs. Differentials among states as to rates of returns, depreciation methods, and tariffs on individual services can create financial pressures on the regional holding company. There will be a need to allocate the shared costs accurately, and this can lead to duplication of regulatory effort. The advent of regional companies creates an additional reason for looking at some type of regional regulation. This is not an argument for uniformity of regulation among all states nor for the diminishing of a state's regulatory authority. However, there are

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[7]If debt instruments are issued by the regional company, then the market rate reflects a weighted average of the market rates for individual companies. Unless the state commission can perceive the correct market rate for individual companies, the ratepayers of the company with a below average market rate of interest will pay higher borrowing costs due to the regional structure. If the debt instruments are issued by the individual companies, then any advantage of the regional structure is difficult to perceive.

degrees of cooperation and information sharing that could be pursued that might lessen the cost and burden of regulation both for the states and the companies within a region.[8]

In sum, the regional companies offer the possibility of economies of scale and lower cost access to capital markets than would be the case with "stand alone" companies, yet neither of these possibilities is assured. Equally plausible for any one company is a possibility of diseconomies of scale and increased borrowing costs due to adverse financial parameters within another company. The extent to which either is realized will depend in large part on the degree of interdependence within the finalized regional structure. This involves many questions that state commissions may want to address.

Economic Status of the Bell Operating Companies

The Bell Operating Companies will enter the postdivestiture era with yellow pages and three other major service offerings--local exchange service, exchange access, and CPE. On balance, the recent growth in the latter three service offerings has been less than the growth in investment and expenses. Yellow pages brings in a significant amount of revenue above its costs and can help reduce the growth in local rates. Yet, if the growth trends of costs and selected service offerings continue, the yellow page differential will be clearly inadequate to prevent continual rises in local rates. Table 3-1 contains the growth rates over a five-year period (1975-79) for selected categories of service offerings and expenditures for the five companies in the Great Lakes Region. These figures were derived from data contained in the FCC Statistics of Communications Common Carriers. The table also contains population growth rates for selected cities for the period 1975-80 and for selected SMSAs for the period 1976-80. While identical time periods for all growth rates would be most useful, the data sources were not available, and the five-year periods are

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[8]For a full discussion of regional regulation, see Regional Regulation of Public Utilities: Issues and Prospects, (Columbus, Ohio: The National Regulatory Research Institute, 1980.)

sufficiently similar so that the growth rates can be used for indicating near term trends.

The growth in service offerings is indicative of the ability to cover rising costs without rate increases. While there are several types of services offered by the operating companies including private line, centrex, and several others, four were selected to represent the growth in sales volume. They are main stations, total telephones, local calls, and toll calls. The overall growth in main telephones (which can also be considered a rough proxy for access lines) for the five companies was 11.6 percent and ranged from a low of 3.6 percent (Illinois) to a high of 28.3 percent (Indiana). The growth in total telephones (main, extension and PBX) averaged 16.9 percent over the same five years and ranged from 8.3 percent (Ohio) to 34.5 percent (Indiana Bell). The growth in the total number of local calls averaged approximately 20 percent with a low of 9.25 percent (Ohio Bell) and a high of 33.6 percent (Indiana Bell). These services are representative of the services to be retained by the operating companies. The growth rates for toll calls were substantially higher, and averaged nearly 67 percent, ranging from 29.11 percent (Michigan Bell) to 122 percent (Wisconsin). While intraexchange toll calls will be retained by the BOCs, it is significant for future rates that the fastest growing of the four service offerings will go to AT&T.

By way of contrast to the relatively low growth rates for telephones and local calls, all listed categories of expense and investment, with the exception of traffic expenses, had average growth rates exceeding those for main and total telephones and local calls. For example, total operating expenses had an average growth rate of 60.2 percent, telephone plant in service grew at an average rate of 38 percent, and total communication plant-net grew an average 40 percent over the five-year period. If costs continue to rise faster than the volume of services, then there may be no alternative to ever-increasing local rates.

This situation is exacerbated by the general economic conditions of unemployment, bankruptcies, inflation, and high interest rates and by the

TABLE 3-1

GROWTH RATES FOR SELECTED OFFERINGS, COSTS, AND POPULATION AREAS OF FIVE BELL OPERATING COMPANIES

	GREAT LAKES REGION					
COMPANY	Illinois Bell	Indiana Bell	Michigan Bell	Ohio Bell	Wisconsin Bell	REGION AVERAGE
PERCENTAGE CHANGE IN SERVICE OFFERINGS 1975-1979*						
Main Telephone	3.63%	28.25%	10.04%	5.72%	10.16%	11.56%
Total Telephones	12.12	34.48	15.33	8.30	14.15	16.88
Local Calls	16.81	33.59	21.32	9.25	27.82	19.91
Toll Calls	34.68	92.58	29.11	54.52	122.05	66.59
PERCENTAGE CHANGE IN COSTS 1975-1979*						
Telephone Plant in Service	22.90%	53.54%	36.37%	34.66%	42.44%	37.98
Total Communications Plant--Net	25.25	54.49	36.33	36.99	46.04	39.82
Total Operating Expense	42.63	77.46	56.23	48.00	55.63	60.19
Maintenance Expense	50.57	88.69	52.94	46.75	55.55	58.9
Depreciation and Amort. Expense	32.29	54.90	47.87	47.75	63.33	49.23
Traffic Expense	8.09	42.58	30.62	6.32	9.90	19.50
Commercial Expense	68.15	114.48	91.77	62.07	73.01	81.90
General Office Salary and Expenses	28.50	89.01	30.14	57.35	67.64	54.53
Other Operating Expenses	56.89	87.00	82.83	63.51	58.35	69.72
HEADQUARTERS	Chicago	Indian-apolis	Detroit	Cleve-land	Milwaukee	
City Population Change, 1976-1980**	-2.25%	-1.14%	-8.44%	-8.28%	-3.76%	-4.77
SMSA Population Change, 1975-1980**	1.26	2.44	-1.60	-3.45	-0.87	-0.44

* Source: FCC Statistics of Communications Common Carriers, 1975 and 1979, Table 16.

** Source: Population Abstract of the United States. Compiled and Edited John L. Androit, Androit Associates, McLean, Va., 1980.

Characteristics of the Population--Number of Inhabitants. 1980 Census of the Population, U.S. Department of Commerce, Bureau of the Census.

County and City Data Book 1977; A Statistical Abstract Supplement. U.S. Department of Commerce, Bureau of the Census, Table 3, pp. 547-597.

population trends in Bell franchise areas. One can consider population growth to be one indicator of growth in demand for telephone service. While other factors such as changes in personal income, business income, and the number of businesses also influence demand for telephone service, population growth is generally positively correlated with these factors and thus is one indicator of future demand.

Data on the population size for the headquarters cities of the five companies and the associated SMSAs were examined. The average population growth for the cities was a minus 4.77 percent while the SMSA average population growth was minus 0.44 percent. It should be noted that only population data for headquarters areas were examined, and each state needs to determine whether this is a trend for the entire Bell franchise area. In order to develop the population trends fully, one should also look at the trends in the franchise areas of independent telephone companies. These companies control vastly larger amounts of land area, and the nation's population shifts may tend to be toward these areas. On the face of it, the Bell Companies tend to be offering generally low growth services with high-growth costs and facing a generally low-growth in demand in the near future for the services currently being offered.

Given these prospects, plus the need for cost-based rates in a competitive era and the assumption that universal service requires relatively low rates for local exchange service, then the operating companies and the state commissions need to be actively seeking ways to hold down local rates. There are, of course, two standard business approaches to this problem. One is to seek new revenue sources, especially those which utilize existing facilities, and the other is to hold down the growth in costs.

New revenue sources (postdivestiture) may involve both monopoly and quasi-competitive or fully competitive services, though initially the monopoly services are more feasible, given the conditions contained in the divestiture agreement. Within the monopoly area there are at least three sources currently available, though others may quickly become apparent.

One is the access charge (including its usage component) that can help offset the loss of settlements revenue. In this case, the growth in toll calls helps the financial status of the operating company. However, as discussed in an earlier section, the access charge must be a cost-based charge. One cannot set the access charge based on what is needed to hold down local rates, and thus this cannot be viewed as a total solution to the problem of revenue requirements in the future.

A second source of revenue is the array of billed services that may be made available by the operating company to CPE suppliers and interexchange carriers. These services, such as billing, testing, operator services, and many others that are an integral part of access to the network, can be offered as options to other companies. Such an offering will require that these services be tariffed, and this in turn, will call for additional cost studies. Many of these billed services should provide revenue growth through the growth of CPE (from all suppliers) and the growth in interexchange traffic. In addition, these billed services can, at least in part, utilize any excess capacity in the associated facilities and personnel time.

A third current source of increased revenues is measured rate services. Given the increased use of computers and data communications, it becomes increasingly important to attach a cost to duration and distance involved in intraexchange traffic. This can increase local revenues even with a relatively slow growth rate for local calls. Measured rate service can also improve equity conditions among ratepayers by more closely associating costs with usage.

The operating companies can also seek out new types of service offerings. Some of these may be of a quasi-competitive nature, and successful ventures into new services will require much from state regulators. Recent history has shown the difficulty of defining when a service becomes competitive. It is equally well known by now how quickly

market structure can change in telecommunications and the importance of identifying the true costs of services in order to evaluate and respond to changing circumstances. Consequently, the offering of new services requires new types of data collections and analyses if the problems of the past are to be avoided or minimized.

In offering new services, a company faces the possibility of a future competitive market. The historical problems with quasi-competitive offerings have largely been those of cross-subsidy and the abuse of monopoly powers, and the inability adequately to evaluate the impact of proposed regulations for dealing with the potentially competitive offerings. A state commission will be better able to identify and deal with these problems in the future if a sufficient data base is set up at the onset of the new service offering. Such a data base would include information on direct and indirect costs, functional equivalence among services, and demand patterns. These data would facilitate answering questions about marginal costs, cross-subsidies, the extent of competition in the market, and alternative regulatory responses. In addition to compiling a data base, a commission needs to be alert to the possibility of abuse of monopoly power. It is clear from Judge Greene's comments that any sustained entry by the BOCs into potentially competitive arenas will be allowed only if there is reason to believe the companies' entrance will enhance and not impede competition.

CHAPTER 4

SUMMARY AND CONCLUSIONS

The broad outlines of the divestiture of the Bell Operating Companies and the deregulation of customer premises equipment have been determined by the courts and the FCC. The many detailed steps of implementing these events are not yet finalized. It is within the framework of these implementation details that state regulators can make significant contributions to the welfare of their ratepayers and the local operating companies. This report has reviewed many of these issues that need closer scrutiny and state commission participation.

Among the many issues to be addressed, the most urgent appears to be the division of costs (both for deregulation and divestiture) and the determination of the transfer value of the assets involved. The time frame for the divestiture is sufficiently short so that if a state commission does not quickly undertake its own determination of the division of costs, there will be no alternative to accepting the division proposed by others. With respect to determining the transfer value of the assets involved, one could contend that market value is the more accurate value to apply and the value that is most fitting for assets to be used in competitive markets. If the time frame does not allow for the necessary market valuation, then book value will have to be used as a transfer value. However, use of book value can also be a time-consuming process, since the depreciation reserves and tax accounts will have to be correctly disaggregated.

Another major decision relates to the embedded CPE. The relevant choices appear to be either the sale of CPE to the existing subscribers, the eventual transfer of CPE to a subsidiary or separate accounting system, or a combination of these two options. There is considerable merit to offering a sales option to existing subscribers. This would move the competitive arena to that of new CPE and would help reduce the advantage

that established companies currently hold over new entrants to the market. Also, it offers advantages to ratepayers, giving them various options sooner than would otherwise be available and providing a sale price under tariff that reflects the previous rental payments.

Regardless of the treatment given embedded CPE, new accounts must be set up for those companies not offering CPE through a separate subsidiary. The new CPE charges, as of January 1, 1983, must be allocated below the line, since these will be related to unregulated activities. Also, some method must be devised for allocating an appropriate share of common and joint costs between regulated and unregulated services. This reinforces the need for a clear division of costs between CPE and non-CPE services.

It should be noted that a problem arises in the allocation of CPE costs with regard to Bell Operating Companies. The preceding chapters discussed various methods for making a complete allocation of costs among CPE, interexchange services, and core company services. This allocation is necessary for the full removal of all relevant costs to AT&T at the divestiture, since all embedded CPE and interexchange services will be retained by AT&T. However, after the divestiture occurs, the BOCs will be allowed to offer new CPE. This means that the BOCs will need some marketing personnel, office space, display space, and other facilities for the provision of new CPE. Consequently, the full allocation of costs to CPE for divestiture purposes will be reduced somewhat to allow for the BOC entrance into the CPE market. The amount of these costs retained by the BOCs needs to be clearly identified and allocated to a BOC subsidiary or charged below the line if the FCC rules that such a subsidiary is not necessary, because new CPE will be detariffed and deregulated.

The ability of the BOCs to enter the new CPE market is important, since the growth of local exchange service appears somewhat limited. The ability of a company and a commission to hold down growth in local rates will be influenced by the company's ability to find new sources of revenue and especially revenue sources that can utilize existing assets and personnel. The ability to enter the new CPE market indicates that the BOCs

have a potential ability to offer many more types of service than was initially thought to be possible under the terms of the divestiture. Judge Greene's comments indicate that the authority for such entry may be determined largely by its impact on the potential for competition in the relevant market.

The principle of allowing competition where feasible is now an established element of the regulatory structure in telecommunications. Thus, when offering new services, a company faces the possibility of a future competitive market. The historical problems with quasi-competitive offerings have largely been those of cross-subsidy, the abuse of monopoly powers, and the inability to evaluate adequately the impact of proposed regulations for dealing with the potentially competitive offerings. A state commission will be better able to identify and deal with the problems of the future if the necessary data base is set up at the onset of the new service offering. Such a data base would include information on direct and indirect costs, functional equivalence among services, and demand patterns. These data would facilitate answering questions about marginal costs, cross-subsidies, and the extent of competition in the market and would be useful for choosing among regulatory responses to new developments. In addition to compiling a data base, a commission will want to be alert to the possible abuse of monopoly power. It appears clear from Judge Greene's comments that any sustained entry by the BOCs into potentially competitive arenas will be allowed only if there is reason to believe that the companies' entrance will enhance, not impede, competition.

The Computer II decision, together with the divestiture settlement, has clearly ended the era of pure monopoly in all phases of telephone services. One cannot even take for granted, in the long run, the current monopoly in the local loop as technology changes. Consequently, the ratepayers' best interests are now served by seeking to expand and sustain competition in those markets where it is feasible and by positioning the local companies in such a way that they can efficiently meet changing market conditions. These are not easy objectives to attain.

The next several years pose great uncertainty for the telephone industry. The interexchange market has been legally opened to competition. However, there is not yet sufficient evidence to prove that this market is capable of becoming workably competitive. The presence of alternative suppliers is an indication that competition may be feasible. However, what is not known, is the pattern of entry that would result if the relevant prices were actually cost based. The historical policy of value of service pricing in the telephone industry has distorted the price signals given to potential entrants, so that the presence of alternative suppliers is not necessarily evidence that this is currently a competitive market. This makes the determination of access charges all the more critical. The access charge must not be set so low that monopoly-served exchange customers are subsidizing competitive interexchange carriers and thereby encouraging inefficient entry in the interexchange market. Conversely, the access charge must not be so high that competitive interexchange carriers are subsidizing local exchange carriers, retarding entry to this market.

Another uncertainty is the possible future competition in the market for local exchange services. The local exchange telephone companies are facing the future with a substantial amount of embedded investment, some of which is technologically obsolete. Potential competitors with state-of-the-art technology create new pressure for cost-based pricing, especially marginal cost-based pricing. One unfortunate consequence may be capital recovery problems for local telephone companies if the marginal cost-based prices fail to recover the embedded costs of their large and technologically obsolete investment assets.

If the recent past is any indication of the future, one can expect the development of alternative suppliers and the potential for competition for more types of telephone services. What is needed is the ability to keep track of the emergence of competitive suppliers, cost-based pricing so that proper price signals are given, innovative regulatory strategies to cope with quasi-competitive markets, and the ability to determine those markets which can achieve workable competition and those which would be at best oligopolistic.

A start toward resolving these problems would be made if each state commission would mandate the collection of more extensive data bases and the initiation of ongoing analyses of interest to the commission. Telephone company cost data must be collected on a functional basis, and disaggregated usage and demand data are also needed. In addition, cost and demand data from alternative suppliers are necessary for full analyses. The difficulties inherent in separating accounts for the deregulation of CPE points up the need for functional cost data. The difficulty in determining when the CPE market is workably competitive reinforces the need for more and disaggregated demand and usage data. In an industry with large amounts of common and joint costs, disaggregated usage data would provide the possibility of more clearly defining marginal costs.

Ferment in the regulation of the telephone sector is such that one cannot anticipate the regulatory process reaching a level of stability in the near future. Given the rate of technological changes and the accompanying rapid change in market structures, the future appears to hold a scheme of continual regulatory change. With ongoing analyses of costs and demand, a commission will be better able to judge and advocate those positions which best serve its constituency and, more important, to take the leadership role in initiating policy changes as needed. The changing nature of this industry calls for new approaches to regulatory problems and a greater acceptance of an active role for state regulation in the transition to competitive markets.

APPENDIX A

A SURVEY OF TELEPHONE ACCOUNTS AND THEIR ALLOCATION AMONG SERVICES

The following pages contain a description of each telephone investment and expense account. The contents of each account are presented, and the components are classified into the three categories: exchange service, CPE, and interexchange service. Methods are identified for allocating the accounts among these three categories. The anticipated impacts on each account of CPE deregulation and the divestiture are described.

This appendix is designed to serve as a reference for those who wish to use the traditional method of dividing accounts and also contains the information needed to determine appropriate ratios for applying a fully distributed cost study. A summary of this material was included in chapter 1, which discussed various methods for dividing accounts.

The account and subaccount numbers, as well as the account descriptions, are taken from The Ohio Bell Telephone Company Comptrollers Bulletin No. 2. Since the Comptrollers Bulletin is based on the Uniform System of Accounts (USOA), the material can be generalized for use with all companies subject to USOA requirements. It should be recognized, however, that there may be individual variations, especially with respect to subaccounts, among the Bell Operating Companies and among the independent telephone companies.

Introduction

With the unbundling of telephone rates, the amount of revenue from CPE is readily identifiable, and the revenue accounts are not discussed in this report. Also, this revenue will automatically fall in the proper amount as CPE is either retired or removed from the regulated segment of the company. In theory, the expenses should also automatically drop out as the CPE-related investments are identified and removed. However, many of the expenses are labor intensive activities and represent either wages and salaries or other labor related expenditures. If the parent company or subsidiary that is taking the CPE wishes to minimize the labor costs absorbed, it is not at all certain that the expenses will automatically fall by the appropriate amount.

The following paragraphs contain the account descriptions. Placed in parentheses following each account title is the dollar value of that account for Ohio Bell at end-of-year values, 1981, and also the percentage change in value over the preceeding five years (1977-81). The emphasis in this appendix and throughout the main body of the report is on Ohio Bell, since it is the largest telephone company in Ohio and because it is the only company in Ohio undergoing both divestiture and deregulation.

Expense Accounts

Account 602 Repair of Outside Plant ($60,173,411--1981; 44.6 percent increase over five years)

Account 602 contains the expenses involved in repairing pole lines, cable, aerial wire, and underground conduit. Since the outside plant is primarily used for core company services, the associated repair expense will remain with the regulated company. One possible exception would be any custom designed installations for PBX. If these exist, their maintenance expenses would need to be individually identified and ultimately removed to deregulated entities.

Some portion of Account 602 may go to AT&T following the divestiture, depending on the precise division of toll trunks.

Account 603 Test Desk Work ($49,966,756; 65.2 percent increase over five years)

This account contains the expenses associated with the testing of subscriber lines, interoffice trunks, and toll trunks. This account will probably stay with the core company after deregulation. However, some aspects of test desk work, for example, that pertaining to inside moves, service regrades, and other rearrangements of station equipment are clearly associated with CPE. Consequently, either these services will, in the future, be performed by the AT&T subsidiary or interconnect companies (in which case the growth in this account will be reduced) or they will continue to be performed by the core company. In the latter case, these services need to be tariffed and sold not only to the subsidiary but also to any other interested CPE supplier. The telephone companies without a separate CPE subsidiary will need to create a subaccount that deals only with CPE related testing. Subaccounts 603.112, 603.212, 603.222, and 603.322 contain most of the service order testing relevant to CPE. Similar considerations apply to this account relative to the divestiture. The test desk work utilized by providers of interexchange telecommunications services will have to be tariffed and sold if the regulated company continues to supply these services. If not, then there should be a decrease in this account. This will require some changes in existing subaccounts and possibly the creation of new subaccounts.

Account 604 Repair of Central Office Equipment ($105,629,689--1981; 37.14 percent increase over five years)

This account contains the expenses related to central office equipment (COE), such as routine testing, inspection, and maintenance; rearrangements and changes; interoffice facility arrangement and circuit assignment; and routine repairs. This account will stay with the regulated company after

deregulation. However, if any part of this account is associated with repair of test desk facilities, then a portion of that amount should be included in the cost of test desk work for CPE suppliers. Similarly, a portion of the repair and maintenance expenses of test desk facilities should be included in the cost of test desk work for interexchange carriers, including Long Lines, following divestiture. The divestiture will have other impacts on this account also. If any central office is fully assigned to AT&T after the divestiture, then the associated amount of repair expenses will be removed from the core company. Similarly, if any COE is shared by AT&T and the regulated company, a portion of the associated repair expenses should be removed from the core company or reimbursed by Long Lines. In addition to the above effects of the divestiture, the possibility exists that the regulated company will have to replace central office equipment that is fully assigned to AT&T. In this case, there will be repair expenses associated with the new equipment. Thus, the net effect of divestiture on this account cannot be determined until the division of central office equipment as well as any associated replacements are known.

Account 605 Installation and Repair of Station Equipment ($147,223,456--1981; 60.3 percent increase over five years)

This account contains the expenses associated with the repair of customer premises equipment, coin telephone, and the amount of inside wire and installation that is currently being expensed (Account 605.8), rather than capitalized in Account 232. Among the items of expense are expenses incurred by rearrangements and changes; routine inspections, testing, and repair; testing and repair in response to trouble reports; line disconnects and connects if done on the customer's premises; the preparation and posting of new assignment records; and the writing, distribution, and dispatching of service orders, except for those records and reports associated with trouble reports whose costs are included in Account 603. Those amounts in Subaccount 605.8 (expensing of station equipment), the amounts associated with coin telephone, mobile CPE, and amounts associated with miscellaneous non-CPE station equipment (such as channel terminating equipment) will remain with the core company. However, a question arises

relative to the expensing of previously capitalized installation costs. It seems reasonable to contend that when the embedded CPE is removed from the core company, the previously capitalized costs of installation of CPE should also be removed. As yet, this issue has not been addressed by the FCC.

The amounts associated with coin telephone, the expensing of station connections, and most of the miscellaneous non-CPE station equipment can be directly allocated from subaccounts. The remaining amounts will stay with the core company as long as the core company retains embedded CPE. Under the Computer II ruling, the company may also provide installation and repair services to the subsidiary until July 1, 1984. Consequently, these services need to be priced and sold to the subsidiary until July 1, 1984. After that date, all such costs for new CPE should be removed from the regulated company. As the embedded CPE is removed from the regulated company, all remaining installation and repair costs of CPE should also be removed. For the telephone companies without a separate CPE subsidiary, separate accounts need to be maintained for the installation and repair of CPE.

The divestiture can be expected to affect this account only by altering the date at which all installation and repair expenses are removed by the core company.

Account 606 Repair of Buildings and Grounds ($9,917,701--1981; 45.0 percent increase over five years)

Since some buildings and land should be allocated to the CPE subsidiary, a share of the repair expense should also go to CPE. An estimate of the amount involved can be obtained by allocating this account in proportion to the allocation of land and buildings. Some amount should be removed at the time of deregulation of new CPE, primarily that associated with phone stores and office space for marketing personnel. The remainder of the CPE share would be removed as embedded CPE is removed from the core company.

A similar type of allocation can be made for the divestiture. That is, an amount based on the allocation of land and buildings to interexchange services should be allocated to AT&T.

Account 610 Maintaining Transmission Power ($7,816,408--1981; 54.5 percent increase over five years)

It is reasonable to assume that all of this account will stay with the core company following deregulation of CPE.

Some portion of this account may be associated with interexchange services. The account would automatically be reduced by this amount following divestiture.

Account 611 Employee Stabilization ($0)

This account has had a zero balance for Ohio Bell for the 22 years in the data set. This account is set up to record amounts accrued for the purpose of spreading the volume of maintenance work more evenly year to year. If there were a balance in this account, it would be allocated among services on the same basis as used for allocating the maintenance personnel.

Account 612 Other Maintenance Expenses ($4,997,580--1981; 22.1 percent increase over five years)

According to the Ohio Bell Comptrollers Bulletin No. 2, one item in this account is the costs associated with the taking of sample inventories of station apparatus. The remainder of the account is essentially undefined and contains items that do not clearly fit in the other repair and maintenance accounts. Consequently, the only predictable change is that the cost of sample inventories of CPE would disappear once the embedded CPE is removed.

No impact from the divestiture can be anticipated.

Account 621 General Traffic Supervision ($9,936,024--1981; 28.6 percent decrease over five years)

This account contains the supervisory personnel costs and associated processing, travel, and office expenses related to the general supervision of traffic, network administration, and business services facilities administration. That is, this account contains the administrative and supervising costs of all traffic expense activities contained in Accounts 622-635. Among the activities involved are service evaluation for network planning, operator services, and business services facilities and administration activities related to TSPS,[1] No. 5 ACD systems[2] and mechanized intercept systems; force planning for Operator Services offices; administration, analysis, and planning in connection with capacity and performance of the switching network; and the supervision of personnel concerned with "servicing customer communication systems and in instructing customers in the use of terminal equipment communications systems and the network"[3] (Subaccount 621.311). Much of this account will stay with the core company after deregulation. The primary exception is Subaccount 621.311 if these services are actually being offered today. An estimate of the CPE share of this account can be obtained by using the percentage of Accounts 622-635 that is allocated to CPE.

To the extent that any of these services are utilized by Long Lines or other interexchange carriers, then they should be tariffed and sold following the divestiture or utilized in the construction of the access charge.

Account 622 Service Inspection and Customer Instruction ($4,841,956--1981; 33.9 percent increase over five years)

This account contains the expenses associated with service evaluation (e.g., of the handling of traffic), service advice, and customer instruc-

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[1]Traffic Service Position System.

[2]Automatic Call Distributor.

[3]Comptrollers Bulletin No. 2, The Ohio Bell Telephone Company, sec. III pt. 1A, p. 3.

tion (Subaccount 622.03). The portion of this account dealing with customer instruction in the use of CPE and for service advice on CPE should be allocated to the CPE subsidiary or to separate CPE related accounts in the case of independent telephone companies. A reasonable estimate of this would be the amount in Subaccount 622.03.

It is reasonable to assume that the remainder of this account would stay with the regulated company following divestiture. However, to the extent these services are utilized relative to toll traffic, they should either be tariffed for sale to interexchange carriers or be included in the determination of access charges.

Account 624 Operators Wages ($52,473,050--1981; 26.4 percent increase over five years)

This account includes the salaries of operators and clerical personnel performing the actual functions as opposed to general supervision of network administration, message investigation center, number services record work, and business services facilities administration. The operators' activities include handling cord board toll and assistance calls, TSP[4] toll and assistance calls; TSPS toll and assistance calls; Hotel Billing Information Center (HOBIC); Hotel Billing Information System (HOBIS); directory assistance; intercept; CAMA[5] calls; all other customer calls; and the operators of customers' private branch exchanges. This is primarily a core company account. The exception is the salaries of operators who operate a customer's private branch exchange. This amount would be allocated to the CPE entity. However, this service may not be offered by some companies today.

The divestiture will require the identification of services used for interexchange traffic. Where possible, they can be tariffed and sold to

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[4]Traffic Service Position.

[5]Central Automatic Message Accounting.

interexchange carriers. The costs of those whose nature is such that they cannot be effectively tariffed and sold should enter into the calculation of access charges.

Account 626 Rest and Lunchrooms ($92,911--1981; 64.9 percent decrease over five years)

This account contains the expenses related to rest and lunchrooms provided for the exclusive use of operators and the clerical personnel whose salaries are contained in Accounts 624 and 627. Some portion of this account could be allocated to CPE, as it relates to operators who operate private branch exchanges. However, it would be difficult to determine the amount, and the items involved may have indivisibilities such that the actual removal of these costs is not possible. Since the account is relatively small and has been decreasing over the last five years, it would be reasonable to make no allocation to CPE.

Following the divestiture, a part of this account reflecting the operators' interexchange services should be included in either the costs of those services tariffed and sold to interexchange carriers or the costs used to calculate the access charges. This amount can be estimated based on either the proportion of total operators' expenses (Accounts 624 or 627) or total operators' time used for interexchange services.

Account 627 Operators' Employment and Training ($800,528--1981; 198.2 percent increase over five years)

This account contains the salaries and other expenses associated with employing and training operators. This account will stay with the core company. This account, though relatively small, has had an extremely large rate of increase over the last five years. However, it is unlikely that this trend will continue. Ohio Bell has had a steady decline in the number of employees classified as telephone operators since 1969. It is likely that the increase in training expenses reflects a need in recent years to replace operators lost through attrition rather than a need to expand the number of operators.

A portion of this account should be used either in calculating tariffed services sold to interexchange carriers or in determining access charges following divestiture. This amount can be estimated based on the amount of operator expenses (Account 624) allocated to interexchange services or the proportion of operators' time used for interexchange services.

Account 629 Central Office Stationery and Printing ($1,593,064--1981; 39.0 percent increase over five years)

This account contains the costs of postage, stationery, AMA[6] tapes, magnetic tapes, printing tariff and route data, office supplies, and similar materials used by employees whose salaries are charged to Operators Wages, Account 624. This account will stay with the core company following deregulation.

Following divestiture, the amount related to interexchange services should be either included in the costs of tariffed services sold to interexchange carriers or should be included in the calculation of access charges. This amount may be capable of direct allocation. If not, an estimate can be obtained by applying the percentage of Account 624 that is used for interexchange purposes.

Account 630 Central Office House Service ($840,746--1981; 4.1 percent decrease over five years)

This account contains the cost of electricity, fuel, janitor service, and similar items used for central office traffic quarters occupied by those employees whose wages and salaries are charged to Account 624, Operators Wages. These expenses will stay with the core company after the deregulation of CPE.

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[6]Automatic Message Accounting.

Following divestiture, the amount related to interexchange services should be either included in the costs of tariffed services sold to interexchange carriers or should be included in the calculation of access charges. This amount can be based on the proportion of expenses in Accounts 624 and 627 allocated to interexchange services or on the proportion of operators' time allocated to interexchange services.

Account 631 Miscellaneous Central Office Expenses ($8,108,163--1981; 101.6 percent increase over five years)

This account contains central office operating expenses that are not charged to other accounts. It includes items such as transportation expenses for employees whose wages are charged to Account 624, data processing expenses, and guard expenses other than normal guard services provided by the house service organization. This account will stay with the core company following deregulation of CPE.

The divestiture will probably not affect this account, except that a portion of this account should be included in the calculation of the access charges and would probably have to be directly allocated, based on company studies or other information.

Account 632 Public Telephone Expenses ($5,049-1981; 81.3 percent decrease over five years)

This account contains all traffic expense associated with public telephones such as wages and expenses of attendants, clerks, messengers, and operators at public telephones; postage, printing, and stationery; instruction cards for booths; and traveling expenses. This account will stay with the core company following deregulation of CPE.

This account will stay with the regulated company following the divestiture. Some portion of this account could be used in calculating access charges. However, since it is a very small account that has recently been declining, it would be equally reasonable to make no such allocations.

Account 633 Other Traffic Expenses ($0)

This account is to contain all traffic expenses that cannot properly be charged to other traffic expense accounts. The balance in this account has been zero for Ohio Bell for the last five years. In the case of those companies with a positive balance in this account, it would be retained by the core company following deregulation of CPE.

Since Ohio Bell has a zero balance in Account 633, there can be no divestiture impact.

Account 634 Joint Traffic Expenses Dr. ($957,448--1981; 44.8 percent increase over five years)

This account contains "amounts payable to other telephone companies (excluding the amount of carrying charges on equipment and floor space, if any) for joint traffic expenses where agreement has been made by the participating companies for reciprocal use of Accounts 634 and 635 to cover such payments."[7] This account should remain with the regulated company following deregulation of CPE.

The impact of the divestiture, if any, cannot be ascertained until more precise details are known.

Account 635 Joint Traffic Expenses Cr. ($706,960--1981; 174.7 percent increase over five years)

This account contains "amounts receivable from other telephone companies (excluding the amount of carrying charges on equipment and floor space, if any) for joint traffic expenses where agreement has been made

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[7]The Ohio Bell Telephone Company, Comptrollers Bulletin No. 2, sec. III, pt. 1H, p. 2.

between the participating companies for reciprocal use of Accounts 634 and 635 to cover such payments."[8]

Account 640 General Commercial Administration ($35,198,006--1981; 128.6 percent increase over five years)

This account contains the administrative and associated expenses for the company's commercial and marketing functions contained in Accounts 642-650. It includes costs associated with the Business Service Center, Residence Service Center, Public Service Segment (coin phones), and Bell Point of Contact--Common Carriers. Among the functions involved are marketing and sales, planning, forecasting, and development of marketing plans, analyses of costs and revenue and customer trends, and rates and tariff development. Most of this account should be allocated to CPE. Much of the amount allocated should be removed January 1, 1983 (the deregulation of new CPE), while the remainder will be removed in conjunction with the removal of embedded CPE. Much of the amount remaining with the core company following deregulation can be directly allocated by subaccounts and consists primarily of those expenses associated with coin phones and the Bell Point of Contact operations for Common Carriers and the development of tariffs for exchange and interexchange services. The independents without a separate CPE subsidiary need clearly defined subaccounts for the coin and Other Common Carrier (OCC) operations and any other exchange or interexchange functions.

Following divestiture, the amounts involved for coin and OCC operations will continue with the regulated company. However, the Bell Point of Contact functions will change and expand to handle all interexchange carriers, including Long Lines. These costs, along with the costs of interexchange tariff development, should be included in the determination of access charges.

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[8]Ibid., sec. III, pt. 1H, p. 3.

Account 642 Advertising ($10,367,054--1981; 91.0 percent increase over five years)

This account contains the expenses associated with all forms of advertising for the general public, including radio, television, films, exhibits and displays, bill inserts, direct mail, booklets, pamphlets, brochures, and other sales promotion materials. Among the items included are personnel costs, office supplies, postage, printing, stationery, travel, and house service.

The account is divided into 12 major subaccounts, which allows for direct allocation of the account. Subaccounts 642.03 (sales-business) and 642.04 (sales-residence) should be directly allocated to the CPE category. The removal of these costs should probably occur at the time of deregulation of new CPE. Subaccounts 642.01 (Corporate), 642.02 (Informational), and 642.08 (Sales-Public) will stay with the core company following both deregulation and divestiture. The amounts in the corporate and informational subaccounts may temporarily rise as the public is educated to the structural changes occurring in the industry. Following a transitional period, it is not unreasonable to expect these amounts to decline.

Subaccounts 642.05 (Long Distance-Business), 642.06 (Long Distance-Residence), 642.07 (Long Distance-International), 642.09 (Long Distance-Public), 642.10 (Sales-Dial It), and 642.20 (Long Distance-Dial It) are clearly advertising for interexchange services. One could contend that, therefore, they should be removed to AT&T following the divestiture. One could also contend, however, that the core company should retain all or part of these costs, since they will add to the company demand for interexchange access (a core company service). The precise allocation of these subaccounts will depend on both the divestiture implementation rulings and FCC rulings on the composition of access charges.

The remaining subaccount, 642.90 (Other), is undefined and its allocation will depend on precisely what items are charged to it by each

telephone company. The presumption is that it will stay with the core company following both deregulation of CPE and the divestiture.

Account 643 Sales Expense ($33,164,867--1981, 116.5 percent increase over five years)

This account contains the expenses of sales activities for the purpose of seeking new business and increasing and improving existing business. It does not include sales activity associated with directory advertising. The sales activities are primarily associated with CPE, though there are some exchange services involved. The exchange services (which will stay with the core company) consist mainly of sales activities relative to public phones and sales activities related to the Intercompany Services Coordinator functions (ISC) and the Broadcast Services Coordinator functions (BSC). The public telephone expenses can be directly allocated by subaccounts. The ISC and BSC expenses are contained in subaccounts with other items. If more detailed records are available, these costs can be directly allocated. If such records are not available, a sampling of the relevant subaccounts will provide estimates of the amounts to be retained by the core company. The remainder of this account, exclusive of public, ISC, and BSC expenses should be removed from the core company. Telephone companies without a separate subsidiary will need fully separated accounts for CPE and exchange sales activities.

The divestiture may result in an increase in sales activities for exchange and exchange access services. The allocation of sales expenses for exchange access services raises the same question as raised by toll advertising expenses and will depend on future rulings regarding the divestiture and access charges.

Account 644 Connecting Company Relations ($732,595--1981; 15.0 percent increase over five years)

This account contains the expenses related to traffic agreements and the development of toll business with connecting companies (i.e., generally

the independent telephone companies). It is primarily concerned with promotional and developmental activities. This account will stay with the core company following both deregulation of CPE and the divestiture, though its value should be included in the charges to interexchange carriers. The changing structure of the industry, however, may alter the content and magnitude of this account during the transitional period as new traffic agreements are needed.

Account 645 Local Commercial Operations ($63,047,608--1981; 90.5 percent increase over five years)

This account contains expenses incurred by what can be termed business office activities. Among the activities included are revenue collection; preparing, changing, and handling contracts and service orders for both CPE and exchange services; customer service center operations; handling billing inquiries; and maintaining the Street Address Guide and the Premise Information System data. This account contains costs incurred by both CPE and core company services. This is one of the more difficult accounts to allocate not only because many of the CPE and core company services are combined within subaccounts but also because the same type of activities are involved for both services. The activities relating to public telephones and Bell Point of Contact--Common Carriers are in clearly defined subaccounts and may be directly allocated to the core company. Some random sampling of the charges to the remaining subaccounts is needed in order to allocate them, unless more detailed information is available for the company.

An additional problem with this account relates to the fact that some of the CPE activities involved may become billed services provided by the operating company to the CPE subsidiary. In this case, a method must be found to determine an adequate price for these services.

It is not anticipated that there will be any non-CPE divestiture impact on this account, unless any interexchange toll billing costs are charged to this account rather than to Account 662--Accounting. In that

case, either those costs would be removed after the divestiture or would be part of a billed service offered to interexchange carriers.

Account 648 Public Telephone Commissions ($5,087,103--1981; 34.7 percent increase over five years)

This account contains commissions paid relative to public telephone stations (including hotel and motel commissions) for the use of the property on which the stations are located as well as compensation for light, heat, and similar services provided. It does not include the pay of operators employed by the company at public telephone stations.

This account will stay with the core company following both the deregulation of CPE and divestiture.

Account 649 Directory Expenses ($38,937,716--1981; 41.5 percent increase over five years)

This account contains all expenses related to the preparation and distribution of the directory. It will remain with the core company following both deregulation of CPE and the divestiture.

Account 650 Other Commercial Expenses ($417,278--1981; 620.9 percent increase over five years)

This account contains commercial and marketing expenses that cannot correctly be charged to any other commercial or marketing account. The only clearly identified item in this account is the known loss of coin telephone revenue that is not recovered from insurance or other sources. These amounts will stay with the regulated company following both deregulation and divestiture. An allocation of any remaining amounts would require more detailed information for the company. Since this is a very small account, one could assume it all stays with the core company. However, in the past year, this account increased approximately $368,000, and consequently, the account needs to be investigated to see if this is a one time increase or an indication of substantially greater future growth.

Account 661 Executive Department ($1,047,670--1981; 58.2 percent increase over five years)

This account contains the salaries and other expenses of those offices and their support staff that are responsible for the development of policy and the overall management of the company. This is a relatively small account, compared with the other company accounts. In a fully distributed cost study for ratemaking purposes, some portion of this account would correctly be allocated to each type of service offered, including CPE. However, it may not be feasible to allocate any of this account to CPE in a permanent division of the company costs required by Computer II. Assuming that any CPE-related activities occur as an integral part of activities undertaken on behalf of core company services, then a correct allocation to CPE for a permanent split of costs may require a division of the workweek of selected personnel between the core company and the CPE unit. This would not be possible for the Bell companies under the FCC requirement for a fully separated subsidiary. In addition, the current period of transition to deregulation of CPE and divestiture may well utilize (and even increase) the full amount in this account on behalf of the core company. As a consequence, none of this account will be allocated to CPE. For the same reasons, none of this account will be allocated to interexchange activities under the divestiture. It should be noted, however, that with a smaller company, offering fewer services following deregulation and divestiture, the rate of growth in this account might be expected to diminish after the transition period.

Account 663 Treasury Department ($1,769,229--1981; 59.5 percent increase over five years)

This account contains salary and other expenses incurred by activities such as banking operations, corporate cash management, benefit fund management, security owner relations, the issuance and maintenance of corporate securities, cashier services, and corporate financial planning and analyses.

The same considerations discussed relative to Account 661 (Executive Department) apply to this account, and no allocation to CPE or interexchange services are contemplated.

Account 664 Law Department ($2,361,197--1981; 48.0 percent increase over five years)

This account contains the salary and other expenses incurred for legal services, including on behalf of operations matters, patents and contracts, corporate and financial matters, labor and personnel matters, governmental relations, property matters, tax matters, general litigation, and general legal matters. Given the reduction in employees, assets, and number of service offerings following both deregulation and divestiture, it is reasonable to expect this account to decrease as a result of these structural changes. The future conclusion of the Department of Justice Antitrust Suit (Subaccount 664.02) and other existing antitrust suits should further decrease this account. However, any excess capacity may initially be taken up by the core company and the many legal matters involved in deregulation and divestiture. Consequently, none of this account is allocated to CPE or to interexchange services. However, following the transition period and barring other major changes in telephone regulation, one would reasonably expect a decrease in this account or, as a minimum, a reduction in growth in the account.

Account 662 Accounting Department ($45,233,548--1981; 57.8 percent increase over five years)

This account contains the expenses associated with customer, corporate, and general accounting operations. Among the activities included are analysis of reports, budgeting, taxes, Division of Revenues, Independent Company settlements, auditing, economic analysis, business research, depreciation, and valuation. The account is divided into four major subaccounts, each of which will be discussed separately.

Expenses associated with customer accounting operations are contained in Subaccount 662.01. Customer accounting operations include activities such as preparation of toll message data, handling and recording customer payments, preparing data for the Customer Records Information System, and handling service and equipment billing data. These activities are incurred on behalf of CPE, core company, and interexchange services. The proper allocation among these three services will be difficult, since the expenses are not charged to subaccounts based on the type of service offering involved. Also, it is presumed that the personnel and equipment providing accounting activities for one type of service offering are, in most cases, the same personnel and equipment used to provide accounting activities for the other two types of service offerings. A sampling of the personnel time is needed to determine the appropriate division of this subaccount for purposes of deregulation and divestiture. Once an appropriate division is determined, however, it may still not be possible actually to remove the full amount to CPE or to interexchange-related costs, since some of the actual expenses (machine and personnel) may have characteristics of indivisibility that prevent a full allocation to CPE and interexchange. In this case, the core company will retain some excess capacity. A further complication with the Customer Accounting Operations subaccount is that these activities may become billed services. That is, the core company may do the billing for the CPE subsidiary and also for interexchange carriers. If this occurs, then the allocations to CPE and to interexchange services can be used in the determination of the appropriate fee to charge for the accounting services.

Subaccount 662.02 contains the expenses associated with Corporate Accounting Operations. This includes the costs of activities such as payroll, employee service files, Western Electric requisitions, bill and voucher records, investment and cost records, financial statements, Division of Revenue reports, and all other such reports used or required by the company, the parent company, and public authorities. A share of this subaccount should be allocated to CPE to reflect the decrease in assets, personnel, and service offerings that will accompany the deregulation of CPE. One appropriate method of allocation would be to use the percentage

of the labor force that is allocated to CPE. Again, however, the matter of indivisibilities arises, along with the possibility of excess capacity. Also, the transition period to deregulation and divestiture may create sufficient additional accounting activity that this will use up any excess capacity in the short run.

No allocation from this subaccount will be made to the interexchange activities for divestiture. While some personnel and assets may be transferred to AT&T relative to interexchange activities, any decrease in accounting activity for this may be balanced by the changing accounting activities relative to the new access charge arrangements.

Subaccount 662.03 is entitled General Accounting and contains the expenses of such activities as financial analysis, budgeting, taxes, analyzing and developing Division of Revenue studies, auditing depreciation and valuation, and economic analysis. No attempt will be made to allocate any part of this subaccount to CPE or to interexchange services. While it would be appropriate to do so in a fully allocated cost study for ratemaking purposes, these same activities will be needed by the core company following both deregulation and divestiture. The removal of assets will reduce the related accounting activity, such as investment studies, depreciation, and valuation, leaving some excess capacity. However, the structural changes occurring in the industry will place increased demand on all planning, analytical, and forecasting activities and can be expected to take up any excess capacity in this subaccount. Following a transition period, this subaccount should either decrease or, at least, experience a reduced rate of growth.

Subaccount 662.04 includes the cost of activities related to functional accounting systems and depreciation and valuation matters. It appears to be quite similar to portions of 662.03, and consequently, the company should be requested to identify the activities of these two subaccounts specifically. While it seems likely that all of this sub-

account will stay with the core company following deregulation and divestiture, it is possible that the added company-supplied detail on both 662.03 and 662.04 will permit some direct allocations to CPE and/or interexchange services.

Account 665 Other General Office Salaries and Expenses ($51,790,267--1981; 57.7 percent increase over five years)

This account contains the expenses incurred by general office activities that are not properly chargeable to other accounts. The major activities charged to this account are public relations, general security; personnel; corporate planning; antitrust suits (other than legal costs); claims investigation and adjusting (other than legal costs and claims relating to directory and the construction of plant); regulatory/government relations and service cost matters; and engineering costs (other than those charged to maintenance or other operating expense accounts), each of which is assigned a separate subaccount. Each of these items is directly or indirectly related to the provision of both CPE and core company services. This will be a difficult account to allocate, since it contains common costs and because few subaccounts are sufficiently detailed to allow for direct allocation. This account is sufficiently large, however, to require that an attempt be made to allocate it appropriately between CPE and core company services. Since the magnitude of these activities tends to be related to the overall size of the company, one reasonable basis for allocation would be to use the percent of revenue generated by each type of service or the percent of assets used by each service. A preferable method would be to ask the company for a special study of this account.

Some portion of these common costs may be incurred by interexchange services of the type that will be retained by AT&T following the divestiture. The presumption is that in most cases, for example, personnel, corporate planning, public relations, government/regulatory activities, any excess capacity from interexchange activities will be utilized by

the transition process. In the case of general security and engineering matters, the interexchange share could be more than minimal. Further information on these two particular subaccounts is needed in order to determine an allocation to interexchange services. However, it is equally likely that the interexchange portion of these two activities will remain with the core company and will either become part of billed services to the interexchange carriers or enter into the calculation of access charges.

Account 668 Insurance ($195,920--1981; 14.6 percent decrease over five years)

This account contains the personnel and office support costs, insurance premiums, and other expenses associated with obtaining and maintaining insurance coverage, other than those insurance-related costs chargeable to other accounts. For example, insurance on vehicles and work equipment is charged to Account 702, a clearing account. This account will be reduced with the deregulation of CPE and the divestiture, since there will be a reduction in assets, revenue, and personnel. The allocation to CPE and interexchange services can be estimated by using the percentage of telephone plant that is allocated to CPE. However, a correct direct allocation will be known only when the insurance contracts are altered to reflect the new company structure and size.

Account 669 Accident and Damages ($781,922--1981; 53.6 percent increase over five years)

This account contains those expenses (which are not covered in other accounts) incurred due to liabilities resulting from accident or damage in the course of the company's telephone operations. This account should be reduced following deregulation and the divestiture. However, the historical magnitudes of this account are variable both in size and direction of change. Given this, and the fact that any liabilities from accident and damage will of necessity be related to core company activities following deregulation, it would be difficult to allocate any amounts to either CPE or interexchange services. It can be presumed that this account will automatically adjust to the effects of deregulation and divestiture.

Account 671 Operating Rents ($9,422,062--1981; 31.4 percent increase over five years)

This account contains rent payments for land, buildings, attachments, conduits, rights of way, and equipment, except for those payments charged to other operating accounts. The amounts in Subaccount 671.02 (attachments, conduits, and rights of way) and Subaccount 671.03 (circuits) should stay with the core company following both deregulation and divestiture. However, some part of these subaccounts may enter into the calculation of access charges. A part of Subaccount 671.01 (land and buildings) may be allocated to CPE to the extent any of these facilities are used by CPE personnel. This amount can be directly allocated from company studies. The divestiture impact on this subaccount is somewhat unpredictable. The amount may be reduced by the allocation of interexchange costs to AT&T. At the same time, the amount could be increased by the amount of space the operating companies rent from AT&T for shared facilities such as the class 4 switches. The net effect needs to be determined in conjunction with changes in the land and buildings investment accounts.

Subaccount 671.04 (equipment) currently will stay with the core company following deregulation, since it primarily contains switching and circuit equipment; time, weather, and public announcement equipment; public telephone booths owned by others; and similar types of equipment used in exchange operations. It is possible that some portion of this subaccount may be used to calculate an access charge, but no allocations will be made to interexchange services for the divestiture.

The proposed divestiture may increase this account if the core company leases its terminal equipment from the AT&T subsidiary in the future. Equally possible is that these lease payments would be spread among the relevant operating expense accounts or that the core company may purchase its terminal equipment and thus make it part of its investment base.

Account 672 Relief and Pensions ($124,160,584--1981; 37.5 percent increase)

This account contains the cost of pension plans, group insurance, workmen's compensation, other relief plans, and the personnel and other

costs associated with maintaining and providing relief and pension services. Relief and pension payments and expenses on behalf of employees whose labor costs are capitalized are not included in this account. The amount of relief and pension expenses incurred by those employees engaged in CPE-related activities will be allocated to CPE. An estimate can be made, based on the percentage of total employees allocated to CPE. A precise amount can only be determined after all CPE is removed from the core company.

Similarly, the amount of relief and pension expenses incurred by employees allocated to interexchange services will be removed following the divestiture.

Account 673 Telephone Franchise Requirements ($76,099--1981; 11.1 percent decrease over five years)

This account contains those expenses associated with Franchise Agreements that are not charged to Account 202. The precise allocation (if any) of this account to CPE and interexchange services will depend on the specific terms of such franchise agreements.

Account 674 General Services and Licenses ($32,894,125--1981; 71.8 percent increase over five years)

This account contains the license fee expenses paid to AT&T. Following deregulation of CPE, all CPE-related license contract services should be removed.

Following divestiture, all license contracts with AT&T will cease. However, the net effect of this will depend on the extent to which they are replaced with fees to the proposed centralized services organization for the operating companies and the extent to which the core company expands its own personnel in order to replace these services.

Account 675 Other Expenses ($7,529,696--1981; 64.3 percent increase over five years)

This account contains those operating expenses which cannot correctly be charged to other expense accounts. It includes a variety of items such as directors' fees and expenses; expenses associated with Pioneer activities; corporate subscriptions to certain types of organizations, such as research bureaus, taxpayer groups, and local urban coalitions; membership fees to certain types of organizations such as chambers of commerce, boards of trade, and better business bureaus; and expenses incurred in valuations, inventories, and appraisals of telephone plant for the purpose of rate cases or compliance with other governmental and regulatory orders.

Most of this account will stay with the core company following both deregulation and divestiture. One major exception is Subaccount 675.19 (Inventories and Appraisals). With the reduction in assets following both deregulation and divestiture, this subaccount should be reduced. An estimate of the reduction can be made on the basis of the percent of telephone plant allocated to CPE and interexchange services.

Account 676 Telephone Franchise Requirements-Cr. ($76,099--1981; 11.0 percent decrease over five years)

"This account is credited with amounts charged to Account 673, Telephone Franchise Requirements, for which there is no direct monthly outlay, such as standard rates for telephone service furnished without charge to municipalities in accordance with franchise requirements."[9]

No attempt will be made to allocate an amount to CPE or interexchange services, since such amount depends on the precise term of such franchise arrangements and the amount will automatically be removed in accordance with the changing structure of the core company. For example, any amounts associated with the provision of CPE will not be included after the

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[9]The Ohio Bell Telephone Company, Comptrollers Bulletin No. 2, sec. VI, pt. 1E, p. 3.

deregulation of embedded CPE and its removal to the CPE subsidiary. Companies without a CPE subsidiary may or may not continue to provide CPE under the franchise agreement.

Account 677 Expenses Charged Construction-Cr. ($7,589,441--1981; 49.0 percent increase over five years)

"This account is credited and the appropriate construction accounts charged with amounts, not provided for elsewhere, representing the portion of operating expenses applicable to construction work."[10]

No attempt will be made to allocate any of this account to CPE or to interexchange services. Such amounts as are appropriate will be allocated via construction and plant accounts.

Investment Accounts

Accounts 211-212 Land and Buildings
(211--Land: $15,051,246--1981; 14.9 percent increase over five years)
(212--Buildings: $328,781,630--1981; 30.9 percent increase over five years)

These accounts contain the original cost of all land and buildings, including permanently installed fixtures, machinery, and appliances used in the telephone operations. Portions of these accounts should be allocated to both CPE and interexchange services.

The land and buildings associated with the provision of terminal equipment consist primarily of commercial office space, including records storage and accounting facilities; demonstration areas; phone stores; and warehouses and storerooms used for inventory, repair facilities, and associated vehicles and tools.

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[10]Ibid.

One could reasonably expect that as of January 1, 1983 (the date for deregulation of new CPE), the phone stores, sales and demonstration areas and much of the office space would be removed to the CPE subsidiary, since these types of facilities are used intensively in the marketing of new CPE. Some office space would remain for servicing embedded CPE, until all CPE is deregulated. Since the Bell Operating Companies will be allowed to provide installation and maintenance services for new CPE to the CPE subsidiary for 18 months, it is reasonable that none of the CPE-related warehouses, garages, and storerooms would be transferred until either the end of the 18 month period or until the divestiture takes place, depending on which event occurs first.

A direct allocation of land and buildings would be the most accurate. According to an Ohio Bell spokesman, an inventory of land, buildings, other assets, and personnel was performed about a year ago for AT&T to utilize in setting up its subsidiary. If this information were available to the staff, a direct allocation would be possible. Lacking this information, allocations based on ratios could be used.

If the land and buildings were allocated on the basis of ratios, the first step would be to divide these assets by functions such as general office space, phone stores and demonstration space, warehouse, garages and storeroom facilities, central office equipment, and accounting and records space. Then each functional category would be allocated by an appropriate ratio. For example, general office space would be allocated by the percentage of management and clerical personnel assigned to each of the three types of services (CPE, interexchange, and core company). Some or all of the land and buildings allocated to interexchange services may, in fact, stay with the core company but be offset by rental payments from AT&T, depending on the precise arrangements made for divestiture. A major question to be resolved (ideally on a case by case basis) is whether it is in Ohio Bell's best interest to assign the property to AT&T and then rent the needed amounts from AT&T or whether it is preferable to retain the land and buildings and rent the needed space to AT&T.

It is likely that there will be excess land and buildings remaining within the core company due to the indivisibility of these units. If so, the commission is faced with the question of how to treat this excess capacity.

Account 221 Central Office Equipment ($1,257,083,608--1981; 31.6 percent increase over five years)

This account contains the original cost (including installation) of all central office equipment. It contains such items as switching equipment; switchboards; desks; testboards; test panels; test cabinets; distributing frames; racks; cable (e.g., between main frame and intermediate frame); power equipment; telephone repeater equipment; carrier equipment; telegraph equipment; telephotograph equipment; and radio equipment.

No central office equipment is assigned to CPE for allocation to a subsidiary. However, any central office equipment associated with the provision of enhanced services should be assigned to the subsidiary or to separate subaccounts for independent telephone companies. For Ohio Bell, "Keep Cost Numbers" for enhanced services exist. These will enable a reasonably correct allocation of the costs of enhanced services, which may include costs from several accounts. The keep cost numbers are as follows:[11]

Service	Keep Cost Number
Electronic Information Services	80032
Custom Calling II	80033
"Dial It" Service	80035
Advanced Communications Service	80037
Petroleum Retail Service	80039

[11]The Ohio Bell Telephone Company Comptrollers Bulletin No. II, sec. I, pt. 2A, p. 21.

In addition to the impact of enhanced services, central office equipment is indirectly affected by the deregulation of CPE through the test desk equipment contained in this account. To the extent that any CPE vendors utilize test desk services in the installation, maintenance, and repair of CPE, then this should become a billed service and a share of those costs used in calculating the amount to be charged.

The allocation of central office equipment to interexchange services should be a direct allocation based on information received from the telephone company. The class 3 and 4 switches used predominantly for toll traffic will be transferred to AT&T. Any switch used by both interexchange and local services will be owned by one party and a portion of it rented by the other party. This ultimate ownership and consequent rental fees of jointly used switches should be scrutinized by the commission to determine the best interests of Ohio Bell and its customers. Among the relevant factors is the provision of the proposed divestiture that requires the operating companies to provide equivalent quality access to all inter-exchange carriers. This provision, together with the possibility that AT&T will own the class 4 switches, may cause a substantial increase in central office investment, as OBT creates the necessary facilities for equal access, as well as the continued provision of intraexchange services.

Account 231 Station Equipment ($360,438,838--1981; 42 percent increase over five years)

This account contains the original cost of station apparatus such as small private branch exchanges (generally less than 100 lines, all PBX telephones, key systems, all other telephones, radio apparatus, coin telephones, teletypewriter equipment, and miscellaneous items of station apparatus. While most of this account will be allocated to CPE, since this account contains existing CPE (both installed and inventory), none of it will be removed at the time new CPE is deregulated. The CPE portion will be removed either when embedded CPE is deregulated or at the time of divestiture depending on which occurs first and also depending on the precise terms of the divestiture.

The allocation to CPE can be a direct allocation and consists of all station apparatus except coin, channel private line equipment, channel WATS equipment, and company-used CPE. There is no allocation from this account to interexchange services for purposes of divestiture.

It should be noted that following the divestiture (again, depending on the precise terms of the divestiture settlement) and deregulation of CPE, Ohio Bell will either retain the CPE it currently uses for operating the company, or the company will lease or purchase its station apparatus from another company. This account needs a subaccount reflecting the amount of company used CPE.

Account 232 Station Connections ($421,046,295--1981; 59.4 percent increase over five years)

This account contains the original cost (including installation costs) of drop wires, inside wiring, and installation of station apparatus. The drop wire portion and that associated with coin telephones will stay with the regulated company following both deregulation and divestiture.

The remaining portion of this account is subject to decrease over the next several years, following the FCC ruling on the expensing of inside wiring and installation charges. Under this ruling, the amount existing at the time of the FCC order is to be expensed over a 10-year period. Also, as a result of FCC and PUCO orders the expensing of new installations and inside wiring will take place in a phased-in manner over a period of 4 years. That is, in the first year, 25 percent of the value of new installation and inside wiring costs will be expensed and 75 percent capitalized. In the fourth year 100 percent of all new installation and inside wiring costs will be expensed. Consequently, by the fourteenth year following the FCC order, this account should contain no amounts for inside wiring and installation of station apparatus.

One could contend that when embedded CPE is deregulated, the portion of this account representing installation costs of station apparatus should be allocated to the CPE subsidiary. Since the CPE revenue will be

allocated either to CPE subsidiaries or noncore company accounts, and since installation is necessary to earn these lease revenues, then it is reasonable to allocate these capitalized costs to CPE. However, it is likely that this will be subject to FCC decisions.

Account 234 Large Private Branch Exchanges ($100,905,555--1981; 8.8 percent increase over five years)

This account contains the original cost and installation costs of all electronic private branch exchanges (PBXs), large specialized installations of station equipment, and other large PBXs (usually 100 lines or more), and some non-CPE equipment.

The allocation to CPE can be a direct allocation. The non-CPE equipment, which will stay with the core company, consists essentially of such items as channel terminating equipment, multiplexes, repeaters, responders, and channel service units, and company-used CPE.

As with Account 231, none of this account will be removed at the time new CPE is deregulated, since it contains embedded CPE.

None of this account will be allocated to interexchange services.

Accounts 241, 242, 243, 244 Outside Plant

(241--Pole Lines: $85,677,267--1981; 19.1 percent increase over five years)
(242.1--Aerial Cable: $404,731,340--1981; 22.5 percent increase over five years)
(242.2--Underground Cable: $288,755,235--1981; 34.9 percent increase over five years)
(242.3--Buried Cable: $207,703,221--1981; 75.7 percent increase over five years)
(242.4--Submarine Cable: $771,626--1981; 1.9 percent increase over five years)
(243--Aerial Wire: $3,412,916--1981; 25.4 percent decrease over five years)
(244--Underground Conduit: $298,671,367--1981; 46.4 percent increase over five years)

These accounts contain the original cost of all outside plant. They include such items as poles, cross arms, cable, wire, conduit, and associated equipment and materials. None of these accounts are allocated to CPE unless there are some specialized installations for multiline CPE. If so, these would have to be identified by the company. Some may be allocated to interexchange services depending on the precise exchange boundaries and allocation of central office equipment resulting from the divestiture. This will have to be a direct allocation based on information supplied by the operating company.

Account 261 Furniture and Office Equipment ($74,129,801--1981; 84.9 percent increase over five years)

This account contains the original cost of furniture and office equipment. In general, it includes furniture and equipment used in offices, storerooms, and shops and computer and AMA systems. More specifically, it includes items such as office furniture, accessories, and decorations; storeroom furniture; artworks; electronic data processing equipment (EDP); and electronic accounting equipment (EAM).

Some of this account should be allocated to CPE, since offices, storerooms, shops, and computer equipment are all used in the provision of CPE. Ideally, this account should be directly allocated, based on detailed information from the company. In the event the company does not provide the necessary information or if the commission wants a benchmark against which to evaluate the company's information, some allocation ratios can be developed. For example, the account is divided into four subaccounts. Subaccount 261.1 contains furniture and office equipment used in storerooms. This can be allocated in proportion to the value of storerooms in Account 212 allocated to CPE. Subaccount 261.2 contains furniture and equipment used in offices. This can be allocated in proportion to the office space allocated to CPE and to interexchange services. Subaccounts 261.31 and 261.32 contain computer systems, that is, EDP and EAM equipment.

These will be difficult subaccounts to allocate, due to the indivisibility of computer units and due to the fact that any given computer system can be used for both CPE and core company services. One possibility would be to allocate these in proportion to the allocation of Account 662 (Accounting). However, it would be preferable to get more detailed information from the company before a final allocation is made. Subaccount 261.33 contains AMA equipment and should be utilized in calculating billed services for interexchange service or should enter into access charge calculations. Subaccount 261.7 contains artworks and can be allocated in proportion to the allocation of Account 212 (Buildings) to CPE, interexchange, and core company.

Account 264 Vehicles and Other Work Equipment ($62,802,197--1981; 36.2 percent increase over five years)

This account contains the original cost of vehicles, tools, garage equipment, and other machinery and equipment that is not charged to other accounts. Ohio Bell has been able to allocate this account directly to four categories as follows:[12] Inside Plant, CPE, Coin, and Outside Plant. Consequently, a direct allocation to CPE based on these data can be made. Some portion of the amounts allocated to inside plant and outside plant should be allocated to interexchange services. This will require more specific information from the company.

Depreciation and Related Accounts

Account 608 Depreciation Expense ($215,882,666--1981; 42.1 percent increase over five years)

Account 609 Extraordinary Retirements (zero value since 1971)

Account 613 Amortization of Intangible Property ($5,908--1981; 1.4 percent decrease over five years)

Account 614 Amortization of Telephone Plant Acquisition Adjustment (zero value since 1961)

Account 171 Depreciation Reserve ($740,271,069--1981; 36.3 percent increase over five years)

Account 172 Depreciation Reserve ($323,381--1981; 6.6 percent increase over five years)

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[12]Clark Mount-Campbell and Michael Wong, Interactive Cost Allocation System, Version 2.2, Ohio Bell Case Number 81-1433-TP-AIR, August 2, 1982, the Public Utilities Commission of Ohio, Columbus, Ohio.

These depreciation and amortization accounts should be allocated to all three types of services CPE, interexchange, and core company. The depreciation reserves have recently been allocated to each investment account, based on historical debits and credits, and these figures can be used to estimate the appropriate amounts of depreciation reserve for each category of service. For example, the depreciation reserve for Account 212 can be allocated among services on the basis of the allocation of investment in Account 212, and similarly for all investment accounts. A more precise allocation may be required for the actual removal of assets to a subsidiary or to AT&T. In this case, the data will have to be supplied by the company and ideally audited by commission accountants. Similarly, the depreciation expense account and the various amortization accounts will have to be allocated on the basis of detailed information supplied by the company.

APPENDIX B

COMPUTER OUTPUT FROM TIME TREND ANALYSES

This appendix contains the computer output from the time trend analyses reported in chapter 1. The statistical analyses, plots of residuals, and plots of predicted and actual values are included for two models. The first is a nonlinear model of maintenance expense per mile of cable, and the second is a linear model of maintenance expense per mile of wire in cable. The time trend equation used and definitions of terms precede the output from each model.

Maintenance Expense per Mile of Cable

A time trend analysis was applied to the following nonlinear model of maintenance expense per mile of cable:

$$X1 = \frac{\text{Accounts } 602.2 + 602.3 + 602.4 + 602.5 + 602.6}{\text{Total miles of aerial cable + underground cable + buried cable + submarine cable + aerial wire}}$$

The definitions of terms used are as follows:

X1 = Maintenance expense per mile of cable

Account 602.2 = Repair expenses of aerial cable

Account 602.3 = Repair expenses of underground cable

Account 602.4 = Repair expenses of buried cable

Account 602.5 = Repair expenses of submarine cable

Account 602.6 = Repair expenses of aerial wire

The resulting equation is given below:

$X1 = 49.98 - 8.36T + 1.42T^2$, where T = Time = 1 in 1960

The following pages contain the SAS system statistical output and plots for this model.

S T A T I S T I C A L A N A L Y S I S S Y S T E M 11:03 MONDAY, DECEMBER 6, 1982 1

GENERAL LINEAR MODELS PROCEDURE

DEPENDENT VARIABLE: X1

SOURCE	DF	SUM OF SQUARES	MEAN SQUARE	F VALUE	PR > F	R-SQUARE	C.V.
MODEL	2	576760.38205132	288380.19102566	1850.32	0.0001	0.994919	6.2797
ERROR	19	2945.31024959	155.01632893		STD DEV		X1 MEAN
CORRECTED TOTAL	21	579705.69230091			12.45055537		198.26550751

SOURCE	DF	TYPE I SS	F VALUE	PR > F	DF	TYPE IV SS	F VALUE	PR > F
TIME	1	519862.89690022	3353.60	0.0001	1	3531.57931534	22.78	0.0001
TIME2	1	56897.48515110	367.04	0.0001	1	56897.48515110	367.04	0.0001

PARAMETER	ESTIMATE	T FOR H0: PARAMETER=0	PR > |T|	STD ERROR OF ESTIMATE
INTERCEPT	49.98987090	5.72	0.0001	8.74651730
TIME	-8.36173964	-4.77	0.0001	1.75186599
TIME2	1.41702419	19.16	0.0001	0.07396384

OBSERVATION	OBSERVED VALUE	PREDICTED VALUE	RESIDUAL	LOWER 95% CL FOR MEAN	UPPER 95% CL FOR MEAN
1	38.08562641	43.04515545	-4.95952904	27.78587267	58.30443823
2	40.22834433	38.93448837	1.29385596	26.28571148	51.58326527
3	40.65142157	37.65706967	2.99355190	27.13099915	48.18474019
4	41.11600930	39.21529935	1.90070996	30.26322866	48.16737003
5	48.21325110	43.60677740	4.60647370	35.64663029	51.56692450
6	55.14710064	50.83230383	4.31479681	43.31810582	58.34642184
7	59.09193928	60.89187863	-1.79993936	53.40972214	68.37403513
8	65.25518712	73.78550182	-8.53031470	66.10108843	81.46991521
9	77.92072799	89.51317338	-11.59244539	81.55302627	97.47332048
10	100.47202415	108.07489331	-7.60286916	99.87743205	116.27235457
11	129.73869941	129.47066162	0.31802779	121.13980525	137.80151800
12	157.34128302	153.70047831	3.64150470	145.36962194	162.03133469
13	194.65684897	180.76434338	13.89250469	172.56688212	188.96180464
14	226.87204416	210.66225683	16.20978733	202.70210972	218.62240393
15	260.05047089	243.39421865	16.65625225	235.70980526	251.07863204
16	276.72107300	278.96022884	-2.23915584	271.47807235	286.44238534
17	308.14859403	317.36028742	-9.21169334	309.84616941	324.87440543
18	353.95816001	358.59439497	-4.62629436	350.63424726	366.55454147
19	364.51984883	402.66254969	-38.14270087	393.71047901	411.61462038
20	452.32394246	449.56475340	2.76418906	439.03788288	460.09162392
21	503.21698918	499.30100548	3.91598370	486.65222859	511.94978237
22	568.07861012	551.87130594	16.20730418	536.61202315	567.13058872

Fig. B-1 SAS system computer output, time trend analysis, maintenance expense per mile of cable

GENERAL LINEAR MODELS PROCEDURE

DEPENDENT VARIABLE: X1

SUM OF RESIDUALS	-0.00000000
SUM OF SQUARED RESIDUALS	2945.31024959
SUM OF SQUARED RESIDUALS - ERROR SS	-0.00000000
PRESS STATISTIC	4006.51378212
FIRST ORDER AUTOCORRELATION	0.32004945
DURBIN-WATSON D	1.26236514

Fig. B-1 (cont.) SAS system computer output, time trend analysis, maintenance expense per mile of cable

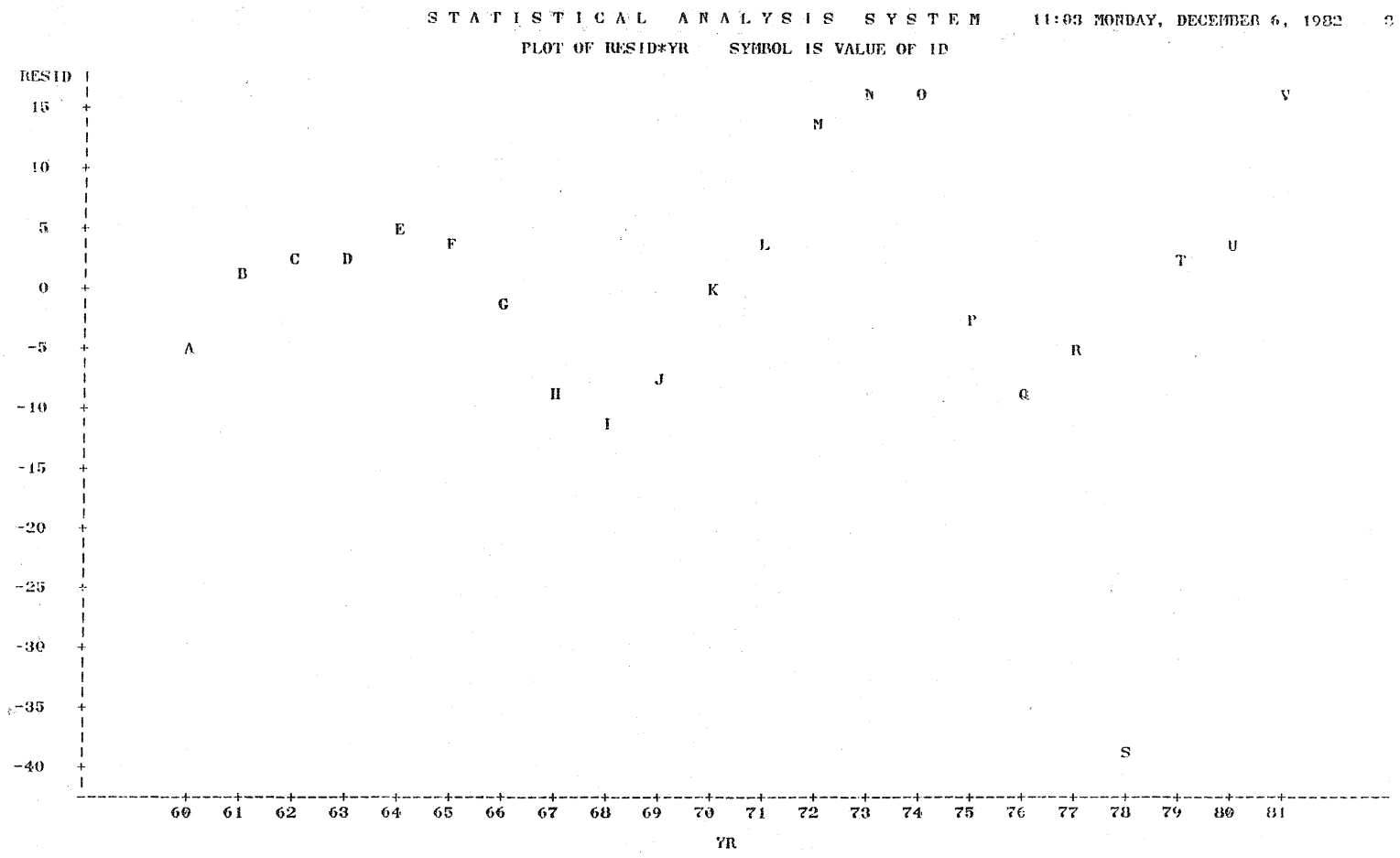

Fig. B-2 Plot of residuals, time trend analysis, maintenance expense per mile of cable

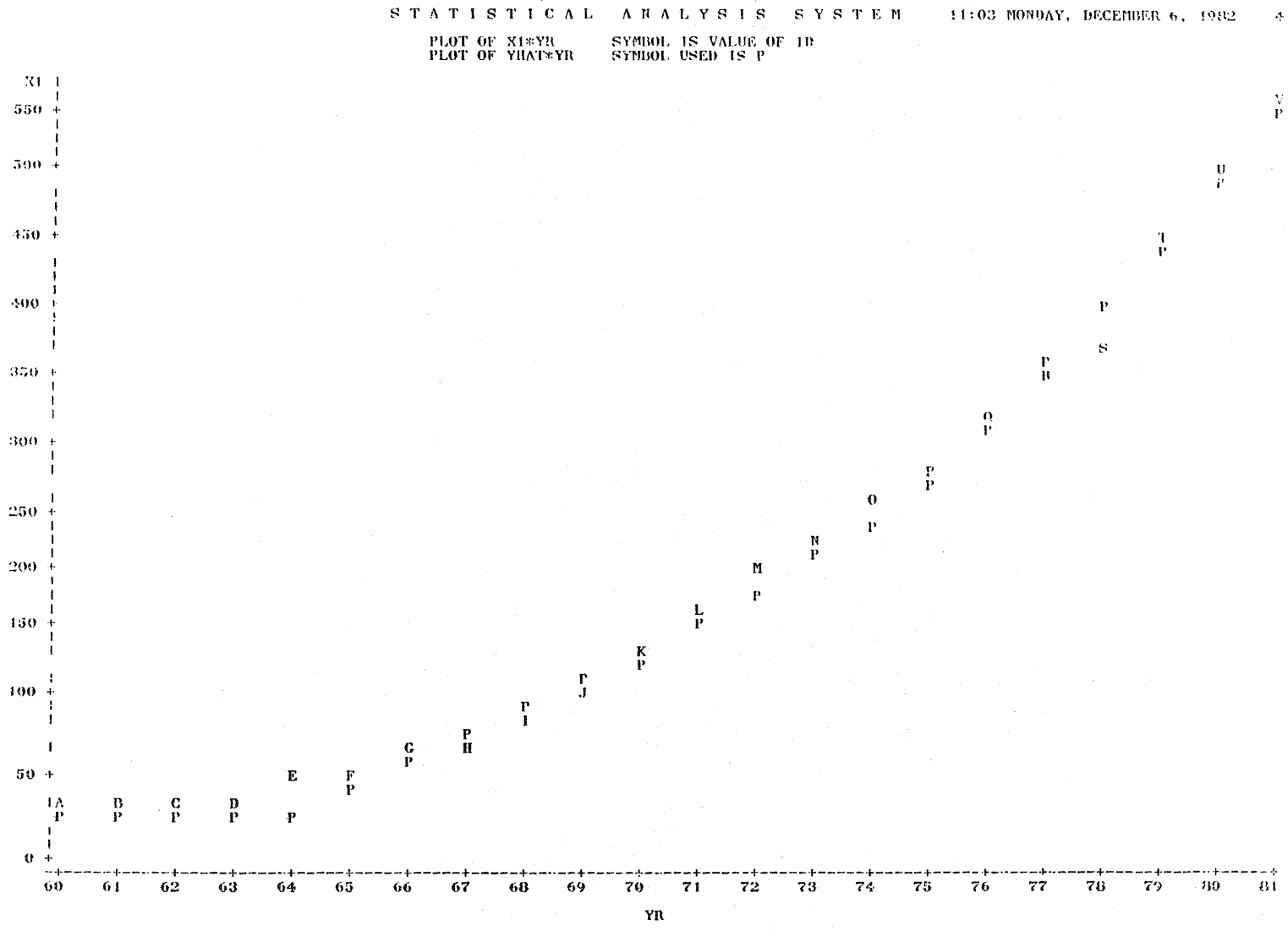

Fig. B-3 Plot of predicted and actual values, maintenance expense per mile of cable, 1960-1981

Maintenance Expense per Mile of Wire in Cable

A time trend analysis was applied to the following linear model of maintenance expense per mile of wire in cable:

$$X2 = \frac{\text{Accounts } 602.2 + 602.3 + 602.4 + 602.5 + 602.6}{\text{Total Miles of wire in aerial cable + underground cable + buried cable + submarine cable + aerial wire}}$$

The definitions of terms used are as follows:

X2 = Maintenance expense per mile of wire in cable

Account 602.2 = Repair expenses of aerial cable

Account 602.3 = Repair expenses of underground cable

Account 602.4 = Repair expenses of buried cable

Account 602.5 = Repair expenses of submarine cable

Account 602.6 = Repair expenses of aerial wire

The resulting equation is given below:

X2 = .50 + .04T, where T = Time = 1 in 1960

The following pages contain the SAS system statistical output and plots for this model.

GENERAL LINEAR MODELS PROCEDURE

DEPENDENT VARIABLE: X2

SOURCE	DF	SUM OF SQUARES	MEAN SQUARE	F VALUE	PR > F	R-SQUARE	C.V.
MODEL	1	1.57268215	1.57268215	274.30	0.0001	0.932642	7.6655
ERROR	20	0.11466954	0.00573348		STD DEV		X2 MEAN
CORRECTED TOTAL	21	1.68735169			0.07571973		0.98779362

SOURCE	DF	TYPE I SS	F VALUE	PR > F	DF	TYPE IV SS	F VALUE	PR > F
TIME	1	1.57268215	274.30	0.0001	1	1.57268215	274.30	0.0001

PARAMETER	ESTIMATE	T FOR H0: PARAMETER=0	PR > |T|	STD ERROR OF ESTIMATE
INTERCEPT	0.50314849	15.06	0.0001	0.03342022
TIME	0.04214307	16.56	0.0001	0.00254457

OBSERVATION	OBSERVED VALUE	PREDICTED VALUE	RESIDUAL	LOWER 95% CL FOR MEAN	UPPER 95% CL FOR MEAN
1	0.66734004	0.54529156	0.12204848	0.48017578	0.61040734
2	0.66819210	0.58743463	0.08075747	0.52679965	0.64806961
3	0.64036771	0.62957770	0.01079000	0.57327954	0.68587587
4	0.60736582	0.67172078	-0.06435495	0.61957950	0.72386205
5	0.67292176	0.71386385	-0.04094209	0.66565298	0.76207472
6	0.72925740	0.75600692	-0.02674952	0.71144001	0.80057383
7	0.73488213	0.79814999	-0.06326787	0.75686467	0.83943532
8	0.73931884	0.84029307	-0.10097422	0.80183410	0.87875204
9	0.78880724	0.88243614	-0.09362890	0.84624148	0.91863080
10	0.89857812	0.92457921	-0.02600109	0.88997632	0.95918211
11	1.01300499	0.96672228	0.04628270	0.93294339	1.00050118
12	1.07193815	1.00886536	0.06307279	0.97508646	1.04264426
13	1.15007154	1.05100843	0.09906311	1.01640553	1.08561133
14	1.17027019	1.09315150	0.07711868	1.05695685	1.12934616
15	1.16501117	1.13529457	0.02971660	1.09683561	1.17375354
16	1.13856866	1.17743765	-0.03886899	1.13615233	1.21872297
17	1.15926976	1.21958072	-0.06031096	1.17501381	1.26414763
18	1.20642374	1.26172379	-0.05530005	1.21351292	1.30993466
19	1.16858593	1.30386687	-0.13528088	1.25172559	1.35600814
20	1.36740195	1.34600994	0.02139201	1.28971177	1.40230810
21	1.44187487	1.38815301	0.05372186	1.32751803	1.44878799
22	1.53201192	1.43029608	0.10171584	1.36518931	1.49541186

Fig. B-4 SAS system computer output, time trend analysis, maintenance expense per mile of wire in cable

GENERAL LINEAR MODELS PROCEDURE

DEPENDENT VARIABLE: X2

SUM OF RESIDUALS	0.00000000
SUM OF SQUARED RESIDUALS	0.11466954
SUM OF SQUARED RESIDUALS - ERROR SS	-0.00000000
PRESS STATISTIC	0.14305153
FIRST-ORDER AUTOCORRELATION	0.58736638
DURBIN-WATSON D	0.60513954

Fig. B-4 (cont.) SAS system computer output, time trend analysis, maintenance expense per mile of wire in cable

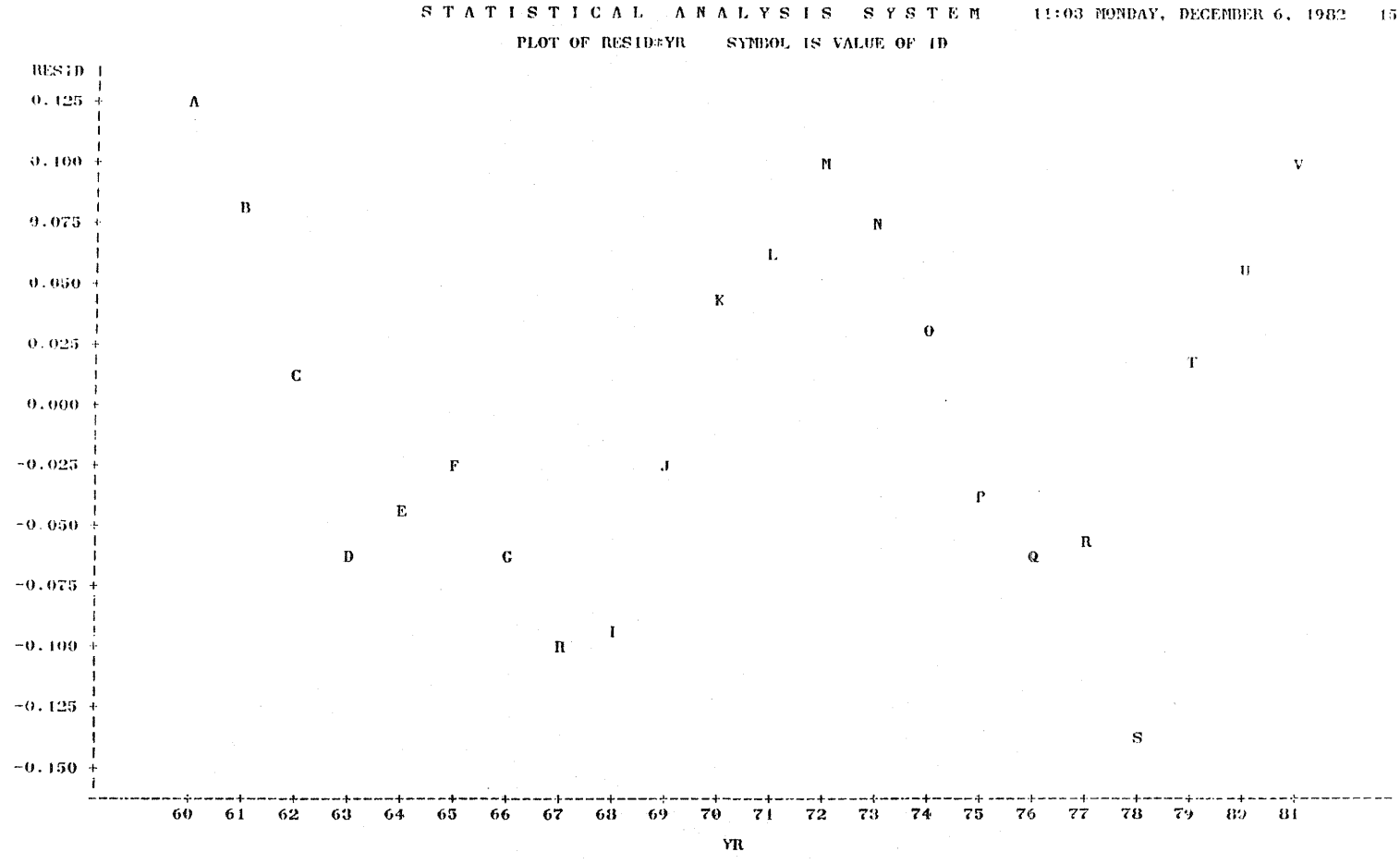

Fig. B-5 Plot of residuals, time trend analysis, maintenance expense per mile of wire in cable

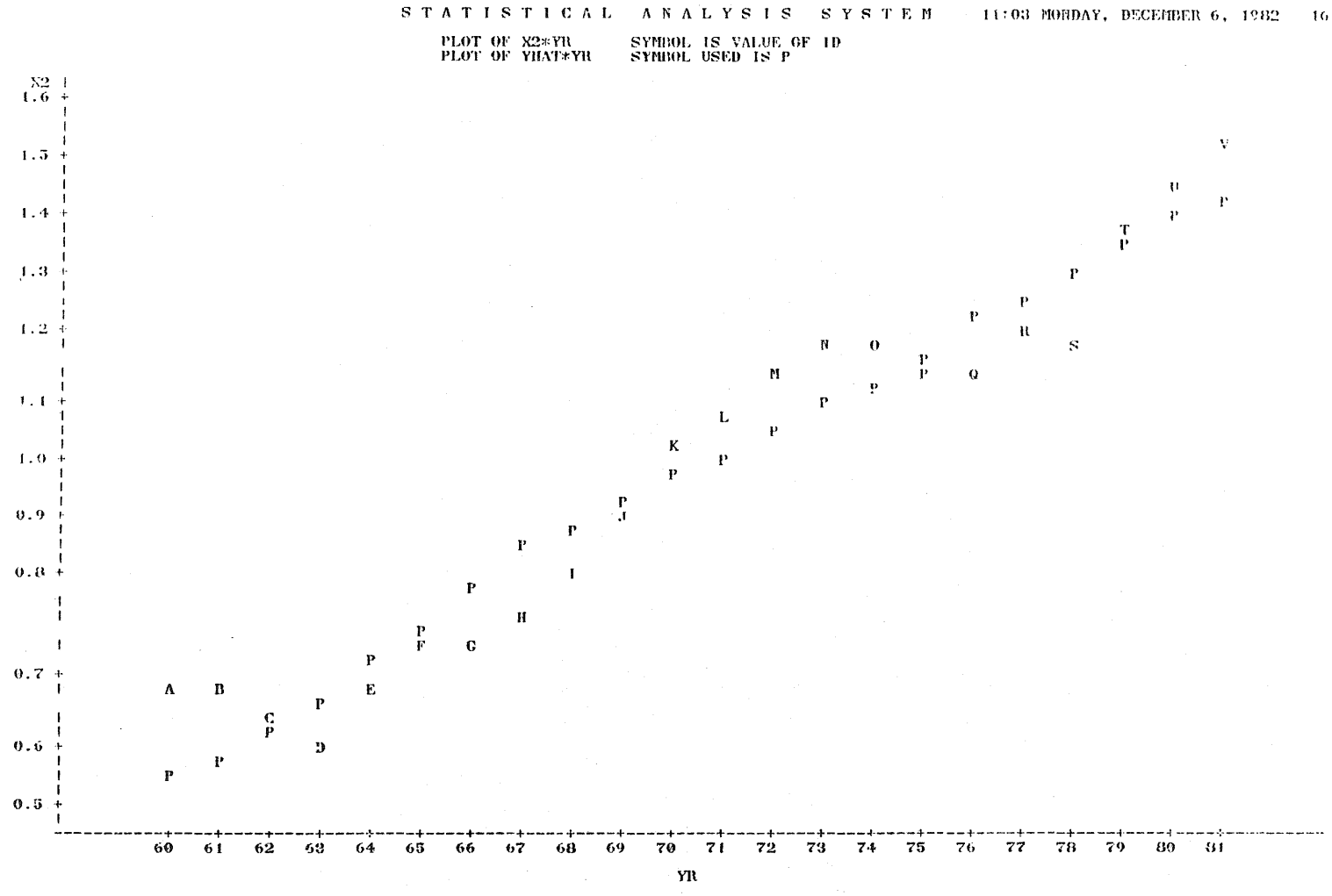

Fig. B-6 Plot of predicted and actual values, maintenance expense per mile of wire in cable 1960-1981