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Pricing Postal Services in a Competitive Environment

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To the President of the Senate and the
Speaker of the House of Representatives

This report discusses the competition the United States Postal Service faces in the marketplace and its response to that competition. The report also examines the constraints and obstacles that hinder Postal Service efforts to compete effectively and evaluates the major issues of pricing postal services in a competitive environment. As a result of our review, we present two matters for congressional consideration regarding postal ratemaking policies.

We are sending copies of this report to the Board of Governors and Postmaster General of the U.S. Postal Service, the Commissioners of the Postal Rate Commission, and other interested parties.

This report was prepared under the direction of L. Nye Stevens, Director, Government Business Operation Issues, who may be reached on (202) 275-8676 if there are any questions. Other major contributors are listed in appendix VI.

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Executive Summary

Purpose

The United States Postal Service, the nation's largest civilian employer, has operated for 20 years as a governmental quasicorporation. During this period it has accomplished many of the goals Congress set forth in the Postal Reorganization Act of 1970. It has modernized its operations, improved the compensation and working conditions of postal employees, forgone the direct taxpayer subsidies that used to support its operations, and maintained its mandated universal service—equal service for the same price delivered anywhere in the country. Notwithstanding these accomplishments, the Postal Service is now operating in a different market environment than it did 20 years ago. Competition and the continual need to raise prices for its services threaten the viability of this important institution.

This report (1) discusses the competition the Postal Service has faced and is facing in the marketplace and its response to competition, (2) examines the constraints and obstacles that affect its efforts to compete effectively, and (3) evaluates the major issues of postal ratemaking in a competitive environment.

Background

The Postal Service is intimately involved in the nation's commerce. Approximately 88 percent of the mail the Postal Service delivers originates in the business sector, with the other 12 percent coming from households. Of the household-generated mail, the majority is for bill payments. About 40 percent of the total household mail, or 4.5 percent of the domestic mailstream, involves correspondence between individuals. Of the business-generated mail, about 65 percent is sent to households and 35 percent to other businesses. The Postal Service's core business is delivery of First-Class Mail and third-class advertising mail. In 1991, these two mail classes, which are to a great extent protected by the Private Express Statutes (laws that restrict the private carriage of letter mail), accounted for 92 percent of the 166 billion pieces delivered and 85 percent of the $41.9 billion in total revenue.

The Postal Reorganization Act of 1970 requires the Postal Service to file a request for changes in rates for all services offered with the Postal Rate Commission, an independent agency chiefly responsible for recommending postal rates. As part of its request, the Postal Service provides detailed information and data explaining revenue requirements, mail-volume estimates, costing, pricing, and rate design. The Commission must hold public hearings and allow interested parties, including Postal Service competitors, the opportunity to make their views on proposed rate changes known. The Commission is required to provide the Postal Service's governors with its recommended decision on new rates within 10 months of the filing.

In making its decision, the Commission is required to take into account nine criteria Congress specified in the Postal Reorganization Act of 1970. These criteria specify, among other things, that rates are to be "fair and equitable," that each class of mail is to recover the direct and indirect postal costs attributable to that class plus the portion of all other costs reasonably assignable to it, and that rates are to bear some relationship to the "value of the mail service" actually provided each class and the alternatives available to the customer. (See pp. 44-45 for a complete listing of the nine criteria.)

Results in Brief

During the past 20 years, the Postal Service's competitive position in the marketplace has eroded, especially in the parcel post and overnight mail markets. Although the Postal Service developed both of these markets, private carriers dominate the profitable business-to-business segment because they offer lower priced and higher quality service and have left the Postal Service with the more dispersed and less profitable household market segment. Although the Postal Service has lost its share in these smaller markets, its First- and third-class markets have grown, protected by what has been a monopoly position. However, since 1984, the rate of growth for third-class mail has declined to its lowest level since the mid-1970s. Rising postal rates have encouraged competition and diversion to other forms of communication, causing part of the decline.

Because of the substantial rate increases since 1988, some postal customers are actively seeking alternative means of communication. This competitive situation may create further decreases in Postal Service volume, reduce revenues lower than required to break even, and generate the need for more frequent rate increases to cover revenue shortfalls.[1] These outcomes, in turn, could further erode the Postal Service's market share and create a recurring cycle of revenue shortfalls leading to still more frequent rate increases. Given this possibility, the question arises as to whether the criteria that guide postal ratemaking, set forth in the Postal Reorganization Act of 1970, are still adequate in light of the changing competitive environment that the Postal Service faces.

[1]The Postal Service has reported net operating losses from 1987 through 1991 totaling about $1.1 billion. About half of these losses were due to legislative actions requiring the Postal Service to make unplanned payments for retirees' cost-of-living allowances and health benefit expenses.

The Postal Service recognizes—from its lost market share in parcel post and overnight delivery—that to be competitive it must control the growth in operating costs, offer its customers a full range of services that are prompt and reliable, and price its services to reflect changing demands for its products. Although it has begun to address the first two issues through its strategic plan, the Postal Service is constrained—by legislative design—in its ability to set rates.

Since the late 1970s, the Postal Service and the Postal Rate Commission have disagreed over the extent to which the ratemaking criteria allow the use of demand factors to allocate the Postal Service's overhead burden among the various mail classes. The Postal Service believes that demand factors should play a major role in overhead cost allocation, whereas the Commission places less weight on demand factors in its pricing decisions than the Postal Service does. This disagreement is the basic reason the Postal Service's request in 1990 for a 30-cent First-Class Mail stamp was reduced to 29 cents by the Commission and third-class rates were raised, on average, 8 percentage points higher than the Postal Service requested. Postal Service management believes that the Commission's pricing strategy, in which First- and third-class mail each bear a relatively equal share of overhead costs, could adversely affect the future of its more price-sensitive third-class business and jeopardize the financial stability of the Postal Service. Therefore, Postal Service management believes that the Commission must adopt a more practical, market-oriented approach to pricing. This approach would include the issue of a volume discount, which was rejected by the Commission as a discriminatory pricing strategy when the Postal Service proposed such a discount for its Express Mail service.

The ratemaking criteria set forth in the Postal Reorganization Act were established during a period when the Postal Service had less competition than it does now. Because the Postal Service is facing a changing and increasingly competitive environment that requires greater flexibility in pricing postal services, GAO believes that Congress should reexamine the nine criteria the Postal Rate Commission considers in setting rates to determine whether these criteria are still valid in light of changing marketplace realities. GAO believes that demand pricing, which considers the value-of-service to the sender, should be given greater weight in the criteria used as a guide for allocating overhead costs and setting postal rates. Further, GAO believes that such a pricing policy is compatible with the requirement that the rate structure be fair and equitable to all mail users, so long as each class of mail covers at least the direct and indirect costs of providing that service and makes some contribution to the Postal Service's overhead. GAO believes that in the long run, if demand-based pricing is not given more weight as one of several factors to be considered in ratemaking, the Postal Service could experience serious losses in its price-sensitive third-class market as well as its second-class market and thus drive up the cost of First-Class postage to cover these losses. Congress could then be faced with demands to further open postal markets to competition or to subsidize the national delivery network through appropriations.

GAO's Analysis

The Postal Service Has Lost Major Market Share in Parcel Post and Express Mail

For many years the Postal Service was the preponderant carrier of small parcel post packages and expedited mail. Today private carriers dominate the business segments of these multibillion dollar markets, leaving the Postal Service with 6 percent and 12 percent of the parcel post and expedited mail businesses, respectively. The principal reasons why the Postal Service has not been an effective competitor in these markets include price, level and quality of services, and regulatory constraints. Although it has taken steps to improve its service offerings in these markets, the Postal Service is unlikely to gain ground on its competitors unless it can offer competitive prices. For example, recent attempts by the Postal Service to offer volume discounts for its Express Mail service—a pricing practice used by its competitors to gain dominance in the business-to-business market segment—have been rejected by the Postal Rate Commission as a pricing strategy that would discriminate among users of this service (see ch. 2).

The Postal Service Faces Competitive Challenges in Its Other Markets

Although the Postal Service has experienced serious erosion in its parcel post and expedited mail businesses, total mail volume has continued to grow over the past 20 years at an average annual rate of 3.3 percent. Over half of the Postal Service's volume is the delivery of First-Class Mail. The other types of mail—especially third-class and, to a lesser extent, second-class mail—help to provide the volume necessary to sustain the universal First-Class Mail service and keep the unit cost of delivery down. Any significant loss of second- and third-class mail volume to competition would reduce the Postal Service's ability to cover the full cost of maintaining its nationwide delivery network. The revenues generated by these secondary mail classes are important to the Postal Service because they help recover the unattributable or institutional costs of the system, i.e, those costs that cannot be directly or indirectly related to a particular mail class.

The third-class market is relatively more price-sensitive than First-Class Mail, and the recent and substantial third-class rate increases recommended by the Postal Rate Commission may be pricing the Postal Service out of the market. Since the new rates went into effect in February 1991, third-class volume, which is advertising mail, has declined by 6.5 percent. However, a portion of the decline could be a result of the economic downturn that has also affected other forms of advertising, such as that in newspapers and other media (see ch. 3).

The most immediate direct threat to Postal Service mail volume is in the second- and third-class markets in which rates have increased since 1988 by 40 and 50 percent, respectively. Private carriers are competing with the Postal Service for the delivery of magazines and unaddressed advertising material. Two private delivery companies, Alternative Postal Delivery, Inc., and Publishers Express, Inc., say they are expanding their delivery networks into more than 75 cities to take advantage of the rate increases that make their alternative services more attractive to business mailers (see ch. 3).

A longer term indirect competitive threat to the Postal Service is the public's growing acceptance of electronic technologies that can completely bypass mail delivery. According to Postal Service studies, the most immediate prospect for electronic diversion of mail involves the monopoly-protected First-Class Mail segment and business-to-business Express Mail in which electronic alternatives are gaining wider acceptance. The major sources of electronic competition for business-to-business mail, which accounts for 30 percent of domestic mail volume, include (1) electronic mail or E-Mail, (2) fax machines, and (3) electronic funds transfers and electronic data interchanges for credit and debit transactions.

The business-to-household mail segment, which accounts for 65 percent of domestic mail volume, is also a prospect for electronic diversion. Some examples include preauthorized payment for insurance premiums, mortgages, and installment loans and increased telemarketing for direct promotions by phone and videotex. Electronic communications are on the increase and may eventually substitute for a large portion of the current mailstream. It is not possible, however, to accurately predict how technological developments will affect postal business in the immediate and long-term future (see ch. 3).

In view of what has happened to the Postal Service's position in the parcel post and Express Mail businesses, there are reasons to be concerned with the Postal Service's ability to compete effectively in its other markets. If the Postal Service continues to experience mail diversion losses to competition, it would have to trim its workforce by more than the 84,000 jobs planned by the end of 1995, when it is scheduled to complete its automation efforts. The additional jobs that would need to be eliminated would mainly involve mail processing. The cuts would not necessarily affect the delivery network of mail carriers, which will still be needed regardless of the mail volume handled by the Postal Service (see ch. 3).

The Postal Service and Postal Rate Commission Disagree Over Postal Costing and Pricing Methods

Since the late 1970s, there has been a basic disagreement between the Postal Rate Commission and the Postal Service over how to distribute institutional costs for the purpose of ratemaking. The Commission maintains that institutional costs, which amount to about $16 billion or 35 percent of the Postal Service's total costs, should be distributed so that First- and third-class mail bear fairly equal shares of these costs that are near the systemwide markup over attributable costs. In making this allocation, the Commission considers the noncost criteria listed in the Postal Reorganization Act, as well as the general theme specified in the act that all postal rates must be fair and equitable to all mailers. The Postal Service supports the view that value-of-service or demand pricing should be given greater weight in distributing the overhead burden. The Commission's view on demand pricing is that it cannot be the overriding factor so as to negate the other noncost ratemaking criteria provided for in the Postal Reorganization Act.

The impasse between the Postal Service and the Postal Rate Commission over the allocation of institutional costs is due to the fact that the law says very little about the distribution of these costs except that each class should pay that portion reasonably assignable to it. It calls for rates that reflect the value-of-service provided to the mailer and the recipient, the alternatives available to the mailer, and the effects of rates on businesses dependent on the mail—all of which can be interpreted as demand factors. The law also requires a fair and equitable rate schedule, which some witnesses at the rate proceedings interpreted to mean that rates should not be adjusted upwards or downwards based on demand factors. With these conflicts in the rate criteria, GAO believes that the role demand factors should play in the distribution of institutional costs and the setting of rates is unclear and should be resolved by Congress (see ch. 4).

Postal Rates Should Be Based to a Greater Extent on Demand Pricing

Because the Postal Service is a limited monopoly whose demand for many of its services is not assured by the Private Express Statutes, a set of federal laws, GAO believes that the future marketplace will dictate that postal rates should be based to a great extent on economic principles that consider value-of-service or demand pricing.[2] This concept is an economically efficient pricing mechanism that will help minimize mail-volume losses and help maximize postal revenues even as rates are increased. The use of demand pricing as a major factor in allocating overhead burden to determine postal rates would not, in GAO's opinion, be inconsistent with the goals of the Postal Reorganization Act. On the basis of court cases that arose out of the earlier ratemaking proceedings, GAO believes that demand pricing could be given greater weight if it would not preclude consideration of other noncost criteria. The Commission's current position, that the value-of-service criteria cannot override the other noncost criteria, hinges on statutory guidelines that have not been revised since 1970, when the competitive environment was different (see ch. 4).

Matters for Congressional Consideration

Congress intended for the Postal Service to operate in a businesslike manner so as to break even in the long run. However, if mail volumes continue to decline because of competition, congressional intent may not be realized, and Congress may have to consider using taxpayer funds to cover revenue shortfalls or cutting back on the Postal Service's universal mail service. Accordingly, to give the Postal Service more competitive flexibility, GAO believes Congress should reexamine the nine ratemaking criteria set forth in the Postal Reorganization Act and consider amending them to state that (1) in allocating institutional costs, demand factors—including elasticities of demand—are to be given a weight that takes into account the need to maintain the long-term viability of the Postal Service as a nationwide full-service provider of postal services and that (2) such use of demand factors will not be inconsistent with the rate criterion requiring the establishment of a fair and equitable rate schedule as long as each mail class recovers the direct and indirect costs attributable to that service and makes some contribution to institutional costs. Congress should also consider reexamining the provisions of

[2]See appendix I.

section 403(c) of the Postal Reorganization Act to determine if volume discounting by the Postal Service would in fact result in "undue or unreasonable discrimination" among mailers and "undue or unreasonable preference" to a mailer.

Agency Comments

The Postal Service and Postal Rate Commission provided written comments on a draft of this report. The Postal Service said that it agreed with the major points in the report and the matters for congressional consideration. The Postal Rate Commission raised two major concerns, saying that the report does not accurately convey how it interprets and administers the ratemaking provisions of the Postal Reorganization Act nor recognize some of the ways the Commission addresses competition faced by the Postal Service.

GAO made some language clarifications in response to the Commission's concerns and believes that the report's description of the Commission's interpretation and administration is clearly supported by the Commission's documented rate decisions from 1971 to 1990 and the court decisions ensuing from the rate cases. Regarding the Commission's other concern, GAO recognizes that demand pricing is not the only way to address postal competition but believes that increased emphasis on demand factors is a necessary component of a ratemaking strategy to protect the long-run viability of the Postal Service in the communications marketplace. The Postal Service's and Postal Rate Commission's comments and GAO's response are discussed at the close of chapters 2, 3, and 4. In addition, the text of the Postal Service's and the Postal Rate Commission's comments are presented in appendixes IV and V, respectively. GAO's detailed response to the Commission's comments is in appendix V.

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Abbreviations

ATM	automated teller machine
DMA	Direct Marketing Association
EDI	electronic data interchange
EFT	electronic funds transfers
EPM	equal percentage markup
GNP	gross national product
IER	inverse elasticity rule
IPA	Institute of Public Administration
META	model for evaluating technology alternatives
NAGCP	National Association of Greeting Card Publishers
PRC	Postal Rate Commission
UPS	United Parcel Service

Introduction

Since its reorganization 20 years ago, the United States Postal Service has been working to improve the effectiveness and efficiency of its operations by modernizing its facilities and automating its mail processing operations. Although the Postal Service has accomplished a great deal in these areas, it has had difficulty restraining increases in operating costs. The business community, by far the largest user of the Postal Service, has voiced concerns about the Postal Service's growing operating costs and the continual and substantial rate increases needed to support the postal system. This situation has resulted in some postal customers exploring and supporting the development of alternative private sector delivery services and emerging electronic technologies that provide new, nonpostal methods of transmitting information.

Postal Service officials recognize that the Postal Service is moving into an era of increasing competition and that they must do a better job of controlling costs and improving service. They also believe, however, that improvements in these areas may not be sufficient without some relief from the regulatory constraints of the ratemaking process. Their concern is that the current ratemaking process does not give them the ability to move quickly or be flexible in responding to customer needs and changing economic factors.

Background

The Postal Service is the largest civilian employer in the United States and plays an important social and economic role in the nation. It delivers mail to virtually every household and business in the United States 6 days a week. In fiscal year 1991, the Postal Service delivered about 166 billion pieces of mail and generated approximately $41.9 billion in revenue. The Postal Service has a delivery network that includes approximately 117 million delivery points; 300,000 collection boxes and receptacles; 40,000 post offices, stations, and branches; and 761,000 career and 83,000 other employees. An 11-member Board of Governors directs the Postal Service. The Board consists of (1) nine governors appointed by the President and confirmed by the Senate for 9-year terms, (2) the Postmaster General appointed by the governors, and (3) the Deputy Postmaster General appointed by the governors and the Postmaster General.

Under the Postal Reorganization Act of 1970 (84 Stat. 719; 39 U.S.C. 101 et seq.), the Postal Service is an independent establishment in the executive branch that began operations on July 1, 1971. The act set a number of goals, objectives, and restraints for the Postal Service. The Postal Service is to operate in a businesslike manner and is to break even in the long run.

Unlike its competitors who can select the markets they serve, the Postal Service by statute must provide universal service—equal service for the same price, delivered anywhere in the country—to all urban, suburban, and rural customers throughout the nation at uniform prices. Rates are to be reasonable, and employees' wages and benefits are to be comparable to those in the private sector.

To regulate the Postal Service's adherence to ratemaking standards and to ensure that it does not take advantage of its monopoly—granted through the Private Express Statutes[1] —on the delivery of letter mail, the Postal Reorganization Act established the Postal Rate Commission (PRC) as an independent agency of the executive branch. PRC is charged with recommending postal rates and fees in each class of mail or type of service to the governors. PRC is also to ensure that all rates are set in accordance with the law. PRC also has appellate jurisdiction to review Postal Service determinations on the closing and consolidation of small post offices. PRC has a staff of 51 full-time employees (predominantly accountants, economists, lawyers, and rate and classification specialists and analysts) headed by 5 commissioners who are appointed by the President and confirmed by the Senate for terms of 6 years.

Overview of the Ratemaking Process

The Postal Reorganization Act gives PRC a great deal of authority over the ratemaking process. The process begins when the Postal Service files a formal request with PRC for changes in rates or fees. The Postal Service request includes extensive information and data explaining the nature, scope, rationale, significance, and effect of the proposed rate and fee changes. Among the most important components of this request are the data explaining the attribution and assignment of costs to specific services or classes of mail and the design of rates based on those cost data.

PRC is to provide the governors with its recommended decision on new rates within 10 months of receiving the Postal Service request. During that period, PRC is to hold hearings on the rate request. It is to hear testimony from Postal Service witnesses justifying the request and from interested parties who petition to intervene in the rate proceeding. When PRC makes its judgment on the rate changes, it is to issue its recommended decisions to the governors. The PRC-recommended decisions are conveyed in a detailed and extensive document that explains the legal and policy

[1]The Private Express Statutes (18 U.S.C. 1693-1699 and 39 U.S.C. 601-606) are a set of federal laws enacted originally in 1792 to restrict private carriage of letters. Congress enacted these laws primarily to guarantee a healthy postal system that could afford to deliver letters between any two locations, however remote.

principles governing the recommendations and includes supporting evidence and data.

When the Postal Service receives a PRC rate decision, the governors can approve, reject, or allow the recommended rates to take effect under protest. Before the governors can modify any PRC-recommended rates, they are required to return the rate case to PRC for reconsideration. After PRC renders a further rate decision, the governors can only modify that decision by unanimous vote.

Overview of Postal Service Mail Classes and Sources of Mail Volume

The Postal Service has established the following five major classes of mail: First-Class Mail, which is comprised mostly of letter mail and postcards; second-class, which includes newspapers, magazines, and newsletters; third-class, sometimes called "bulk business mail" or—by its detractors—"junk mail," which includes advertising materials, brochures, and fliers; fourth-class, which includes parcels, library materials, and bound printed matter; and Express Mail, which is expedited mail that includes letters and packages. Within these mail classes are (1) various rate categories depending on whether the sender presorts the mail and (2) special rates for nonprofit mail.[2] There are also several mail subclasses for specialized services, such as Priority Mail.

Although the Postal Service is intimately involved in the nation's commerce, its role in social communication has largely been replaced by the telephone. According to the Postal Service's latest published study on mail received by households, about 88 percent of the mail sent through the Postal Service originated in the business sector, and the other 12 percent originated in households.[3] Of the household-generated segment, the majority was for bill payments. About 40 percent of the total household-generated mail, or 4.5 percent of the domestic mailstream involved correspondence between individuals. Of the nonhousehold or business-generated mail, about 65 percent was sent to households and 35 percent to other businesses. The greatest proportion of mail sent to households was First- and third-class advertising pieces, followed by bills or statements from businesses.

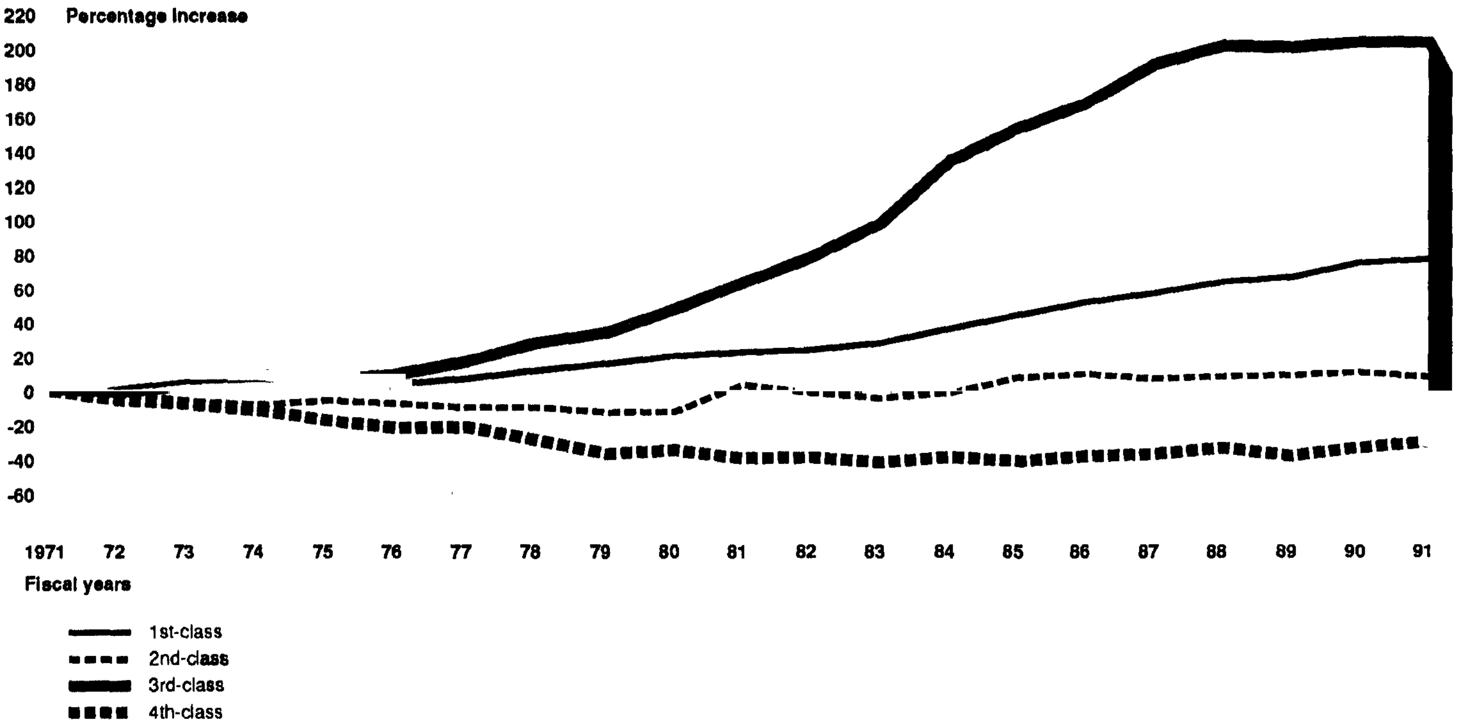
[2]We have used the Postal Service's preferred capitalization for First-Class Mail and Express Mail, which are registered trademarks.

[3]The Household Diary Study, Fiscal Year 1988, the Postal Service, Rates and Classification Department, Demand Research Division (Washington, D.C.: U.S. Postal Service, Nov. 1989) pp. III-1 to III-9.

Overview of Postal Service Mail Volume, Revenue, and Cost Growth

Since the Post Office Department was reorganized into the Postal Service in 1971, total mail volume has nearly doubled from 86.9 billion pieces in 1971 to 165.9 billion pieces in 1991 (an average annual increase of 3.3 percent). As figure 1.1 indicates, the four largest mail classes have had different growth patterns. First-Class Mail, which accounted for 54 percent of total volume in 1991 has grown fairly steadily at an average annual rate of 2.9 percent. Second-class mail, which represented about 6 percent of volume in 1991, has experienced a relatively minimal total growth of 8.3 percent (an average annual increase of 0.5 percent). Third-class mail, the second largest category in 1991 with 38 percent of volume, has experienced the highest cumulative growth rate of 204 percent (5.8 percent annually). The largest third-class increases occurred from 1977 through 1984. Since that period, the annual rate of growth has steadily declined from a high of 18.4 percent in 1984 to –2.0 percent in 1991. Unlike other mail classes that have grown, fourth-class mail, which accounted for less than 1 percent of volume in 1991, has declined 29.5 percent (an average annual decrease of –1.6 percent).

Figure 1.1: Mail-Volume Growth Rates



Note: Volumes for fiscal years 1989-91 exclude government penalty and franked mail in order to make the data comparable with those of other years. Before 1989, the Postal Service reported this mail separately rather than in appropriate classes of mail.

Source: Annual reports of the Postmaster General, fiscal years 1971-91.

The steady growth of total mail volume, coupled with nine postage rate increases since 1971, have increased Postal Service revenues from $6.3 billion in 1971 ($21.2 billion in 1991 dollars) to $41.9 billion in 1991. However, the Postal Service's revenues from 1987 through 1991 have not been sufficient to cover operating costs, which have grown at an annual rate of 8.2 percent since 1971. During this 5-year period, the Postal Service has had a net operating loss of approximately $1.1 billion. About half of this loss was due to legislative actions requiring the Postal Service to make unplanned payments for retirees' cost-of-living allowances and health benefit expenses.

The Postal Service's General Strategy for Competing in the Postal Marketplace

The Postal Service recognizes that it must improve its operations if it is to remain competitive in the 1990s. By 1995, the Postal Service expects to achieve several ambitious goals designed to make mail service more efficient, effective, and affordable. Two critical goals set by the Postal Service are to (1) keep the growth of postal operational costs below the inflation rate, thus restraining future rate increases, and (2) maintain and improve the quality of service.

To accomplish its first goal, the Postal Service plans to slow the growth in labor costs, which amounted to $34.2 billion (85 percent of total operating costs) in fiscal year 1990. Postal Service officials estimate that the June 1991 4-year contract, covering about 560,000 Postal Service workers, will result in wage increases of about 3.3 percent per year over the life of the contract. This rate is approximately 1-percent lower than the expected annual rate of inflation. Other contract provisions that will help the Postal Service control growth in labor costs include the following:

- The Postal Service will have the authority to hire new employees at 10-percent lower pay and use more temporary and part-time employees. In the previous contract, 90 percent of the workforce was required to be full-time. This requirement was reduced to 80 percent for clerks and 88 percent for letter carriers in the new labor agreement.
- The Postal Service will have the authority to lay off workers with less than 6 years of service. The previous contract prohibited layoffs for full-time employees.

Another component of the Postal Service's strategy to bring postal costs under control is the investment of $5.3 billion in mail processing automation to improve productivity. The Postal Service believes that automation has the potential to reduce the number of workers by 84,000 by the end of 1995.

To accomplish its second goal, the Postal Service has implemented external systems to measure First- and third-class delivery services and plans to move aggressively to correct major problems that were identified. As discussed in our March 1991 testimony, recent Postal Service experience suggests a tension between productivity and service improvements (i.e., that there may be an inverse relationship between Postal Service increased productivity in 1990 and reduced service indicators during that year).[4]

[4] Operational Performance of the U.S. Postal Service (GAO/T-GGD-91-9, Mar. 5, 1991).

Objectives, Scope, and Methodology

The objectives of this review were to (1) assess the extent of competition the Postal Service faces in the marketplace and its record of response to competition; (2) examine the constraints and obstacles that may be hindering Postal Service efforts to compete in the marketplace; and (3) identify and evaluate alternatives, if any, that could improve the Postal Service's ability to respond to competition and protect its role in providing universally accessible mail service. After we completed our preliminary work, our review focused to a great extent on the pricing of postal services—one area where the Postal Service's ability to respond to competitive challenges is controlled by the statutory ratemaking process.

To assess the extent of competition and the Postal Service's response to competition, we reviewed articles published in trade periodicals, papers presented on private delivery services, and studies done for and by the Postal Service on electronic alternatives to the mail. In addition, we interviewed Postal Service headquarters officials in the Planning; Rates and Classification; Philatelic & Retail Services; and Technology Resource Departments. We also interviewed officials at PRC and several trade associations including the Alliance of Nonprofit Mailers, the Association of Alternative Postal Systems, the Direct Marketing Association (DMA), the Electronic Mail Association, the Mailers Council, and the Advertising Mail Marketing Association.

To examine the obstacles and constraints that might hinder the Postal Service's efforts to compete and to determine what alternatives or changes could be made to improve the Postal Service's ability to compete, we talked to various Postal Service and PRC officials to obtain their views on these issues and discussed with them the economic, legal, and policy issues in ratemaking. We also reviewed numerous articles and studies on postal competition, including reports by the American Enterprise Institute for Public Policy Research, the Aspen Institute, the National Academy of Public Administration, and the Institute of Public Administration (IPA). In addition, we reviewed (1) the legislative history of the Postal Reorganization Act, including the June 1968 Kappel Commission study on postal organization; (2) PRC's rate decisions from 1971 to 1990, the policies guiding those decisions, and relevant court decisions ensuing from the rate cases; (3) Postal Service mail volume forecasting models and operating information; and (4) several technical papers on postal pricing policies. We also examined the potential impact of volume losses from competition on the Postal Service's workforce planning requirements by using the Postal Service's model for evaluating technology alternatives (META).

We did our work between May 1990 and September 1991 in accordance with generally accepted government auditing standards. We obtained official comments on this report from the Postal Service and PRC and have included and evaluated them in appendixes IV and V.

The Postal Service Has Lost Major Market Share in Parcel Post and Express Mail

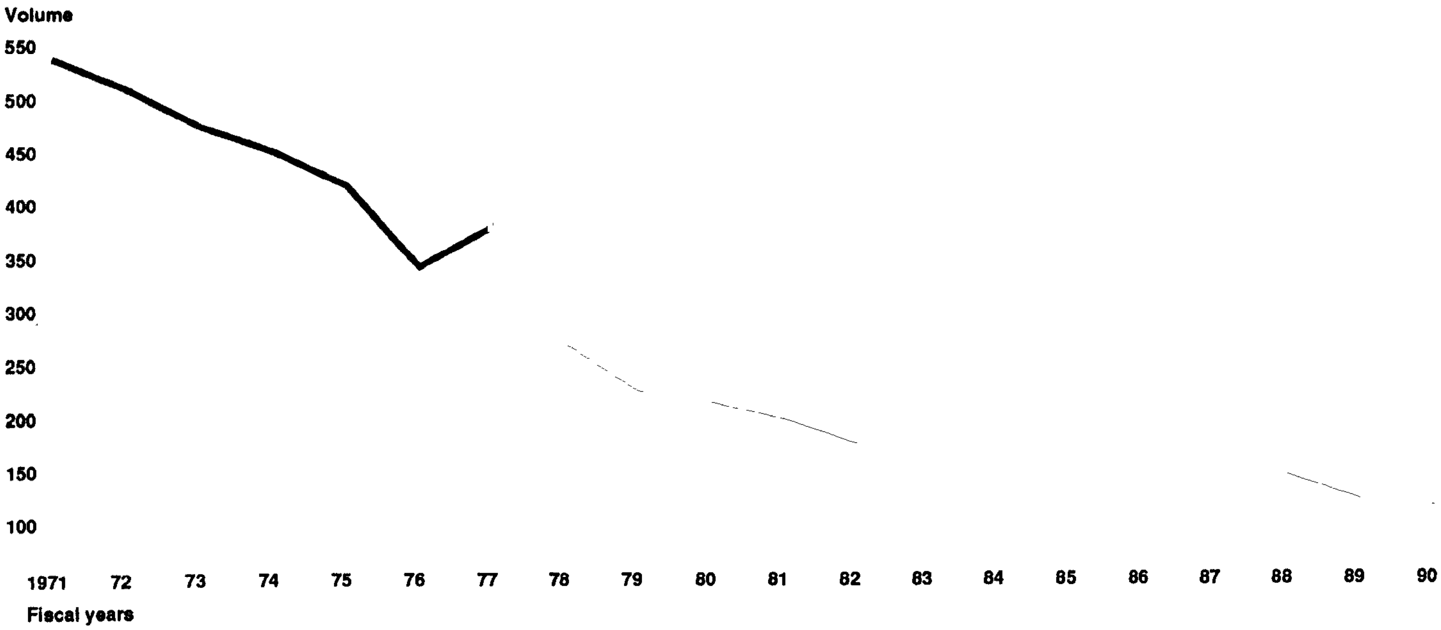
The Postal Service has proved to be an ineffective competitor in the parcel post and expedited mail markets when faced with challenges from private carriers. In both markets, private carriers now dominate the more profitable business-to-business and business-to-household segments, which generate most of the volume. Private carriers also dominate the less profitable household-generated market segment, although the Postal Service has a greater share of this segment than it has of the business-generated segment.

The reasons the Postal Service has not been an effective competitor in these more profitable markets include price, level and quality of service, and regulatory constraints. Although the Postal Service has taken steps to improve its service offerings in these markets, it is unlikely that the Postal Service will be able to gain ground on its competitors unless it can offer competitive prices to volume customers. For example, recent attempts by the Postal Service to offer volume discounts for its Express Mail service—a pricing practice used by its competitors to obtain the business market segment—have been rejected by PRC as a pricing strategy that would discriminate among users of this service. The following sections describe the competitive challenge the Postal Service has faced in the parcel post and expedited mail markets and its response this competition.

Parcel Post

The Postal Service's fourth-class parcel post market consists of shipments of parcels and packages weighing between 1 and 70 pounds. Postal Service officials estimate that the domestic parcel post market, which they characterize as a declining market, is worth more than $10 billion. Historically, the Postal Service was the major ground surface carrier for small parcels and packages. As private firms entered the market, the Postal Service's role gradually eroded; postal reorganization did not stop the decline. When the Postal Service became independent, its parcel post volume of 536 million pieces still represented about 65 percent of the ground surface delivery market. By 1990, Postal Service parcel post volume dropped to 122 million pieces, giving it about 6 percent of the market (see fig. 2.1).

Figure 2.1: Parcel Post Volume, 1971-90 (Pieces in Millions)



Source: U.S. Postal Service's Revenue, Pieces, and Weight System quarterly reports.

In general, 5 percent of the volume and revenues in this market involves ground shipments originating from households. Postal Service officials estimated that the Postal Service has 85 percent of this relatively high-cost delivery segment, which is not sought after by its competitors. Business-to-household deliveries account for 15 percent of the ground surface parcel business, and Postal Service officials estimated that the Postal Service has a 35-percent share of this segment. The business-to-business ground surface delivery segment accounts for 80 percent of the market; the Postal Service has no appreciable share of this most profitable segment. United Parcel Service (UPS) is the dominant ground surface deliverer of business-to-business parcels but is facing increased competition from Roadway Package Systems, whose services also target business shippers.

There are two major factors that help explain why the Postal Service has lost most of the business-to-business and business-to-household market segments. First, over the years, UPS has developed a reputation for faster and more reliable delivery with less parcel damage than the Postal Service.

Second, UPS parcel post rates generally have been lower than the Postal Service's, so most large shippers have taken their business to UPS.

The Postal Service's largest volume losses in parcel post occurred in the years following major rate hikes, indicating the price sensitivity of this market. In ratemaking proceedings leading to the rate increases, UPS and other private carriers have consistently challenged the Postal Service's methods for assigning direct and indirect costs to the various mail classes and questioned the Postal Service's proposal to use demand factors to allocate overhead costs. UPS has argued that Postal Service costing methods understated parcel post costs, suggesting that PRC needed to raise parcel post rates higher than the Postal Service proposed in order to recover the costs of providing this service. Business shippers, however, have argued that too many general postal expenses are included in the cost structure for parcel post. According to Postal Service officials, UPS has been fairly successful in getting PRC to recommend rates higher than those sought by the Postal Service, whose rates UPS treats as a ceiling for setting its own rates. (See ch. 4 and app. I for a discussion of the controversies over postal costing and pricing methods.)

Despite the Postal Service's history of steady losses in parcel post volume, Postal Service management believes that several recent events could help the Postal Service to regain a larger share of the business-to-household market segment. First, in the 1990 rate case, R90-1, PRC approved the Postal Service proposal to offer "destination bulk mail center discounts," which encourage business mailers to enter parcels at the bulk mail center closest to the delivery area.[1] Second, following the Postal Service's 18-percent parcel post rate increase in 1991, UPS raised its published parcel rates 15 to 20 percent for business-to-household deliveries and added a 30-cent surcharge for residential deliveries. Postal Service officials said that UPS' rate increase made Postal Service rates more competitive in this market segment. According to Postal Service officials, a major shipper of 10 million parcels annually to residences has stopped using UPS exclusively and is now using the Postal Service for a portion of its deliveries. Postal Service officials now estimate that the Postal Service could potentially pick up 35 million parcels annually from its competitors, resulting in about a 27-percent increase in Postal Service parcel volume.

According to industry officials, UPS is concentrating its efforts on meeting the competitive challenges from Roadway Package Systems for the

[1]Bulk mail centers are separate postal facilities that the Postal Service built in the 1970s for processing bulk mail.

business-to-business market segment. To stay competitive, UPS held its 1991 rate increase to 2 percent for the business-to-business segment—a rate that was significantly lower than its 1991 increase for the business-to-household segment. Unlike UPS, the Postal Service does not offer business-to-business customers lower rates than other customers because such a discount would be considered undue discrimination among users of the same service, which is prohibited in section 403(c) of the Postal Reorganization Act.

According to Postal Service data, Roadway's published rates match those of UPS; in addition, Roadway offers its business customers volume discounts, which UPS has not done to date. While Postal Service officials felt positive about making progress in the smaller business-to-household market, they recognized that the Postal Service would have relatively little chance of obtaining many customers in the business-to-business market. Consequently, the officials do not anticipate the Postal Service being a major player in this high-volume and profitable delivery business. Without obtaining a greater volume of business-to-business delivery, however, the Postal Service cannot reduce the average cost of parcel post delivery. Therefore, it cannot reduce the rates for its parcel post services—used primarily by residential customers who are not readily served by private competitors.

Express Mail

The Postal Service's Express Mail was the first entrant in the overnight market. However, the Postal Service has faced continuous challenges from private carriers for this business when they started entering the market several years after the Postal Service introduced the service in 1971. The Postal Service lost its leadership role in this market in 1979 when it adopted, in response to pressure from Congress, a new postal regulation (39 C.F.R. 320.6) that suspended enforcement of the general provision of the Private Express Statutes with respect to the private carriage of "extremely urgent letters."[2] The Senate Governmental Affairs Committee held hearings on this issue in 1979, and the Postal Service agreed to write the new postal regulation in lieu of legislation that would have modified the provisions of 39 U.S.C. 601 to allow private carriage of urgent letters.

Although the overnight market has been growing at a rate of approximately 20 percent annually, the Postal Service's share of the market has declined from 100 percent in 1971 to 12 percent in 1990. The

[2]This regulation defines extremely urgent mail as mail for which the public is willing to pay at least 3 dollars or double the applicable U.S. postage, whichever is greater.

acknowledged leader in this market is Federal Express, which handles about half of the market volume. Other companies competing include UPS, Airborne, and Emery/Purolator. In 1990, the Postal Service handled about 57 million pieces of Express Mail. This volume accounted for about $608 million of the $6 billion plus overnight market.

After the Postal Service suspended its extremely urgent letter regulation, the dramatic decline in the Postal Service's overnight market share began; this decline can be traced to service and pricing problems. Companies competing in this market must be responsive to customers' high expectations for quality service and reasonable prices. With regard to service, the Postal Service did not initially provide the enhanced services its competitors offered, such as free pick-up and rapid shipment tracing—i.e., the ability to determine where a package is at a given point in time. Furthermore, it did not match the reliability and speed of service offered by its competitors, mainly because, unlike its competitors, the Postal Service lacked a dedicated air transportation system. This situation became a major problem for the Postal Service during the deregulation of the airline industry when overnight flights were cut back and air transportation schedules constantly fluctuated. Eventually, in 1987, the Postal Service established a fleet of dedicated aircraft, the Eagle Network, to handle some of the Express Mail volume.[3]

Although the Postal Service's published overnight rates are competitive, its competitors offer significant, unpublished price discounts to businesses that generate the majority of the urgent mail volume. For example, the United States Government uses Federal Express because of the volume discounts it receives. For an urgent letter weighing 8 ounces or less, the government pays $3.75 per piece for overnight service. The Postal Service's Express Mail service would charge the government $9.95 (post office-to-addressee), the same rate it charges all customers. Federal Express' published rates for low-volume users are substantially higher than the rate it charges high-volume users. For a letter weighing up to 8 ounces, Federal Express charges the general public $15.50 for a guaranteed 10:30 am next morning delivery or $11.50 for a guaranteed 3:00 pm next afternoon delivery.

In the last two rate cases, Dockets R87-1 and R90-1, the Postal Service requested approval to offer volume discounts to its urgent mail customers. In both cases, Postal Service witnesses argued that the Postal Service was

[3]For further information on the Express Mail transportation system, see Postal Service: Contractor Performance—Express and Priority Mail Transportation (GAO/GGD-91-13, Dec. 1990).

at a competitive disadvantage in marketing its Express Mail service to high-volume business users (a market in which it currently has no appreciable market share) by not offering volume discounts and that its proposed discounts would be more equitable than the competitors' because the discounts would be published and available to all users. Witnesses for the competitors (Federal Express and UPS) countered that the Postal Service provided no cost justification for volume discounts and that such discounts would violate the Postal Reorganization Act that prohibits rate discrimination among users of this service. PRC agreed with the witnesses for the competitors and rejected the Postal Service's proposed volume discounts. PRC said in its decision on Docket R87-1 that a "discount based solely on volume without any premise of cost savings to the Postal Service is a novel proposition." It further said that

> "Before we could approve a volume discount such as proposed, the Postal Service would have to show how the rates comply with the prohibition, found in section 403(c) [Postal Reorganization Act of 1970] of undue or unreasonable discrimination among mailers and undue or unreasonable preference to a mailer. A discount for Express Mail entered in volume might be appropriate if the Postal Service could present evidence of cost differences—such as possible lower costs in accepting a mailing of multiple Express Mail pieces."

In the R90-1 proposal, the Postal Service witness did not provide any data to support cost savings that would be realized by obtaining mail volume from large customers. PRC rejected the volume discount proposal by stating that the Postal Service had not met the conditions set out in R87-1 and thus did not comply with the statutory requirement that the Postal Service must treat all its customers fairly.

Although unsuccessful in getting approval from PRC to offer volume discounts, the Postal Service, since 1986, has taken several steps to improve its service offerings. In addition to providing dedicated air transportation, it has aggressively advertised this service and now offers on-demand pickup (with a $4.50 charge). In 1990, the Postal Service contracted for the development of a rapid shipment tracking system that is scheduled for full implementation in early 1992.

Conclusions

On the basis of its experiences in the parcel post and Express Mail markets, the Postal Service is at a competitive disadvantage if it does not offer quality service at competitive prices. When private companies enter the market, they usually face fewer constraints, enabling them to be more aggressive players in the market. They are able to offer new services and price them without the constraint of regulation. Without the mandate of providing universal service and uniform pricing, these companies can choose the markets in which they prefer to compete. As a result, they can choose the most profitable segments and leave the least desirable portions of the market to the Postal Service.

Even if the steps the Postal Service has taken to improve the quality and types of services offered in the package and overnight market are successful, the Postal Service will still be at a disadvantage if it cannot price its services to be competitive with those of firms operating in the market. The inability to offer volume discounts prevents the Postal Service from competing head-to-head with Federal Express and UPS in the business-to-business market.

Because these two markets contribute little to Postal Service volume and revenues, there is a question as to whether the Postal Service should try to compete vigorously for it. However, the Postal Service's survival in the marketplace is not threatened by whether it regains its market share in parcel post and Express Mail. Rather, its future depends on how well it does in its core business—First- and third-class mail. As we discuss in chapter 3, the Postal Service is now facing competitive challenges in the markets that have enabled it to survive despite the losses in its other markets. The competition the Postal Service faces is not unlike the competition it has faced in parcel post and Express Mail.

Matter for Congressional Consideration

If Congress wishes the Postal Service to compete effectively for business customers in parcel post and Express Mail, Congress should consider reexamining the provisions of section 403(c) of the Postal Reorganization Act. Congress should determine if volume discounting by the Postal Service, in which all customers would be given the same volume discounts, would in fact result in undue or unreasonable discrimination among mailers and undue or unreasonable preference to a mailer, given that this practice is a widely used pricing strategy by private carriers.

Agency Comments

The Postal Service agreed with our observations on what has happened to the parcel post and Express Mail businesses and the need for Congress to determine whether volume discounts proposed by the Postal Service would result, as PRC has ruled, in undue or unreasonable discrimination among mailers. PRC did not comment on the volume discount issue discussed in this chapter.

The Postal Service Faces Competitive Challenges in Its Other Markets

First-Class Mail accounts for more than half of the Postal Service's volume and revenue. The other types of mail—especially third-class mail and, to a lesser extent, second-class mail—help provide the volume necessary to sustain the universal First-Class Mail delivery network and keep the unit cost of postage down. Any significant loss of second- and third-class mail volumes due to competition would jeopardize the Postal Service's ability to cover the full cost of maintaining approximately 40,000 post offices, 190,000 delivery routes, and the national transportation network system. The revenues generated by these secondary mail classes are important to the Postal Service because they help recover the institutional costs of the system—i.e., the costs that are incurred to make postal delivery available to the public.

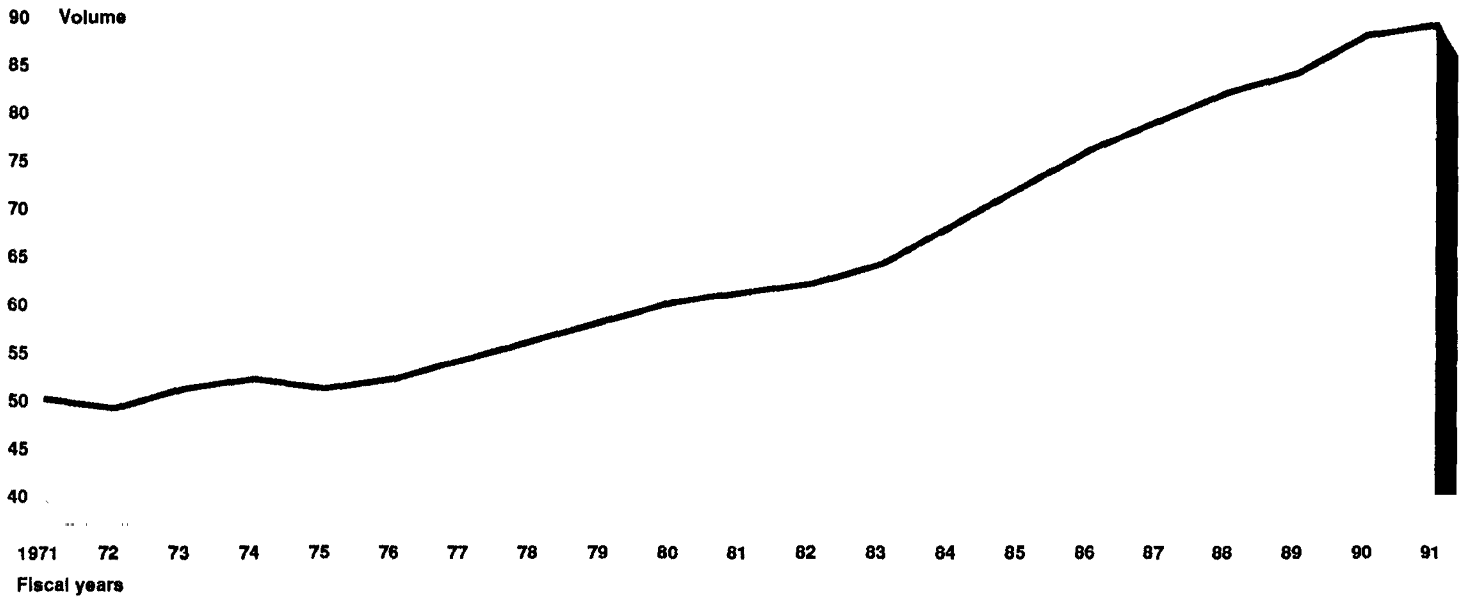
Although the Postal Service essentially has a legal and regulatory advantage on the letter segment of First- and third-class mail through the Private Express Statutes, it has no assurance that these classes will continue to grow at rates sufficient to cover the growing costs of its universal mail system and the losses incurred by the decline in parcel post volume. In actuality, the future of First- and third-class mail, as well as the smaller second-class market, may be in jeopardy because of emerging threats of direct and indirect competition. If increases in postage rates continue to exceed the rate of inflation, alternatives to the Postal Service may become more attractive to mailers, which could have a major negative impact on the demand for postal services. If First- and third-class mail volumes decline because of competition, Congress may have to consider either using taxpayers' funds to cover revenue shortfalls or cutting back the Postal Service's universal mail service.

This chapter (1) examines the growth of the First-, second-, and third-class mail markets, (2) discusses the actual and potential effects of direct and indirect competition on growth in these markets, and (3) assesses the potential impact on the Postal Service's infrastructure if mail volume declines.

Growth of First-, Second-, and Third-Class Mail

First-Class Mail is the largest volume mail class and generates the largest segment of Postal Service revenues. In 1991, it accounted for 54.4 percent of the mail piece volume and 63.6 percent of Postal Service revenues. Because of historical experience and First-Class Mail protection from unrestricted competition by the Private Express Statutes, postal ratemaking experts believe that this service has a relatively inelastic demand—i.e., the demand for the service is not greatly affected by changes in postage rates. Mail volume in this class has grown from approximately 50 billion pieces in 1971 to 89 billion pieces in 1991—a 78-percent increase (see fig. 3.1). In addition to the continued growth in the number of households, most of this increase was due to the continued growth in the financial sector (banks, insurance companies, and credit card companies). According to the Postal Service, this sector has grown faster than the economy as a whole and is the largest sender of First-Class Mail to households, accounting for about 40 percent of business-to-household mail.[1]

Figure 3.1: First-Class Mail Volume, 1971-91 (Pieces in Billions)



Note: Volumes for fiscal years 1989 and 1990 exclude government penalty and franked mail in order to make the data comparable with that of earlier years. Before 1989, the Postal Service reported this mail separately rather than in the appropriate classes of mail.

Source: Annual reports of the Postmaster General, fiscal years 1971-91.

The Postal Service also attributes First-Class Mail volume growth to socioeconomic changes, particularly the increase in the number of affluent

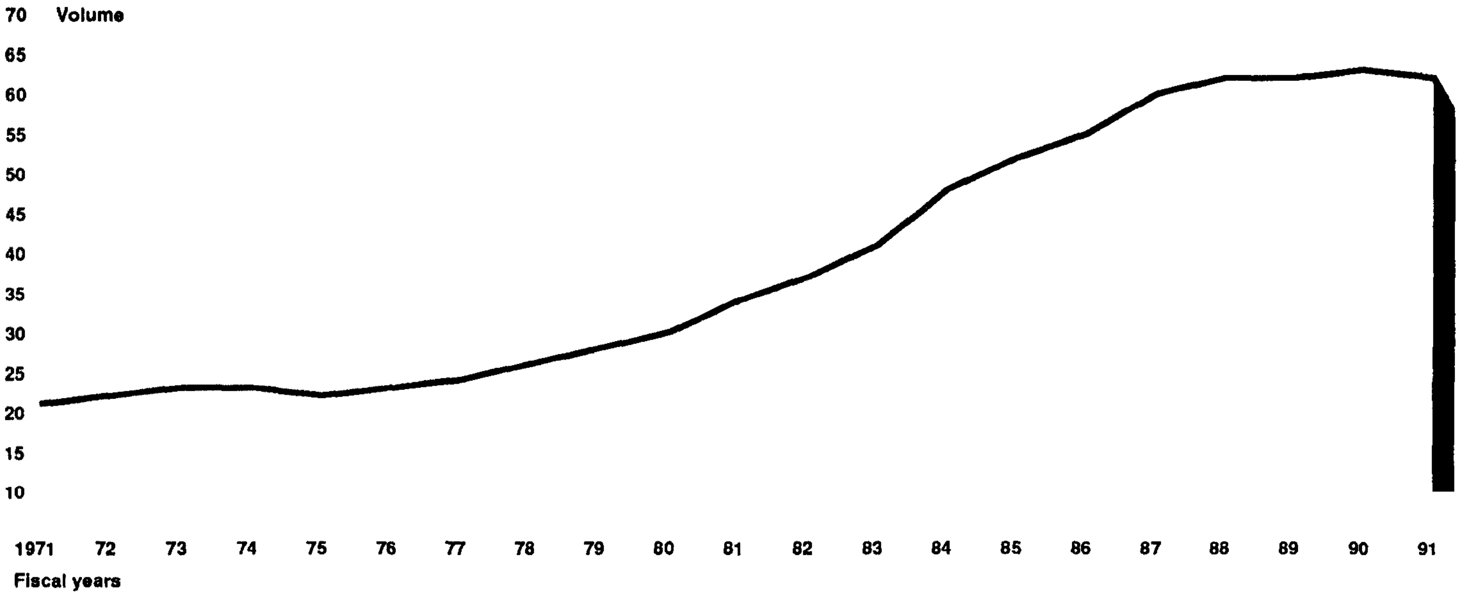
[1]According to the Postal Service's Household Diary Study, Fiscal Year 1988, from 1978 through 1988, the financial sector grew at an average annual rate of 3.4 percent; this rate exceeded the average annual gross national product growth of 2.6 percent over the same period. First-Class Mail volume during this period grew at an average annual rate of 4.0 percent.

American households since 1970. Households with higher incomes receive a greater amount of personal mail, bills, and advertising mail than households with lower incomes. In 1988, for example, households earning $65,000 or more annually received about three times as many First-Class Mail pieces per week than households with an annual income of less than $7,000 (12.9 pieces per week compared to 4.4 pieces).

Second-class mail is a relatively small volume mail class that has experienced slow growth in recent years, increasing from 9.5 billion pieces in 1984 to 10.4 billion pieces in 1991. It accounts for 4.0 percent of total Postal Service revenues. Because the Postal Reorganization Act extends preferential rate treatment to mail that provides educational, scientific, cultural, and informational value to the recipient, PRC historically has assigned second-class mail a cost coverage significantly below the systemwide average cost markup. Although the Postal Service's second-class mailstream is not protected by the Private Express Statutes and is facing increased competition from private delivery companies, postal experts believe that this class has had a relatively low elasticity of demand because national publishers generally have had few alternatives to the Postal Service for the delivery of their materials.

In 1991, third-class mail accounted for 37.6 percent of Postal Service mail volume and 21.4 percent of revenues. This market is used primarily by businesses for advertising and grew at twice the rate of First-Class Mail. Third-class mail volume has increased from 20.5 billion pieces in 1971 to 62.4 billion pieces in 1991, an increase of approximately 204 percent (see fig. 3.2). The large increase in third-class volume was due mainly to the rapid growth in the retail and wholesale trade and service industries and to the Postal Service's efforts to make third-class rates more attractive to businesses through worksharing discounts. Worksharing occurs when mailers perform mail preparation functions, such as presorting their bulk business mail according to destination, which saves Postal Service processing costs. However, third-class volume growth slowed during fiscal years 1989 through 1991—actually decreasing by about 1 percent in 1989, with a slight recovery of 1.5 percent in 1990, followed by another 2-percent decrease in 1991. Postal Service officials attributed drop-off in volume growth in part to the 25-percent rate increase of 1988 as well as to the slow-down in the economy.

Figure 3.2: Third-Class Mail Volume, 1971-91 (Pieces in Billions)



Source: Annual reports of the Postmaster General, fiscal years 1971-91.

The econometric demand model used by the Postal Service shows that the third-class market is more price-sensitive than the First-Class Mail market (see app. II) and thus Postal Service officials are concerned that the Postal Service will experience further volume losses because of another 25-percent rate increase recommended by PRC in the 1990 rate decision. Since the second quarter of fiscal year 1991, the quarter when the new rates went into effect, third-class volume has dropped by 6.5 percent, which is the largest volume decline for third-class mail since the first quarter of fiscal year 1975. However, a portion of that decline could be a result of the downturn in the economy that has also affected other forms of advertising, such as that in newspapers and other media.

Direct Competition

The Private Express Statutes and implementing regulations give the Postal Service a monopoly on the delivery of First-Class Mail and third-class addressed advertising letters. The statutes and regulations allow private carriers to deliver matter that qualifies for second-class mail treatment (newspapers and magazines) and certain types of matter that could be sent by third-class mail. These include (1) catalogs consisting of 24 or more bound pages with at least 22 printed pages, (2) unaddressed advertisements or catalogs accompanying or "riding along" with privately delivered periodicals or parcels, and (3) unaddressed saturation delivery of advertising circulars. Private carriers are prohibited from delivering these materials to mailboxes and post office boxes; instead, they must leave their deliveries on doorknobs, driveways, porches, or separate delivery tubes.

In the second-class market, mail is relatively less important for delivery of newspapers than for magazines. The Postal Service's latest published study on the mailstream found that in 1988, households received about four times as many newspapers per week by private delivery than through the mail. In contrast, households received about three times as many magazines by mail than by nonpostal delivery.

Private delivery of magazines has been tried for years with limited success because the higher delivery costs prevented private carriers from competing with the Postal Service. However, in reaction to the large increases in second-class postage rates (40 percent since 1988), Time Warner, Inc., one of the nation's largest U.S. mailers, started a private delivery service, Publishers Express, Inc., in the Atlanta area in June 1989. Publishers Express has since expanded into four other major markets—Miami; Salt Lake City; Charleston, South Carolina; and St. Louis. It planned to be in at least 10 additional markets by the end of 1991 and in the top 75 U.S. cities by 1995. If their expansion plans materialize, Publishers Express will provide a delivery service to approximately 25 percent of U.S. households. This service delivers magazines published or printed by Time Warner, Inc., R.R. Donnelly & Sons, Quad Graphics, Meredith, Murdoch Magazines, New York Times Publishing Co., and Times Mirror. Some popular magazines being delivered include Good Housekeeping, Better Homes & Gardens, Fortune, TV Guide, McCall's, Redbook, and U.S. News & World Report as well as catalogs from such stores as Sears and J.C. Penney.

Publishers Express is one of two companies that are positioning themselves to operate on a national basis. The second is Alternative Postal Delivery, Inc., (formerly United Delivery Systems, Inc.,), which operates in 31 cities, covering 4.5 million households. It plans to reach 46 markets in 1993, covering 12 million households. Both companies are establishing affiliate relationships with major newspaper companies in their expansion markets. Many local private carriers scattered throughout the country could also join the two larger private carrier programs being launched nationwide.

In the third-class market, postage rates (which have increased by 50 percent since 1988) have not been sufficiently competitive to prevent about 25 direct marketing advertising mailers and catalogers from using or testing these private delivery companies through "ride-along" or "piggybacking" delivery of material, i.e., combining second- and third-class pieces. The magazine publishers and direct marketers, valuable customers who account for a large portion of postal volume, believe it might be possible to compete successfully with the Postal Service by joining forces. Postal Service officials are concerned that these companies are moving into the denser and easier-to-deliver markets, leaving the Postal Service with the more difficult and costly routes, as has been the case with parcel post and Express Mail.

DMA, a trade organization representing the interests of commercial advertisers, actively supports and promotes alternative delivery to ensure that there is a viable alternative to the Postal Service that will result in more competitive prices and improved services for mailers. DMA reports that private carriers are currently delivering about 40 different magazine titles and catalogs on a regular basis. Because of the competitive situation among Publishers Express, Alternative Postal Delivery, and the Postal Service, actual data on the volume of second- and third-class pieces being delivered by the two firms are not publicly available. We estimate that the current volumes being delivered by the private carriers are substantially lower compared to the Postal Service's combined second- and third-class volumes of 74 billion pieces delivered in 1990. However, if the expansion plans of the two major carriers materialize, the additional volume that could be diverted from the mailstream by 1995 could be significant.

According to a 1988 study conducted for Time Warner, Inc. by the consulting firm McKinsey & Company, approximately 26 billion pieces or 35 percent of combined second- and third-class mail delivered by the Postal Service yearly could be delivered by private carriers. A DMA official said this mail includes 4.4 billion magazines, 9.1 billion catalogs, 10.1 billion saturation mailings, and 2.6 billion small parcels and newsletters. The Postal Service has not done its own study, but some Postal Service officials believed that the amount of second- and third-class mail that could be diverted could be in excess of 30 billion pieces. This estimate represents about 41 percent of all second- and third-class mail volumes and about $3.9 billion, or 10 percent, of Postal Service revenues.

Indirect Competition

The Postal Service also faces indirect competition from electronic alternatives that can be substituted for printed communication sent via mail. One area in which mail has been most affected by electronic alternatives is personal correspondence between households, which has been largely replaced by the phone call. Postal Service officials reported that less than 5 percent of the domestic mailstream (down from 14 percent 20 years ago) involves personal correspondence between individuals.

According to Postal Service studies, the most immediate prospect for electronic diversion of mail involves business-to-business First-Class letters and Express Mail in which electronic technologies are gaining wider acceptance. Business-to-business mail accounts for 30 percent of domestic mail volume and includes general correspondence, orders, invoices, and related documents. There are several major sources of competition for business-to-business mail. They include (1) electronic mail or E-Mail, (2) fax machines, and (3) credit and debit transactions by electronic funds transfers (EFT) and electronic data interchange (EDI). These alternatives to mail provide speed, reasonable cost, and a stored and retrievable record of the transmission.

The business-to-household and household-to-business mail segments, which together account for 65 percent of domestic mail volume, are also a prospect for electronic diversion. Examples of electronic alternatives to mail include the following:

- increased telemarketing for direct promotions by phone and videotex, i.e., transmitting information from a computer network over telephone or cable television lines for display on a subscriber's computer terminal or television screen;
- preauthorized payment from bank accounts for insurance premiums, mortgages, installment loans, and utility bills;
- credit card payments by automated teller machine (ATM), phone, and personal computer;
- electronic filing of tax forms;
- electronic faxing of form letters to households with fax machines or home computers with built-in fax capabilities; and
- orders by phone for those businesses with 800 numbers.

The use of electronic media to transmit messages has grown rapidly; this growth appears likely to continue given the trends toward standardization of equipment and software along with dramatic reductions in cost. Computer-based E-Mail message systems currently have the largest share of the electronic mail market. Fax machines are also gaining in popularity as a means of rapid communication that could affect First-Class and Express Mail. One industry source estimated that these electronic technologies will transmit about 7 billion messages in 1991. E-Mail and fax messages, however, are not necessarily a direct substitute for letter mail. For example, a Postal Service official estimated that in 1985, 1 out of every 10 E-Mail messages resulted in 1 First-Class letter being diverted from the mailstream. He estimated that this ratio will rise to 2-in-10 by 1992. For fax machines, he estimated that a 1-in-10 1985 ratio will increase to 3-in-10 by 1992.

Electronic credit and debit payment is another area that could affect the domestic mailstream, since a large portion of First-Class Mail involves bills, payments, and related documents. The direct deposit of payroll is one of the most popular uses of EFT credit payments by business and government. Three out of four federal employees and over half of all social security benefit recipients are paid by direct deposit, an option heavily urged on recipients by the government because it is considerably less costly than distributing checks by mail. Potential for growth in this market exists since only 10 percent of the total workforce in the United States receives its pay by direct deposit.

Another electronic credit program is EDI, which involves business trade payments and other transactions, such as bills, orders, and invoices. EDI is relatively new but is expected to grow rapidly. Postal Service sources on automated clearinghouse transactions reported that there were about 50 million EDI transactions in 1988; they expect this figure to grow to 400 million transactions by 1992. A popular and growing electronic debit payment program is the preauthorized debit that allows the bank customer to have regular payments to businesses, such as insurance premiums and mortgage payments, deducted from his or her checking account. Home bill payments by telephone and personal computers also have potential for diverting checks sent by mail. Electronic payment is potentially a large market since households write about 50 percent of all checks, most of which are for regular payments to businesses.

Another prospect for electronic diversion of third-class mail is direct marketing advertising. A major advantage of the mail system for marketing has been its ability to reach specific target groups. This ability is now available in several electronic media, including cable television, home shopping, and telemarketing. Cable television offers specialized channels for sports, music, and other specialized entertainment, which enables businesses to target advertising messages to specific groups. Home shopping networks and telemarketing also offer direct marketers the ability to reach specific groups. Furthermore, orders obtained by these advertising media are often made by phone using 800 numbers; these transactions, too, bypass the mail system.

According to a 1990 Postal Service briefing paper on prospects for electronic diversion of mail, about half of the Postal Service's mail volume and 40 percent of its revenues are now vulnerable to electronic alternatives. A recent Postal Service-commissioned study, performed by the postal contractor, Arthur D. Little, Inc., on electronic alternatives reported that there exists a "real threat" for mail diversion from electronic technologies.[2] In the Arthur D. Little study, 25 major types of transactions originating in both households and businesses were reviewed. These transactions represented about 92 billion pieces of mail with estimated revenues of $18.8 billion and included credit card billings and payments, direct mail advertising and mail orders, utility bills, bank statements, and tax form submissions. For each transaction, the likelihood that rapid electronic substitution would begin by the mid-1990s was assessed.

Potential Impact of Mail-Volume Losses on the National Mail System

As stated earlier, second- and third-class mail help provide the volume necessary to sustain the universal First-Class Mail service and keep the unit cost of delivery down. Any significant loss of mail volume in these two mail classes, whose combined revenues recover about $3 billion (18 percent) of the Postal Service's $16.5 billion in overhead costs, would affect the cost of postage for First-Class Mail. For example, if the Postal Service experienced a 50-percent volume loss of magazines and unaddressed advertising to alternative delivery, other mail categories—especially First-Class Mail—would have to absorb an additional $1.5 billion in overhead costs. If this amount were applied solely to First-Class Mail, the price of a First-Class Mail stamp would have to be raised from 29 cents to 31 cents for the Postal Service to break even.

[2] Arthur D. Little, Inc., "Electronic Alternatives to Traditional Mail," Task Order 89-11, U.S. Postal Service, Technology Resource Department, Washington, D.C., 1989.

In addition to the effect on the cost of postage, direct and indirect competition could also affect the Postal Service's workforce planning requirements, especially in its mail processing operations. To illustrate, we asked the Postal Service to analyze three volume diversion scenarios using META.[3]

The diversion scenarios we used were based on the Arthur D. Little analysis of the competitive threats electronic technologies pose to the Postal Service mailstream and the competitive threats private carriers could have on diverting magazine and catalog deliveries from the Postal Service. There were 26 major mail transactions initially selected for the scenario analysis (25 were taken from the Arthur D. Little study and one—business payment—was added based on discussions with officials from the Postal Service's Rates and Classification Department). These transactions (see table 3.1) were classified under one of three threat scenarios as defined by the Arthur D. Little study. High threats are defined as more than a 20-percent chance that electronic substitution and/or alternative delivery will pose a serious threat for volume and revenue losses beginning in the mid-1990s. Medium threats are defined as between a 5- and 20-percent chance that diversion will occur in the mid-1990s. Low threats are defined as less than a 5-percent chance for diversion by the mid-1990s. According to this study, most of the transactions analyzed face a medium to high threat level (about 72 billion pieces that generate $15.8 billion in revenues).

[3]META simulates the internal processing and sorting of mail; data on street activities, such as mail pickup and delivery are not factored in the model nor are transportation requirements. The majority of the labor cost components in META are based on mail clerks who operate processing equipment. No management or overhead data are included in the model. The Postal Service used the META model to test various volume, workhour, and equipment scenarios. For example the Postal Service used META to develop and implement its corporate automation plan for a fully automated mail processing operation. A primary input to META is the "40-line forecast" developed by the Postal Service's Demand Research Division. The 40-line forecast identified 40 different mail type piece volumes for the planning period 1990-95. Examples of mail types include First-Class letters; 5-digit presort; Express Mail; and third-class, nonpresort.

Table 3.1: Major Mail Transactions Subject to Electronic Diversion and/or Alternative Delivery

High threat transactions	Medium threat transactions	Low threat transactions
Health insurance claim	Product coupons	Legal letter
Promotional business letter	Credit card bill	Greeting card
Credit card payment	Management report	Telephone bill
Magazine	Newsletter (business- to-business)	Retail preprint
Mail order	Bank statement	
	Income tax form submission	
	Utility bill	
	Invoice (business-to- business)	
	Business payment	
	Direct mail letter	
	Insurance policy issuance	
	International letter	
	Business document	
	Correspondence (business-to-business)	
	Catalog	
	Business manual	
	Form letter	

In developing our diversion threat scenarios for the years 1992 through 1995, we excluded the four low threat transactions from the analysis. The three scenarios we developed for the META analysis are as follows:

- Low diversion scenario. High threat transaction volume decreased by 5 percent each year from the May 1991 base volume. Medium threat transaction volume decreased by 2.5 percent each year from the base volume.
- Medium diversion scenario. High threat transaction volume decreased by 5 percent each year from the May 1991 base volume. Medium threat transaction volume decreased by 5 percent each year from the base volume.
- High diversion scenario. High threat transaction volume decreased by 7.5 percent each year from the May 1991 base volume. Medium threat transaction volume decreased by 5 percent each year from the base volume.

Table 3.2 shows results of the META analysis. For each scenario (low, medium, and high), the table shows (1) the total rate of mail diversion from the Postal Service's base forecast from 1992 through 1995, (2) the reduction in workyear requirements from 1992 through 1995, and (3) percent change in workyear requirements from 1992 through 1995. The workyear reductions shown in the table would be in addition to the

84,000-person planned workforce reduction the Postal Service expects to achieve by 1995 as it automates its mail processing operations.

As shown in the table—and as would be expected—as more mail is diverted, the mail processing workforce requirements would decrease. Based on the META analysis, each percentage drop in mail volume from the base forecast would result in nearly a comparable percentage change in workyear requirements. For example, under the high diversion scenario, the estimated diversion rate from the base forecast was 13 percent in 1995, which would reduce workforce requirements by 12 percent. If this diversion threat materialized, the Postal Service would need to eliminate 24,948 mail processing jobs (in addition to the 84,000 currently planned by 1995) but would not necessarily be able to reduce its delivery network, which would be needed for whatever volume the Postal Service handles. We doubt that the Postal Service could achieve such a major reduction in its mail processing workforce without resorting to layoffs, particularly in parts of the country where population growth is slow.

Table 3.2: Diversion of Mail

	1992	1993	1994	1995
Low diversion scenario				
Diversion rates from base forecast	1%	3%	4%	5%
Reduction in workyear requirements	3,904	9,306	7,019	8,618
Percentage change in workyear requirements	1%	4%	3%	4%
Medium diversion scenario				
Diversion rates from base forecast	2%	4%	6%	8%
Reduction in workyear requirements	5,731	11,380	11,358	13,836
Percentage change in workyear requirements	2%	4%	5%	7%
High diversion scenario				
Diversion rates from base forecast	3%	7%	10%	13%
Reduction in workyear requirements	9,635	18,895	21,189	24,948
Percentage change in workyear requirements	4%	7%	10%	12%

Conclusions

The most immediate threat the Postal Service faces comes from private companies delivering second- and third-class mail. Although it is too early to know whether Alternative Postal Delivery, Inc., and Publishers Express, Inc., will be successful in securing direct marketing agencies and magazine publishers as customers, it is clear that the Postal Service will be facing more rigorous competition from these companies over the next several years as they expand their operations into major markets. Because of the recent rate increases, the Postal Service also faces the prospect that the direct marketing agencies will mail less and increase their use of nonmail media, such as cable television and telemarketing.

The longer term threat for the Postal Service involves the growing acceptance of electronic technologies that can completely bypass mail delivery. Trends indicate that electronic communications are on the increase and may eventually substitute for a large portion of the current mailstream. Although it is not possible to accurately predict how technological developments will affect postal business in the immediate and long-term future, the Postal Service will need to continually monitor the situation and examine ways to compete with electronic alternatives in its product lines.

In view of what has happened to the Postal Service's position in the parcel post and Express Mail businesses, there are reasons to be concerned over the Postal Service's ability to compete effectively in its other markets. Although automation and labor cost restraint are necessary components of a strategy for the Postal Service to remain competitive in a changing marketplace, much also depends on the Postal Service's ability to adjust its prices to reflect the relative value of its service to users and the threats of competition in its core business. However, the Postal Service is constrained in its ability to set prices based on demand for its services because PRC determines rates according to guidelines established in the Postal Reorganization Act. Chapter 4 explores the difficulties and controversies associated with setting postal prices.

Agency Comments

The Postal Service agreed with our discussion on the scope and the intensity of the competitive market in which the Postal Service operates. PRC did not offer specific comments on whether it agreed or disagreed with our observations on the increasing competitive environment faced by the Postal Service.

The Postal Service and PRC Disagree Over Postal Costing and Pricing Methods

The Postal Reorganization Act requires PRC to recommend rates that will recover all of the Postal Service's operating costs and other expenses. In the 1990 rate case, Docket R90-1, Postal Service management strongly disagreed with PRC's decision to reallocate additional overhead costs from First-Class Mail to third-class. The reallocation resulted in the Postal Service's request for a 30-cent First-Class Mail stamp being pared to 29 cents, and third-class rates being raised, on average, 8 percent higher than the 17-percent increase the Postal Service requested and 25 percent over the previous rates. Postal Service management is concerned that PRC's recommended rates—which the governors implemented under protest[1] —will not generate the revenue the Postal Service needs from First-Class Mail, nor the volume and revenue it needs from third-class mail, to support operations. Moreover, Postal Service management believes that PRC's decision to raise third-class rates substantially more than requested could adversely affect the future of the Postal Services' competitive third-class business and jeopardize the financial stability of the Postal Service.

Both the Board of Governors and the Postmaster General have called for changes in the ratemaking process that will give the Postal Service more discretion over setting postal rates. The ratemaking controversy between the Postal Service and PRC centers on the interpretation of the rate criteria set forth in the law and the use of demand factors in pricing postal services.

Postal Ratemaking

Postal ratemaking is a lengthy and complicated process, and without exception, has taken the full 10-month period since Congress established this requirement in 1976. This period does not include the time the Postal Service spends preparing a rate case nor the time it takes for an appeal when the Board of Governors and PRC do not agree on the sufficiency of the recommended rates.

The ratemaking process begins when the Postal Service files a formal request with PRC for changes in the rates. As part of its request, the Postal Service provides detailed information and data explaining revenue requirements, mail-volume estimates, costing, pricing, and rate design. As required by the Postal Reorganization Act, PRC is required to hold public

[1]This is the second time the Postal Service has implemented rate changes under protest. In 1980, the governors allowed, under protest, the PRC-recommended 18-cent First-Class Mail (up to one ounce) stamp but later increased the price to 20 cents after PRC would not change its rate decision. On November 4, 1991, three of the nine governors voted against changing the rate structure recommended by the Commission after PRC rejected the Postal Services's appeal for raising the price of a letter to 30 cents. A unanimous vote by the governors would have been needed to overturn the PRC recommendation.

hearings and allow interested parties the opportunity to make their views known on Postal Service-proposed rate changes.[2]

In Docket R90-1, PRC heard the testimony of 130 witnesses in three rounds of hearings taking 45 days. In addition to the Postal Service and the Office of the Consumer Advocate,[3] the witnesses represented an array of interest groups, including commercial mailers, publishers and publishers' associations, Postal Service competitors, and Postal Service unions. As in previous rate cases,[4] the most important and controversial parts of the proceeding centered on the Postal Service data explaining the attribution and assignment of costs to specific services or classes of mail and the design of rates based on those costing data. Generally, in testimony before PRC, representatives of large users of First-Class Mail, such as the American Bankers Association, supported shifting more of the postal costs onto the other mail classes. Conversely, large users of second- and third-class mail, such as Time Warner, Inc., and Advo-Systems, Inc.,—and industry associations—such as DMA—have presented testimony on the need to hold down rate increases in these mail classes.

When the formal hearing process is completed, PRC has to analyze the entire record, including various filings and testimony of the many witnesses. PRC, in evaluating all the information presented (which can run to tens of thousands of pages in total), is required to consider nine criteria Congress established in section 3622(b) of the Postal Reorganization Act in the development of rates. The criteria are

1. the establishment and maintenance of a fair and equitable schedule;

2. the value of the mail service actually provided each class or type of mail service to both the sender and the recipient, including but not limited to the collection, mode of transportation, and priority of delivery;

3. the requirement that each class of mail or type of mail service bear the direct and indirect postal costs attributable to that class or type plus that portion of all other costs of the Postal Service reasonably assignable to such class or type;

[2]For a detailed discussion of the hearing process, see A Case Study of Why Some Postal Rate Commission Decisions Took as Long as They Did (GAO/GGD-81-96, Sept. 1981).

[3]This PRC office is charged with representing the interest of the general public.

[4]Since the Postal Service's reorganization in 1970, there have been eight rate cases.

4. the effect of rate increases upon the general public, business mail users, and enterprises in the private sector of the economy engaged in the delivery of mail matter other than letters;

5. the available alternative means of sending and receiving letters and other mail matter at reasonable costs;

6. the degree of preparation of mail for delivery into the postal system performed by the mailer and its effect upon reducing costs to the Postal Service;

7. simplicity of structure for the entire schedule and simple, identifiable relationships between the rates or fees charged the various classes of mail for postal services;

8. the educational, cultural, scientific, and informational value to the recipient of mail matter; and

9. such other factors as the Commission deems appropriate.

Controversies Exist Over the Interpretation of the Ratemaking Criteria

The rate criteria Congress specified in the Postal Reorganization Act set a number of contradictory objectives for setting postage rates. These contradictory objectives have resulted in conflicts, complicated interpretational disputes, and somewhat of an impasse between PRC and the Postal Service over the allocation of institutional costs. Postal Service officials are concerned that the Postal Service may not be able to respond to a new competitive environment that was unforeseen 20 years ago. PRC stated in the last rate case that

> "It is important to recognize at the outset that the nine criteria are in many ways inconsistent, or at least conflicting, in that one criterion seems to suggest lower rates for a particular type of mail while a second criterion seems to suggest the opposite result. A major part of the Commission's task is to meld these factors and to develop an overall system of rates which balances the various criteria fairly."

Furthermore, it stated that

"The [nine] factors are not presented with a stated order of importance, and with one exception [criterion 3], there is no reason to consider any specific factor as overriding any other specific factor in all instances. The importance of a factor depends on the surrounding circumstances, and each item must be reviewed and evaluated repeatedly as the mosaic of the entire rate schedule is prepared."

Because criterion 3 is stated as a requirement, PRC said that

". . . the recovery of attributable costs has special status among the statutory ratemaking factors, in that we cannot use another factor as grounds for setting a rate below attributable cost. After this test is met, however, costs are not, as a general matter, always more important than the other factors."

In establishing criterion 3, Congress did not specify the methods that are to be used in calculating the attributable costs and distributing institutional costs among the various classes of mail.[5] The Kappel Commission in its June 1968 report on the need for postal reorganization suggested that cost attributions should be based on how costs vary with changes in volume and that the remaining institutional costs should be distributed based on the value-of-service—an approach that looks to demand factors to guide allocation.[6]

Since the late 1970s, PRC and the Postal Service have disagreed over how to distribute institutional costs for the purpose of ratemaking. PRC currently maintains that institutional costs, which amount to about $16 billion or 35 percent of the Postal Service's total costs, should be distributed so that First- and third-class mail bear a near systemwide average markup of these costs as determined by the relationship between a class' attributable costs and the assigned institutional costs. In making this allocation, PRC considered the eight noncost criteria listed in the act, as well as the general theme that all postal rates must be fair and equitable to all mailers, as stated in sections 101(d), 3622(b)(1), and 3623(c)(1). Consistent with the Kappel Commission's recommendation, Postal Service officials supported the view that institutional costs generally should be distributed under the value-of-service or demand pricing method, citing

[5]Under criterion 3, Postal Service costs are classified as two types—attributable and institutional. For each class of mail, attributable costs include every cost that is directly or indirectly caused by that class of mail. Institutional costs are the remaining nonattributable or common costs of providing mail service that cannot be separated.

[6]Toward Postal Excellence: The Report of the President's Commission on Postal Reorganization, President's Commission on Postal Organization (Washington, D.C.: Government Printing Office, June 1968).

criterion 2. On the basis of court cases, PRC has determined that the Postal Service's use of the value-of-service method is inappropriate as a ratemaking mechanism.

Postal Costing and Pricing Methods Contested in Rate Hearings

In the early ratemaking proceedings, the costing and pricing methods the Postal Service proposed were hotly contested during the public hearings. At issue was whether the Postal Service had attributed enough costs directly to various mail classes and whether the Postal Service's use of demand factors to allocate institutional costs was in accordance with the rate criteria set forth in the act.

Before 1977, PRC and the Postal Service had basically agreed on the methods for attributing costs to mail classes and on the distribution of institutional costs. The Postal Service attributed costs that in its judgment varied proportionally with changes in volume on a year-to-year basis (referred to as short-run costs). It allocated the remaining costs based on relative demand for postal services using the inverse elasticity rule (IER), or Ramsey pricing.[7] Under IER, the Postal Service proposed that those mail classes whose volumes were not very sensitive to changes in price (e.g., First-Class Mail) were to be allocated a greater proportion of institutional costs, while those whose volumes were more price-sensitive (e.g., fourth-class) were to be allocated a smaller proportion of such costs. The Postal Service claimed that using IER was the best way to set rates for each class of mail and service. Implementing IER requires an analysis of the demand elasticities for each mail class.

In the first three rate cases after postal reorganization, Dockets R71-1, R74-1, and R76-1, much of the debate during the hearings revolved around the Postal Service's methods for measuring cost variability and allocating institutional costs. Intervenors to the hearings representing First-Class Mail users were concerned that the Postal Service's short-run variable costing approach was too restrictive and failed to attribute some long-run operating and capital costs that were incurred as a consequence of a class or type of service. They argued that the Postal Service had set the attributable cost floor too low and thereby had placed too much cost in the institutional cost category. They believed that the Postal Service had placed an inappropriate share of the overhead burden on First-Class Mail, which data showed had a less elastic demand than other mail classes largely because of the Postal Service's legal monopoly over the delivery of First-Class Mail.

[7]Appendix I discusses the economic theory behind the use of Ramsey pricing.

Postal Costing and Pricing Methods Challenged in Court

A series of court cases, known as the Greeting Card Cases, arose out of these early ratemaking proceedings. These cases produced a conflict between two federal circuit courts, a conflict that was eventually resolved by the Supreme Court. The issues in these cases centered on the methods used by PRC to attribute costs in its ratemaking determinations.

Postal Service methods for attributing and allocating institutional costs in the early rate cases were effectively ended by the 1976 ruling of the D.C. Circuit Court of Appeals with a case brought by the National Association of Greeting Card Publishers (NAGCP).[8] In this case, known as NAGCP I, the greeting card publishers were concerned about steep increases in First-Class Mail rates and took legal action alleging that the use of demand pricing under IER had allocated too much cost to First-Class Mail. In reviewing the case, the court noted that PRC attributed only 52.5 percent of the costs and assigned the remaining unattributed costs (47.5 percent) based on IER. The court held that PRC's "almost exclusive reliance on a cost variability approach to attribution of costs in determining rates" did not comply with statutes governing ratemaking. The court suggested that criterion 3 of the act required a three-tier cost allocation method in which

- direct and indirect attributable costs should be assigned to each class of mail,
- a portion of all other costs should be assigned on a reasonable basis of "cost causality" to each class, and
- any remaining costs not "reasonably assignable" to any single class should be allocated to the different classes based on the eight noncost criteria.

Both PRC and the Postal Service disagreed with this decision but felt that they were compelled to apply the three-tier costing approach in the rate cases that followed.

The court then held that the value-of-service approach to assignment of the unattributed costs also failed to comply with the statutory requirements. The court stated that "'reasonably assignable' costs must be allocated in accordance with cost-of-service principles, and it is only residual costs which are subject to discretionary distribution to give effect to the noncost factors."

In footnote 94 of its opinion, the court explained why PRC's use of value-of-service was inappropriate for determining institutional costs.

[8]National Association of Greeting Card Publishers v. U.S. Postal Service [NAGCP I], 569 F.2d 570 (D.C. Cir. 1976), vacated as to other issues, 434 U.S. 884, 98 S.Ct. 253 (1977).

First, the court said that under circumstances in which every class of mail is demand-inelastic, "it may be questioned whether the [PRC] is able to meet the requirement that value-of-service be employed only where all farepayers, even those discriminated against, are benefitted." Second, the court stated that even if at least one class of mail were demand-elastic,

> "it is doubtful whether the [PRC] could properly employ the inverse elasticity rule, as it apparently did here, as a mechanical device to take into account through a single formula all the noncost factors set forth in the Act... The [PRC] is required to exercise its discretion in fact, and under the terms of the Act this may necessitate that it give individual and specific consideration to each of the enumerated noncost factors even if after such consideration it properly decides not to vary from proportional markups on the basis of any particular factor."

The D.C. Circuit Court's second argument, that all noncost criteria be considered in making a determination on institutional costs, has not been explicitly set aside in later court cases. PRC has relied on this statement in rejecting IER when employed as an exclusive, mechanical device. The court said that all noncost criteria should be considered but that PRC may decide not to "vary from proportional markups on the basis of any particular factor." Therefore, PRC appears to have been given a substantial amount of discretion in deciding on a final ratemaking structure but must base that structure on a consideration of all noncost criteria.

The D.C. Circuit Court next mentioned IER in its review of PRC's fourth ratemaking proceeding—NAGCP III.[9] The court reviewed its decision in NAGCP I and reiterated its obligation to defer "to the PRC's expert judgment in the selection of cost allocation methodologies," especially "where the PRC has gone beyond even the 'reasonable inferences of causation' that permit 'extended attribution' into the zone of 'assignment.'" Although the court admitted that it was not presented the issue for adjudication, it attempted to offer a clarification of its earlier pronouncement in NAGCP I on congressional intent concerning the distribution of costs in postal ratemaking.

The court commented on an earlier attempt in Congress to pass a clarifying amendment that basically endorsed an extended attribution theory of cost allocation. The court said that rejection of the amendment

[9]National Association of Greeting Card Publishers v. U.S. Postal Service [NAGCP III], 607 F.2d 392 (D.C. Cir. 1979), cert. denied, 444 U.S. 1025, 100 S.Ct. 688 (1980).

"... is not definitive evidence of an earlier Congress' intent in enacting a statutory provision. That is especially the case when that intent has not yet been conclusively interpreted by the courts; Congress may prefer to await a judicial interpretation."

Despite these remarks, the court nonetheless attempted to enunciate a congressional intent regarding postal ratemaking. The court said that the "dominant objective of Congress ... was not so much the regulation of demand for postal services, as the prevention of discrimination among the mail classes." Such an objective, in the court's view, precluded the use of value-of-service pricing since even the Postal Service had conceded in NAGCP I that demand for all classes of mail was essentially inelastic at foreseeable rates. Therefore, to use value-of-service would unduly burden First-Class Mail, the most inelastic of the classes. The court made a concession to economic efficiency by approving cost variability as an "appropriate starting point" for cost determinations but stated that Congress's intent required something beyond that. The court concluded the argument by saying, "[t]his is not the only context in which a concern for equal or fair treatment yields results different from those obtainable if economic efficiency in the allocation of resources were the exclusive or even the dominant goal."

The U.S. Court of Appeals for the Second Circuit disagreed with the D.C. Circuit Court on the basic costing issues when it reviewed PRC's fifth ratemaking proceeding.[10] The court found that the D.C. Circuit Court's requirement of extended attribution of costs "has placed unwarranted and unintended restraints upon the discretionary authority of PRC and the Board in setting postal rates and fees." The court concluded that the D.C. Circuit (1) did not give sufficient deference to PRC's own interpretation of the statute, (2) misread the plain language of section 3622(b), and (3) misconstrued the legislative history of the statute.

Specifically, the Second Circuit found that the legislative history did not indicate that rigid, specific constraints were to be placed on PRC's discretion in determining rates but that its ratemaking power was subject to broad statutory guidelines. Among these guidelines is one directing that PRC shall consider "all of the enumerated factors." Beyond that, the court found that PRC had broad discretion in determining the level of attribution required. The court said that there is nothing in the legislative history to suggest that attribution of 50 percent of postal costs is inadequate. However, the court refused to say that the D.C. Circuit's costing guidelines

[10]Newsweek, Inc., v. U.S. Postal Service, 663 F.2d 1186 (2nd Cir., 1981).

would be deemed unlawful, merely that there was no requirement in the statute that they be followed.

Concerning institutional costs, the Second Circuit determined that

"There is nothing in the legislative history to suggest that the PRC cannot use cost factors in 'reasonably assigning' a 'portion of all other costs' of the Postal Service to a particular class or service. The section, as we have already stated, simply requires that all of the enumerated factors be considered and that each class of mail and mail service bear, as a minimum, the direct and indirect postal costs attributable to that class or service, as defined in the [conference report]."

The conference report issued for the Postal Reorganization Act called for a "judgmental assignment" of some part of the remaining costs after attribution.

Because of the inconsistencies in the holdings of the two circuits, the U.S. Supreme Court reviewed both the NAGCP III and Newsweek decisions and determined that the Second Circuit's interpretation of PRC's ratemaking authority was correct.[11] Its decision solely concerned costing issues; specifically, the Court found that the statute did not require the extended attribution required by the D.C. Circuit. Concerning the legislative intent of section 3622(b), the Court said that

"we agree with the Second Circuit that the District of Columbia Circuit misunderstood Congress' solution . . . Congress did not eliminate the ratesetter's discretion; it simply removed the ratesetting function from the political arena by removing postal funding from the budgetary process . . . and by removing the Postal Service's principal officers from the President's direct control."

Further, the Court stated that "[t]here is no suggestion in the legislative history that Congress viewed the exercise of discretion as an evil in itself."

The Court did not talk about assignment of costs specifically. After deciding that PRC had a great deal of discretion in determining which costs were attributable to which classes, the Court said that PRC's two-tier approach is consistent with statutory language and held that

". . . all costs that in the judgment of the Rate Commission are the consequence of providing a particular class of service must be borne by that class. The statute requires attribution of any cost for which the source can be identified, but it leaves it to the

[11]National Association of Greeting Card Publishers v. U.S. Postal Service, 462 U.S. 810 (1983).

Commissioners, in the first instance, to decide which methods provide reasonable assurance that costs are the result of providing one class of service."

Finally, the Court added, "the Rate Commission is to assign remaining costs reasonably on the basis of the other eight factors set forth by Sec. 3622(b)." This statement seems to support the findings in both the NAGCP III and Newsweek cases that PRC must consider all noncost criteria in determining the distribution of institutional costs. Beyond that, the Supreme Court opinion failed to clarify the limits on PRC's discretion in favoring some noncost factors over others.

Court Cases Have Created a Disagreement Between PRC and the Postal Service on Allocation of Institutional Costs

In the last two rate cases, Dockets R87-1 and R90-1, there have not been any substantial differences in PRC- and Postal Service-proposed cost attributions even though parties to the proceeding continue to challenge the cost attributions among mail classes. In the R90-1 case, for example, the Postal Service attributed 65.3 percent or $30.2 billion of the $46.3 billion in estimated accrued costs compared to PRC's attribution of 65.9 percent or $30.4 billion.

Although PRC and the Postal Service generally agree on cost attributions, they are far from agreement on the allocation of institutional costs. In the last rate case, PRC stated that

"We strongly disagree with, and have rejected, the Service's proposal to shift yet more of the burden of recovering institutional costs onto First Class, and away from other classes, third-class bulk mail in particular."

PRC said that its recommended rates, with markups closer to the systemwide average, "are more nearly in accord with the pricing policies of the Act than those proposed by the Service."

PRC explained that when setting rates, attributing costs to classes of mail and "balancing the allocation of institutional costs among mail users" were of "central importance." This allocation has to be made by "balancing the competing goals enumerated in the [Postal Reorganization] Act in a fair and equitable manner." According to this viewpoint, it is a zero-sum game: no group of mail users can be benefitted without shifting costs to and hurting another.[12] Because of this, PRC pays considerable attention to the relative burden borne by each class of mail to ensure that there are no substantial disparities of burden. "It is not desirable for any group of

[12]This viewpoint is strictly true only in the short run. As explained in appendix I, demand pricing could, in our opinion, benefit all mail users in the long run.

mailers to have to pay higher rates to offset institutional costs" beyond those markups that fairly and equitably distribute institutional costs.

In addition, PRC states that previous rate cases have helped establish the proper allocations of institutional costs, and that without any evidence of changes in circumstances or new arguments, new rates should not stray from those allocations. PRC said that it has consistently found that First-Class Mail should bear a markup slightly above the systemwide average, and third-class, a markup slightly below average. In past cases, PRC has tried to bring the Postal Service's initially proposed markups for First- and third-class closer to one another and the systemwide average.

For example, in R87-1, First-Class letters had a 58-percent markup, which was 10 percentage points higher than the systemwide average of 48 percent. Third-class bulk regular mail had a 41-percent markup, which was 8 percentage points below the average. In R90-1, the Postal Service proposed a 68-percent markup for First-Class letters, which was 18 percentage points above average, and a 40-percent markup for third-class bulk regular, which was 11 percentage points below average. PRC reduced the Postal Service's proposed First-Class letter markup by 7 percentage points and increased the Postal Service's third-class bulk regular markup by 6 percentage points.

PRC said that it was rejecting the Postal Service's recommended rates for First- and third-class mail because it shifted institutional costs from the previous rate case, R87-1, without demonstrating any new circumstances to justify such shifts, exacerbating a trend toward increasing disparity between First- and third-class markups. Thus, PRC rejected the Postal Service's proposed rates for First- and third-class, saying

"Specifically, we find that it would violate the principles of postal ratemaking as set forth in the Postal Reorganization Act to set First-Class rates to produce a markup index significantly higher than average . . ."

Congress could, of course, reexamine these principles of postal ratemaking that it established in 1970 and resolve the differences in interpretation.

The Postal Service Contracts for a Study of the Ratemaking Process

Because of the contention between Postal Service management and PRC over the 1990 rate decision, the Board of Governors contracted with the IPA in May 1991 to undertake a study of the ratemaking process. The purpose of the study was to examine the process by which prices are set for mail services and to assess the process in terms of timeliness, flexibility, simplicity, and fairness. In October 1991, IPA submitted its report to the Board of Governors.[13] In this study, IPA concluded that the ratemaking process has adversely affected the Postal Service's ability to serve the public and compete in a changing competitive environment.

The IPA study, which focused on procedural elements of ratemaking, found that the process has become too cumbersome, rigid, and narrow to best serve the financial interests of the Postal Service. IPA made several recommendations for changing the process and allowing the Postal Service more flexibility to compete in the marketplace. IPA did not make any specific recommendations for changing the rate criteria other than stating that "the full range of factors listed in the Postal Reorganization Act should be used in redefining rate criteria."

Use of Demand Pricing Is Not Necessarily Unfair or Inequitable

The first of the ratemaking criteria specifies that rate schedules are to be fair and equitable. One of the principal reasons why PRC moved away from the use of demand pricing using IER was the concern that the resulting rate structure, with its unequal percentage markups would not be compatible with the fairness and equity standards set forth in the Postal Reorganization Act.[14] This concern was magnified because the relative inelasticity of First-Class Mail may be largely due to the legal monopoly granted to the Postal Service. As a result, PRC maintains that placing a relatively higher burden on First-Class than on third-class mail was not fair and equitable, presumably because it would discriminate against First-Class mailers without justification under the law.

A longer run perspective on rates for First-Class mailers leads us to a different conclusion on the use of demand pricing. Demand pricing may keep First-Class Mail rates from increasing in the future as much as the rates would increase using PRC's proportionate markups. If the private sector provides more substitutes for second- and third-class mail, we would expect the demand for these classes of mail to become more elastic. Use of demand pricing allows the Postal Service to respond to changes in elasticities by pricing second- and third-class mail to minimize loss of volume and revenues from these classes. On the other hand, use of

[13] The Ratemaking Process for the U.S. Postal Service, report of the Institute of Public Administration to the Board of Governors of the U.S. Postal Service (New York: Institute of Public Administration, October 8, 1991).

[14] In addition to fairness and equity, PRC was concerned about the reliability of data needed to quantify relative demand and the absence of essential information on cross-elasticities.

PRC's proportionate markups could lead to substantial loss of mail volume and revenue in second- and third-class mail—as argued by Postal Service management—and could lead to third-class mail users pressuring Congress to repeal the Postal Service's mail monopoly on third-class addressed letters to enable them to use private delivery services. If such a loss occurred, a greater amount of institutional costs probably would be borne by First-Class Mail users, leading to higher rates for First-Class Mail in the future. This situation also raises the possibility of increasing political pressure from First-Class Mail users to revoke the Postal Service monopoly on letter mail to enable them to use alternative private delivery services—similar to the pressure the Postal Service faced in 1979 that caused it to suspend enforcement of its monopoly on urgent letter mail.

Our assessment of the Postal Service's financial stability suggests that ratemakers should consider maximizing the amount of institutional cost borne by third-class over the long term through careful allocation of such costs over the short term. We do not believe that First-Class Mail users are subsidizing third-class mail users as long as the rates are set so that each class of mail covers at least its attributable costs. Any revenues over attributable costs offset institutional costs that must be borne regardless of the volume of third-class mail. We do not agree that maximizing institutional contribution from third-class over the long term leads to a rate structure that is not fair and equitable (see app. I).

Demand pricing need not be an arbitrary or exclusive exercise. The goals of demand pricing are consistent with the overall goals of the Postal Reorganization Act—to provide for a financially stable Postal Service. Demand pricing does so by protecting those markets that are most vulnerable to the development of competition from private companies. These markets are not selected arbitrarily but by analysis of the protection provided by the Private Express Statutes, trends in volumes and econometric forecasts, and the history of Postal Service performance in markets with competition.[15]

We believe that policymakers should recognize certain practical aspects of the ratemaking process. First, as we discussed earlier, the ratemaking process is lengthy and cumbersome. Accordingly, we believe rates should be set on the basis of long-term considerations, especially insofar as the Postal Service and PRC—unlike their competitors—do not have the luxury of quickly adjusting prices to respond to changing market conditions.

[15]In appendix II we review sources of information on the Postal Service's competitive position, and we discuss some of the problems involved in interpreting and applying this information to postal ratemaking decisions.

Second, we believe the experiences with parcel post and Express Mail, which we discuss in chapter 2, show that if the customer base for a class of mail is eroded, it may be difficult to get the customers back.

PRC officials told us that they will take into account specific evidence of competitive threats to the Postal Service's business but that they generally have not been persuaded by the evidence offered by the Postal Service in previous ratemaking cases. However, as we discuss in appendix II, available information about demand factors is necessarily imperfect and will continue to be so even if existing analytical tools are improved. If PRC adopts an overly stringent standard of evidence of a competitive threat, it runs the risk that the Postal Service will lose business to its competitors, and a subsequent response to competition (i.e., lowering rates) will be insufficient to recover the lost volume.

Our analysis shows that if IER were implemented, it would likely lead to variations in the allocation of institutional costs across classes of mail that are significantly greater than those approved by PRC.[16] However, prices need not be set solely by demand pricing using IER. PRC can still adjust the rates to take into account the other noncost rate criteria, the imprecision of available estimates of demand elasticities, and the fact that the assumptions underlying IER may not be strictly true.

Conclusions

The ratemaking criteria set forth in the Postal Reorganization Act were established at a time when the Postal Service had limited competition. The Postal Service is now facing a changing and increasingly competitive environment that requires greater flexibility in pricing postal products. Although PRC and the Postal Service agree that each class of mail should recover the direct and indirect costs of providing that service, they do not agree—after 20 years of ratemaking experience—on how institutional costs should be allocated among the mail classes. The Postal Service wants demand consideration to be the most important factor in allocating these costs. In the earlier rate cases, PRC generally accepted Postal Service demand-oriented pricing but has abandoned that approach in recent rate cases as an unacceptable pricing method said not to be allowed by court cases.

Based on the court cases, it appears that PRC has broad discretion in distributing institutional costs the way it sees fit, as long as it considers all

[16]Appendix III presents estimates of the relative percentage markup for First- and third-class mail obtained by applying IER under a range of assumptions about demand elasticities.

statutory noncost criteria in reaching its determinations. From a policy standpoint, demand pricing, based on the court cases, could be used if evidence could be shown that it would not necessarily preclude consideration of other noncost criteria.

But the act does not clearly state what role and importance demand factors are to play in postal ratemaking. The statute says very little about the distribution of institutional costs except that each class should pay that portion reasonably assignable to it. It calls for rates that reflect the value-of-service provided to the mailer and the recipient, the alternatives available to the mailer, and the effects of rates on businesses dependent on the mails—all of which can be interpreted as demand factors. It also requires a fair and equitable rate schedule, which suggests that the rates should not be adjusted upward or downward based on demand factors. With these conflicts in the rate criteria, the role that demand factors should play in the distribution of institutional costs and the setting of rates is unclear and needs to be resolved by Congress.

As discussed in appendix I, we favor the use of demand factors as a sound economic guide to allocating institutional costs and believe they should be used to the extent it is practical to do so. Further, it is not clear to us that pricing according to demand factors is necessarily inequitable to the users of those classes of mail (e.g., First-Class Mail) that would be subjected to above-average markups. In the long run, if demand-based pricing is not adopted, the erosion of business in relatively price-sensitive classes (e.g., third-class)—and the resulting loss of the contribution of these classes to defraying institutional cost—would possibly be at least as harmful to First-Class Mail users as the higher markups associated with demand-based pricing.

However, we recognize that the Postal Service currently has a decidedly imperfect basis for measuring demand elasticities and that current techniques for computing these elasticities can only provide approximate indications of the price-sensitivities of postal services.

Matter for Congressional Consideration

We believe that Congress should reexamine the ratemaking criteria set forth in the Postal Reorganization Act and consider amending the criteria to state the following:

- In allocating institutional costs, demand factors, including elasticities of demand, are to be given a weight that takes into account the need to maintain the long-term viability of the Postal Service as a nationwide full-service provider of postal services.

- Such use of demand factors will not be inconsistent with the rate criterion requiring the establishment of a fair and equitable rate schedule as long as each mail class recovers the direct and indirect costs attributable to that service and makes some contribution to institutional costs.

Agency Comments

The Postal Service agreed with our discussion on the positions PRC has adopted on the use of demand pricing and said that it is imperative that demand factors play a substantially more prominent role in the allocation of institutional costs than are allowed by PRC. While it agreed with the need for congressional action, the Postal Service said that the current statutory ratemaking scheme provides sufficient flexibility so that the expansion of the role of demand factors could be accomplished without legislative action. We believe the Postal Service's observation is correct, but given PRC's long-standing history of objections to demand pricing, we think that congressional reexamination of the policy is warranted.

PRC said that we have misinterpreted its policy on the use of demand factors and that it is not guided by the "Equal Percentage Markup" principle discussed in appendix I of this report. In the draft report provided PRC, we did not say that PRC has a policy of setting markups equal to one another when allocating institutional costs. We said that it was PRC's stated goal to set First-Class Mail markups slightly above the systemwide average and third-class markups slightly below the systemwide average. This statement is referenced to PRC statements in the 1990 rate decision. On page 8 of section IV, PRC said that

> "Over time we have consistently found that First-Class should bear a markup at, or only slightly above, systemwide average. Similarly, we have consistently found that third-class bulk regular. . . should also bear an approximately average markup."

Furthermore, PRC said on page 35 of section IV that ". . . we shall continue to develop third-class rates designed to provide contribution to institutional costs near, or slightly below, systemwide average." According to Dockets R87-1 and R90-1, it is PRC's position that any significant departure from this policy, without convincing evidence or arguments for changing it, goes against the fair and equitable standards of the act. Thus, when the Postal Service proposed placing in the last rate case, R90-1, a higher institutional cost markup on First-Class Mail and a lower markup on third-class mail compared to markups approved in R87-1 and earlier rate cases, PRC rejected it on the grounds that it would be contrary to the fair and equitable standards of the act.

We believe that by rigidly insisting that any significant departure from the systemwide average violates concerns of fairness and equity, PRC has shown the inflexibility of its approach to pricing postal services. As competitive pressure increases in the core services, this approach could have detrimental consequences to the financial stability of the Postal Service. In its comments, PRC also said that it was concerned that the report's concentration on the assignment of institutional costs neglects the "many other ways the ratemaking process facilitates appropriate competitive responses." While the ratemaking process can be adapted to meet competitive challenges, we believe it has worked against the Postal Service's efforts rather than facilitated its efforts to respond to competition. IPA's report on the ratemaking process provides numerous examples of how the rigid, lengthy, and complex ratemaking process is hurting the Postal Service's financial situation and its ability to respond to competition.

Setting Postal Rates Using the Economic Concept of Value-of-Service

As chapter 4 makes clear, much of the controversy about the pricing of postal services centers on the role of economic principles in allocating institutional costs among mail classes. In the following sections, we discuss the economic principles of ratemaking for a multiservice enterprise, the application of these principles by the Postal Service and the Postal Rate Commission (PRC) in their respective ratemaking strategies, and the role economic principles should play in the ratemaking criteria established by the Postal Reorganization Act of 1970. We also review relevant concepts of economics, such as incremental cost and the elasticity of demand. Finally, we show that value-of-service, an economic approach that looks to demand factors as a guide to allocating institutional costs, is consistent with the ratemaking provisions in the act.

The Economics of Ratemaking for a Multiservice Enterprise

The Postal Service is a multiservice enterprise, with each of its classes of mail constituting a different service. Economic theory indicates that if a firm exhibits increasing returns to scale across all levels of output, its unit cost of production will continue to fall as the level of production rises.[1] This condition leads to a natural monopoly situation, in which marginal cost is everywhere below average cost. In this situation, the competitive price equilibrium—price equal to marginal cost—is not sustainable because such a price would not yield the monopoly enough revenue to cover its costs.

Economists have long debated the question of whether the Postal Service constitutes a natural monopoly. The question of whether the Postal Service exhibits "economies of scope" seems less open to doubt.[2] Economies of scope are present if one firm can produce multiple products or services more economically than could several different firms that each produce one of these products or services. If economies of scope exist in mail delivery, the Postal Service can provide the general public with all classes of mail service at less cost than several individual firms each providing a single class of mail service on a nationwide basis. Given the substantial common costs of production in the Postal Service, some economies of scope probably exist.

[1]Increasing returns to scale means that if all levels of input are increased by a certain percentage (e.g., doubled), the resulting level of output will increase by an amount greater than that percentage (e.g., more than double).

[2]This discussion is largely taken from Melvyn A. Fuss, "Cost Allocation: How Can the Costs of Postal Services Be Determined?" Perspectives on Postal Service Issues, Roger Sherman, ed. (Washington, D.C.: American Enterprise Institute, 1980).

The costs to the multiservice firm of providing an additional service are called the "incremental costs" of that service. The firm would save these incremental costs if it did not provide the additional service.

When economies of scope exist, pricing each additional service at incremental cost does not yield sufficient revenue to cover all costs. Thus, incremental cost pricing is not a viable pricing scheme for the Postal Service, which by law is required to cover all costs.

Alternative Ratemaking Strategies Are Based on Different Methods for Allocating Institutional Costs

Since 1970, PRC ratemaking decisions have been guided by two methods of allocating institutional costs—the inverse elasticity rule (IER), also known as Ramsey pricing, and the equal percentage markup (EPM) principle.[3] Both methods assume that, to the extent possible, direct and indirect costs have been attributed to specific mail classes before applying the method. In this section we describe, compare, and evaluate the two methods on the basis of economic rationale, ease of implementation, and consistency with the rate criteria established by the Postal Reorganization Act.

Inverse Elasticity Rule (Ramsey Pricing)

The economist Frank Ramsey originally developed IER as a contribution to the theory of taxation.[4] Ramsey reasoned that if the government must tax certain goods and services, the tax on each good should be levied with a rate inversely proportional to the good's price elasticity of demand.[5] Ramsey showed that if taxes are levied in this manner, certain adverse economic effects will be minimized. This concept was further refined by Baumol and others as a pricing method for a natural monopoly, such as a utility, facing different market segments.[6] Using Ramsey pricing, an agency that regulates a natural monopoly would set prices such that in each

[3]In a multiproduct enterprise, institutional (overhead) costs can be distributed in different ways. One such way would be that each product contributes to overhead an amount equal to the same percentage of its direct costs. We define this as the equal percentage markup principle.

[4]Frank Ramsey, "A Contribution to the Theory of Taxation," Economic Journal, Vol. 37 (March 1927), pp. 47-61.

[5]Elasticity of demand is defined as the ratio of percentage change in quantity demanded to percentage change in price. Elasticity of demand falls into one of three categories: elastic, unitary elastic, or inelastic. If price falls by 1 percent and this induces quantity to increase by more than 1 percent (total revenue would increase), the demand is elastic. If price falling by 1 percent causes quantity to increase by less than 1 percent (total revenue would decrease), demand is inelastic. If the percentage changes in price and quantity are exactly equal, demand is unitary elastic.

[6]See William J. Baumol and David F. Bradford, "Optimal Departures From Marginal Cost Pricing," American Economic Review, Vol. 60 (1970), pp. 265-82; William J. Baumol, "On the Proper Cost Tests for Natural Monopoly in a Multiproduct Industry," American Economic Review, Vol. 67 (1977), pp. 809-22; and Roger Sherman and Anthony George, "Second-Best Pricing for the U.S. Postal Service," Southern Economic Journal, Vol. 45 (1979), pp. 685-95.

market segment, the percentage markup would be inversely proportional to the elasticity of demand in that segment.[7] An additional restriction is that prices are constrained so that total revenues are only sufficient to cover total costs.

As applied to the Postal Service and its allocation of institutional costs, IER would require determination of attributable costs for each class of mail, determination of institutional costs, estimation of the price elasticities of the various classes of mail, and finally, allocation of the institutional costs to the classes of mail in inverse proportion to those elasticities. Rates would then be set so that each class of mail would cover its attributable costs and its contribution to institutional costs.

In practice, we would expect on both theoretical and empirical grounds that Ramsey pricing would lead to a higher percentage markup for First-Class Mail than for third-class mail. To demonstrate this point, we need to consider concepts derived from the economic theory of firm behavior under competition and monopoly. In particular, we need to distinguish between the market demand for a good or service and the demand curve faced by a single supplier of that good or service.

Economic theory predicts that the more competitors present, the more elastic the demand for a firm's services will be—all other things being equal. In the extreme case in which a firm is a monopolist, the demand curve faced by the firm is the same as the demand curve for the market. At the other extreme, in which there are many suppliers of a given service, the demand curve faced by the firm is expected to be extremely elastic, regardless of the elasticity of demand for the service in the market as a whole. Figures I.1 and I.2 illustrate the price sensitivities of two Postal Service mail classes.[8] In the case of First-Class Mail, which is granted monopoly status by law, the Postal Service faces the market demand curve [figure I.1]. A small change in price is not likely to lead to a large change in volume. For third-class mail, where there are multiple alternative providers of this service, the Postal Service faces a demand curve such as D', where a small change in price will lead to a relatively larger change in volume, regardless of the market demand [figure I.2].

[7]For an excellent explanation of Ramsey pricing, see F.M. Scherer and David Ross, Industrial Market Structure and Economic Performance, 3rd ed. (Boston: Houghton Mifflin Co., 1990), pp. 498ff.

[8]Note that monopoly status does not in itself guarantee that First-Class Mail demand is inelastic.

Figure I.1: Demand for First-Class Mail

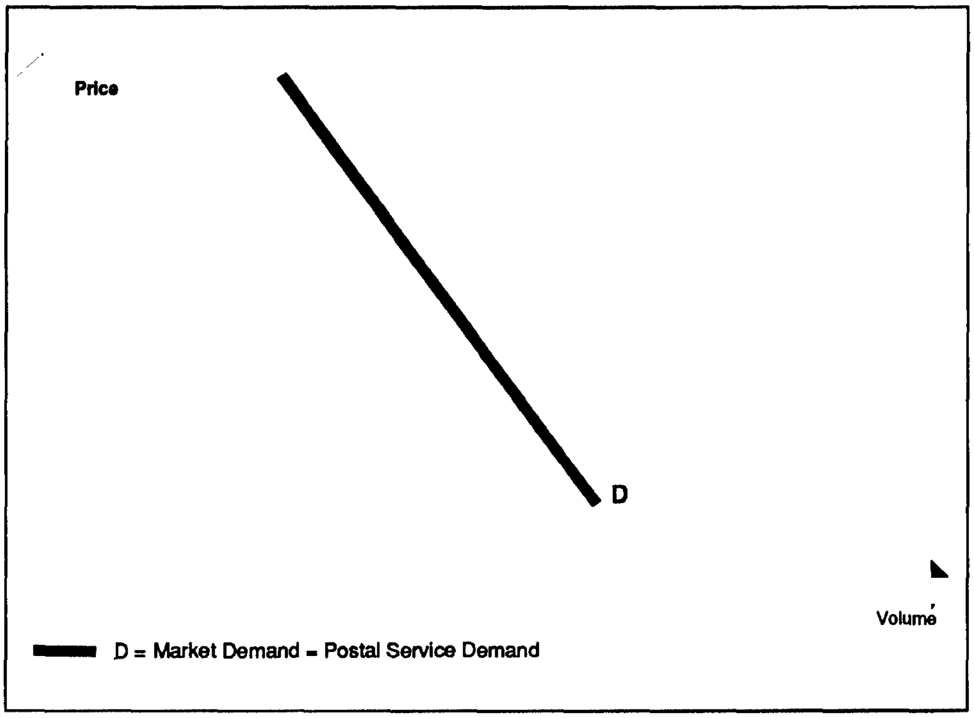
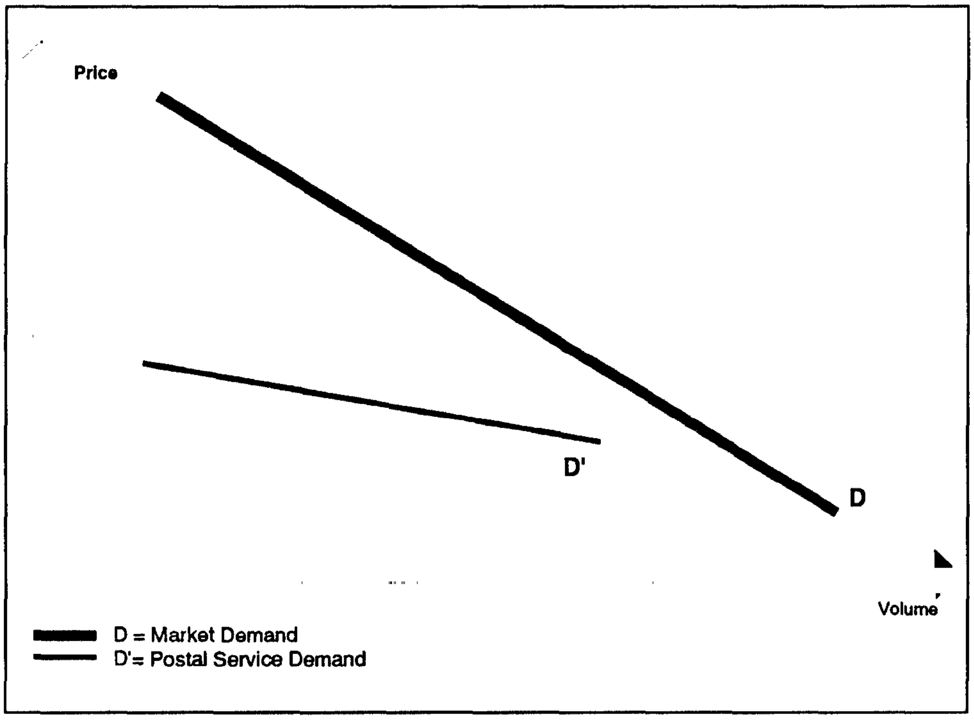


Figure I.2: Demand for Third-Class Mail



In appendix II, we review available evidence on the relative price-sensitivity of First- and third-class mail. The evidence indicates that the demand for third-class mail is more elastic than the demand for First-Class Mail.

Equal Percentage Markup

EPM assumes that institutional costs should be allocated to specific mail classes in such a way that the attributable costs of each class of mail are marked up by the same percentage. The common percentage markup must be large enough to completely allocate all institutional costs.

PRC has not implemented EPM in its purest form. PRC has noted that putting the same institutional cost burden on most mail would essentially eliminate from postal ratemaking the policy factors enunciated by Congress, and PRC does not consider this consistent with congressional intent. However, beginning with the 1977 rate decision, PRC did not use IER in the process of allocating institutional costs among classes of mail. In the 1984 rate decision, PRC stated its belief that it was not appropriate at that time to use Ramsey methods for pricing postal services. Furthermore, in its most recent rate decision, PRC reiterated its belief that First-Class Mail should bear a markup at or only slightly above the systemwide average and that third-class mail should also bear an approximately average markup.

Evaluation of the Principal Alternatives

In chapter 4, we list the nine criteria set forth in the Postal Reorganization Act that are to be considered in developing a postal rate structure. Much of the controversy over the relative merits of IER and EPM pricing schemes concerns the extent to which these respective schemes are faithful to each of the nine criteria, as well as other attributes that are widely considered desirable. We have identified several criteria that have been singled out for special attention in the rate hearings; these are detailed below.

Fairness and Equity

The first ratemaking criterion specifies that rate schedules are to be fair and equitable. One of the principal grounds on which PRC moved away from the use of IER was the concern that the resulting rate structure, with its unequal percentage markups, would be contrary to the statutory requirement for a fair and equitable division of the institutional costs burden. This concern was magnified because the relative inelasticity of First-Class Mail may be largely due to the legal monopoly granted to the Postal Service.

A longer run perspective on the interpretation of fair and equitable leads us to a different conclusion on the use of IER. It is possible that use of IER may keep First-Class Mail rates from increasing in the future as much as the rates would increase using EPM. If the private sector provides more substitutes for second- and third-class mail, we would expect the demand for these classes of mail to become more elastic. Use of IER allows the Postal Service to respond to these changes in elasticities by pricing second- and third-class mail to minimize loss of volume and revenue from these classes. On the other hand, use of EPM could lead to substantial loss of mail volume and revenue in second- and third-class mail as argued by Postal Service management. In this case, a greater amount of institutional costs would be borne by First-Class Mail users, leading to higher rates for First-Class Mail in the future.

Thus, we do not believe that First-Class Mail users are subsidizing third-class mail users as long as the rates are set so that each class of mail covers at least its attributable costs. We do not agree that IER leads to a rate structure that is not fair and equitable.

Value of the Mail Service

The economic rationale for using IER is based on the theory of welfare economics. For a natural monopoly or a regulated monopoly enterprise that must price more than one product or service in different market segments, distortion of consumption patterns can be minimized if percentage markups are set in inverse proportion to the elasticities of demand. For example, consider two products sold in different markets, where the demand for the first product is more inelastic than the demand for the second. The profit-maximizing monopolist will put more of its joint cost of production on the first product, because raising the price of the first product will not have as much effect on revenue as would raising the price of the second. Welfare loss is minimized because there is less disruption to consumption patterns.

Because First-Class and third-class mail together account for about 84 percent of Postal Service revenues, the rates for these classes of mail are extremely important. If First-Class Mail is more inelastic than third-class mail, use of IER allocates a higher percentage of the institutional costs to First-Class Mail and a lower percentage to third-class mail. The result is relatively higher rates for First-Class Mail and relatively lower rates for third-class than would occur under the EPM method. If rates must rise in order for the Postal Service to cover its costs, using IER rather than EPM to set rates will lead to smaller effects on total revenues.

Several issues about the applicability of IER to ratemaking for the Postal Service must be addressed. First, one of the underlying assumptions of the original work on Ramsey pricing was that all cross-elasticities of demand are zero.[9] Further work by Roger Sherman and Anthony George on Postal Service pricing showed that this assumption is not necessary. They determined that an optimal solution of postal rates exists under the assumptions that cross-elasticities of demand between classes of mail are nonzero, and cross-elasticities between services provided by the public and private sectors are nonzero.

They concluded

"Thus if all these elasticities of demand can be known (not only among various public enterprise services but also between public and private ones) it is possible to incorporate them in a solution for all public enterprise prices that will satisfy a budget constraint with minimum welfare losses."[10]

Second, as explained earlier, we have assumed that First-Class Mail is the most inelastic class because it has stronger monopoly restrictions than the other classes of mail. Further, we believe that the fact that elasticities may differ for different classes of mail because the law allows for different amounts of competition in those classes does not negate the validity of IER for ratemaking in the Postal Service. Ramsey pricing was developed for a natural monopoly that operates in different market segments where elasticities of demand are not equal. "The general moral is that if price distortions must be accepted, it is better to load them more heavily into the market segments with less elastic demand, leading to relatively modest output contractions . . . all else equal."[11] Given the market structure within which the Postal Service must operate, where some classes of mail have relatively higher elasticities because the degree of competition is greater, IER seems an appropriate method to guide the allocation of institutional costs.

By contrast, on the basis of our review of the relevant literature, we have been unable to identify any distinctive economic rationale for using EPM for allocating costs. Even the advocates of EPM do not appear to claim that

[9]The price cross-elasticity of demand is the proportional change in the quantity demanded of one good resulting from a given relative change in the price of another good. In the case of the Postal Service, we are assuming, for example, that demand for First-Class Mail is not affected by a change in the rate for third-class mail, everything else being equal.

[10]Sherman and George, p. 693.

[11]Scherer and Ross, p. 498.

it has any particular economic rationale, preferring instead to emphasize its alleged superiority on other grounds, such as equity.

As we have noted, the "economic" rationale for IER was developed in the context of regulated industries, such as utilities, and as such, predates the Postal Reorganization Act of 1970. Advocates of Ramsey pricing have attempted to justify it by appealing to the second rate criterion, value-of-service. This criterion specifies that the value of the given class or type of mail service to both the sender and recipient be considered in ratemaking decisions. These advocates assert that demand elasticity is a measure of willingness to pay and thus an indicator of the value-of-service to the sender, if not to the recipient.

Sharing of Institutional Cost

As previously discussed, of the nine criteria set forth in the Postal Reorganization Act to guide ratemaking policy, only the third criterion is stated as a requirement. This criterion requires rates to be set so that each class of mail covers its attributable costs and makes a contribution to institutional costs. Both the IER and EPM pricing methods are consistent with this requirement. However, some parties have contended that proportional distribution of the institutional cost burden (in other words, EPM) should be required, unless it can be shown that unequal percentage markups further some other goal.

Ease of Implementation

The seventh rate criterion specifies that simplicity of structure should be a goal of ratemakers. In addition, ease of implementation is desirable, all other things being equal. As our discussion of case history in chapter 4 makes clear, much of the legal controversy over the use of Ramsey pricing has involved doubts about whether it can be practically implemented.

As we have seen, implementation of both the IER and EPM methods requires that attributable costs be calculated as accurately as possible.[12] The two methods differ in their allocation of institutional costs. Use of IER requires estimation of the elasticities of demand (and cross-elasticities of demand) for the different classes of mail. We have reviewed efforts by various experts to estimate the relevant elasticities; the results of our review are presented in appendix II. There is continuing disagreement among the

[12]Ratemaking for the Postal Service is a far more complex process than this discussion indicates, for several reasons. First, there are several subclasses of mail within each class of mail. The rate structure includes the rate for each of these subclasses. In addition, there are geographic and weight rate differentials within certain classes. For ease of discussion we have limited our remarks to the allocation of costs among the several classes of mail.

experts as to the precise magnitudes of the elasticities. Further, as we discuss in appendix III, markups prescribed by IER are indeed sensitive to the magnitudes of the estimated elasticities.

The importance of accurate estimation of elasticities and the difficulty encountered in this estimation imply that it may not be desirable to use IER to provide specific formulas to be mechanistically applied in allocating institutional costs. But the difficulty in implementing IER should not lead us to ignore the economic reasons for using it.

EPM provides a more specific standard against which the rate structure can be evaluated. PRC determines the markup index for each subclass of mail to evaluate the burden of institutional costs on each subclass.[13] Although the markup indexes for First-Class Mail and third-class bulk regular mail are not equal, PRC's goal in the 1990 rate decision was to bring the institutional cost coverage for First-Class and third-class closer together, near the systemwide average.

[13]The markup index compares the markup for each subclass of mail with the systemwide average markup.

Acquiring Accurate Information About the Postal Service's Competitive Position

Ratemaking Policy Requires Accurate Information About the Postal Service's Competitive Position

As the discussions in chapter 4 and appendix I make clear, an important controversy over postal pricing concerns the weight given to demand factors in setting postal rates. Beyond that is the question of whether it is technically feasible to gather and analyze information on market conditions with sufficient precision to implement a ratemaking policy in which demand factors play an important role.

There are several types of information that a multiproduct enterprise can employ to guide the pricing of its products and services, each of which has its own strengths and weaknesses.[1] These include

- directly ascertaining the prices at which competitors are offering the same or very similar services;
- experimenting with different prices and observing how customers respond;
- estimating the sensitivity of customer demand to historic changes in prices (elasticities of demand) using econometric models;[2] and
- conducting surveys of customers.

The distinctive nature of the postal ratemaking process affects the tools available to the Postal Service and PRC. In practice, econometric models have played a dominant role in the ratemaking process. Accordingly, most of the remainder of this appendix consists of a review and critique of econometric modeling approaches; we focus on these approaches because they play a prominent role in the ratemaking process and because they are surrounded by a number of methodological controversies concerning the manner in which they have been developed and used. The appendix concludes with some observations on other potentially available information tools.

Overview of the Postal Service Econometric Model

The Postal Service's estimates of price elasticities are based on an econometric model. The Postal Service uses a complex system of assumptions (the Postal Service econometric demand model) about the factors—including prices—that are thought to affect consumers' demand for mail. Provided that all of the important factors affecting mail demand can be identified, measured, and combined in a correct model, it is possible, in theory, to isolate the effects of prices on mail volumes, i.e., to

[1]These information tools can also be used to inform other types of management decisionmaking; for instance, forecasting volume for the purpose of operations planning. For the purpose of this appendix, we focus on the applicability of the several types of information to ratemaking decisions.

[2]See appendix I for definitions of elasticity of demand and other economic terms used in this appendix.

separate the effects of prices from other factors that have historically affected mail volumes.

Because the modeling approach relies on historical data, the accuracy of elasticity estimates depends on having (1) sufficient variability of each factor in the historical data and (2) a sufficient number of observations to distinguish among the effects of different factors whose historical variations are correlated. To apply the model in decisionmaking, it must also be assumed that the factors that will affect mail volume in the future are the same ones that affected it in the past and that the sizes of the effects of these factors are also unchanged.

The Postal Service uses econometric models for several purposes, such as forecasting future volume for the several classes and subclasses of mail. This discussion focuses on using econometric models to estimate demand elasticities as these estimates are used in ratemaking decisions. We are concerned here with forecasting accuracy only to the extent that the performance of recent Postal Service mail-volume forecasts help in assessing the soundness of the underlying models. The statistical requirements for forecasting are different from the requirements for estimating the effect of a single variable such as price. Consequently, no necessary relationship exists between the accuracy or inaccuracy of estimates of the effect of particular variables on mail volume and the accuracy or inaccuracy of forecasts.[3]

One econometric model that has been given considerable attention is the model developed by George S. Tolley of the University of Chicago and his colleagues at RCF, Inc., a consulting firm—of which he is president—on behalf of the Postal Service. Both Tolley's model and his testimony explicating the model have been used in all rate cases since 1980. Because of the importance of this analysis to the ratemaking process, we review his work in some detail.[4]

Tolley's model estimates demand equations separately for the major mail classes and subclasses. The most recent Tolley model features seven

[3]For instance, the estimate of a given parameter may be imprecise because of multicollinearity [see Henri Theil, Principles of Econometrics (New York: John Wiley and Sons, 1971) pp. 147-154]. However, Postal Service prices change in a sawtooth pattern at discrete intervals, while other variables tend to change more smoothly. Hence, it does not appear that multicollinearity is a serious problem for the models reviewed here, except as noted in footnote 7 below.

[4]This discussion assumes some knowledge of econometrics on the part of the reader and makes reference to several techniques for estimating econometric models. Descriptions of these techniques can be found in many textbooks of econometrics.

refinements of the model presented in Docket R87-1.[5] Yet the main premises of Tolley's R90-1 model and the kind of data used to estimate the model remain the same as in the previous three rate hearings.

"The basic approach . . . is to regress [separately for each mail class] the logarithm of quarterly mail volume on the logarithms of explanatory variables suggested by economic theory. The explanatory models used in the econometric analysis are for the most part obtained from data gathered by Data Resources Incorporated. A separate regression is carried out for each subclass of mail. The coefficients estimated from each regression are later used in the forecasting model to forecast future mail volumes for each subclass of mail."[6]

For the purpose of this discussion we focus on the most recent version of Tolley's model, which was offered as evidence in Docket R90-1. Further, we focus on those equations that deal with demand for First-Class letters and third-class bulk regular mail. These two subclasses accounted for about 82 percent of total postal volume in fiscal year 1991.

Each equation allows for current and lagged effects of price changes—in both the price of that subclass and the prices of other subclasses—on per capita mail volume. That is, the equation allows for the possibility that the entire effect of a change in price is not immediately reflected in consumer purchasing behavior. For example, consumers may need time to consider alternatives before changing their level of dependence on the services of the Postal Service. Specifically, Tolley's equations allow for lagged effects after one quarter (lag 1), two quarters (lag 2), and three quarters (lag 3).[7]

Other explanatory variables varied from equation to equation. They generally included volumes of other mail classes, permanent and transitory income, advertising expenditures, the price of pulp and paper,

[5]The refinements, discussed below, include revisions of the techniques used to estimate income elasticities, price indexes, the delayed effects of explanatory variables on mail volumes (i.e., distributed lags); seasonal variations in mail volumes; and the addition of several new predictors to the equations for specific mail classes. See George Tolley, "Direct Testimony on Behalf of the United States Post Office," Postal Rate and Fee Changes, 1990, Docket R90-1. U.S. Postal Rate Commission, Washington, D.C., 1987, pp. I-5 to I-9.

[6]Tolley, p. I-1.

[7]Due to the large correlations among current and lagged values of prices (i.e., multicollinearity), Tolley used a technique called "Shiller priors" to impose a smooth pattern on the current and lagged coefficient estimates shown in table II.1. Except for random variation, the price coefficients were assumed to follow an admissible pattern with increasing lags after an initial maximum. Coefficients for lags greater than three quarters were assumed to equal zero. See Tolley, I-35 and George G. Judge, et al., The Theory and Practice of Econometrics, 2nd ed. (New York: John Wiley and Sons, 1985), pp. 365-66.

and a seasonal index.[8] In cases in which the error terms were found to be correlated with their lagged values, an autoregressive (Cochrane-Orcutt) data transformation was performed. The parameters of the equations were estimated using 77 quarterly observations on the variables, covering a period from the fourth quarter of 1970 through the fourth quarter of 1989.

Table II.1 shows Tolley's estimates of own-price and cross-price elasticities for First-Class letters and third-class bulk regular mail.[9] To estimate the total effect of a price change, i.e., the overall elasticity of demand, one adds the current and lagged effects. For example, from table II.1, the own-price elasticity of demand for First-Class letters equals $-0.105 - 0.056 - 0.043 - 0.041 = -0.245$.

Table II.1: Price Elasticity Estimates From Tolley's Model of First- and Third-Class Per Capita Mail Volumes

Mail type	Elasticity	Estimate	SE[a]
First-Class letters	Own-price		
	Current	–0.105	0.041
	Lag 1	–0.056	0.026
	Lag 2	–0.043	0.026
	Lag 3	–0.041	0.025
	Total	–0.245	0.067
	Cross-price, First-Class cards		
	Current	0.002	0.014
	Lag 1	0.003	0.004
	Lag 2	0.002	0.008
	Lag 3	[b]	0.008
	Total	0.006	[b]
	Cross-price, third-class bulk regular		
	Current	0.006	0.026
	Lag 1	0.020	0.011
	Lag 2	0.016	0.015
	Lag 3	[b]	0.016
	Total	0.043	[b]

(continued)

[8]The effects of changes in population are implicitly accounted for, since the variable being predicted by the model is the per capita mail volume rather than the total volume. Lester D. Taylor, An Econometric Study of the Demand for First-Class Letters and Cards (Washington, D.C.: U.S. Postal Rate Commission, 1989), presented a more refined attempt to account for demographic factors—not only population size but also the age distribution of the population. However, these factors were excluded from his final model because they produced implausible results or had little explanatory power. The Postal Service officials told us they previously experimented with demographic variables, with similar results.

[9]"Own-price elasticity" and "cross-price elasticity" are terms used by Tolley and are defined as elasticity and price cross-elasticity in appendix I.

Mail type	Elasticity	Estimate	SE[a]
Third-class bulk regular	Own-price		
	Current	–0.252	0.060
	Lag 1	–0.134	0.037
	Lag 2	–0.126	0.038
	Lag 3	–0.113	0.039
	Total	–0.624	0.058
	Cross-price, First-Class letters		
	Current	0.041	0.048
	Lag 1	0.066	0.028
	Lag 2	0.065	0.027
	Lag 3	0.041	0.023
	Total	0.212	0.085
	Cross-price, First-Class cards		
	Current	0.004	0.012
	Lag 1	0.006	0.004
	Lag 2	0.006	0.007
	Lag 3	0.004	0.007
	Total	0.020	[b]

Note: Totals may not add due to rounding.

[a]This number is the standard error (SE) of the parameter estimate. The standard errors of the own-price and cross-price elasticity estimates were calculated from the variance-covariance matrixes.

[b]Less than .0005.

Source: Raw data are from Tolley, pp. 4-34 to 4-38 and 4-163 to 4-168.

The signs of the estimated elasticities of table II.1 are consistent with economic theory, in that the own-price elasticities at each lag are negative.[10] The table also suggests that demand for third-class bulk regular is more elastic than the demand for First-Class letters, since –0.624 is greater in absolute value than –0.245. This result seems reasonable, for reasons given in appendix I.

[10]Economic theory predicts that the overall own-price elasticity is negative. Theory is less clear with respect to the signs of the own- and cross-price elasticities at each lag. However, a positive estimated short-run own-price elasticity or a negative estimated short-run cross-price elasticity could be considered an anomalous result.

There Are Disagreements Concerning the Econometric Evidence Used in Ratemaking Cases

There has been substantial discussion about the appropriateness and usefulness of the Tolley model for the ratemaking process. We first offer some general observations about the inherent strengths and weaknesses of the econometric time-series approach.[11] We follow with specific criticisms by analysts who have studied the Tolley model.

Econometric Time-Series Models Require Certain Crucial Assumptions

Any type of statistical analysis has both advantages and disadvantages. The econometric time-series approach has the advantage of being able—at least in principle—to disentangle the effect of price changes from the effects of other factors operating in the real world. However, as we discussed earlier, the analyst must make certain important assumptions.

First, econometric models presuppose that the analyst can specify the "correct" model, that is, identify the factors that affect the volume of a given class of mail, so that the separate effect of a variable, such as price, can be statistically isolated. However, the correct model specification is often not clear on a priori grounds.

Second, data on many factors affecting postal demand are not available and thus not included among the explanatory variables in Tolley's—and other econometricians'—equations. The omitted variables might include private competitors' prices, the quality of Postal Service products and services relative to those of its competitors' entrepreneurship, product and marketing innovations (e.g., advances in computers and telecommunications), and exogenous changes in market conditions and in consumers' tastes and needs. These factors are incorporated into estimation through the error term of the equations, as well as through variables, such as "market penetration," that are known as proxy variables. The coefficient estimates are biased, i.e., systematically too large or too small, if the omitted variables are correlated with variables included in the equation.[12]

Third, econometric time-series models assume that relationships among variables are stable over the period over which the model is being estimated. Further, to be used in decisionmaking, it must be assumed that

[11] By the "econometric time-series approach," we mean models, like Tolley's, which use historical time series of observations on aggregate economic variables, such as price and income time series, as the basis for inferences about economic parameters and projections of future conditions.

[12] See, for example, Theil, pp. 549-52.

these relationships will be stable in the future.[13] The demand for postal services can be affected by phenomena, such as technological or marketing innovations and changes in consumer expectations and attitudes. Economists refer to these phenomena as structural changes. Relevant data will often not be available in the form of time series that are long enough to support statistical inferences.

To some extent, the analyst can try to deal with the problems of limited data by extending the estimation period. However, as the time series grows longer, the chances for the structure to change increase. In principle, one could perform certain statistical tests that would determine whether there had been structural change in the model within the period of analysis—for instance, between the first and second half of the period. Postal Service officials informed us that to their knowledge no such formal tests have been performed. However, they pointed out that the models have been periodically reestimated as more observations have become available and that the coefficients of the models have been relatively stable. On the basis of these results, the models do not support the conclusion that significant structural shifts have taken place. Further, they pointed out that breaking down the data into smaller time periods for the purpose of testing for structural shifts introduces complications, such as decreasing precision of the estimates.

Critics Have Suggested Alternative Model Specifications

These general concerns have been reflected in specific criticisms that have been offered by PRC and others in recent rate hearings. Recent critics, including Hausman, Taylor, and PRC have primarily focused on two aspects of Tolley's model.

Identification and Measurement of Factors Affecting the Demand for the Postal Service's Services

Hausman and PRC question whether permanent income and transitory income are the correct concepts of income to be used as predictors of per capita mail volume. Hausman argued that an aggregate economic variable, such as gross national product (GNP), is more relevant for explaining mail volume than permanent income and transitory income, especially in mail classes, such as third-class, where the principal senders are businesses rather than households.[14]

Postal Service officials pointed out to us that Hausman's use of GNP resulted in a negative estimated income elasticity, which they find

[13]As we discuss below, sources of information other than econometric models may be available to decisionmakers. These other sources of information may show changes in past relationships.

[14]Hausman, p. 16.

implausible. They also informed us that following the R87-1 rate case, they explored the use of different income concepts, and remained convinced that the use of permanent and transitory income variables is preferred.

There are also disagreements about whether the price variables in Tolley's equations are correctly conceived and measured. The basic problem is that the price of postage depends not only on the mail class but also on such factors as size, weight, shape, presort discounts, and drop-off location. Tolley used fixed-weight price indexes, i.e., taking a weighted average of the prices of mail pieces in the mail class. Hausman applied a similar approach called "superlative" price indexes. Taylor, on the other hand, included separate predictors in his model for components of the tariff structure of First-Class letters and cards, such as the prices of the first and subsequent ounces and the discounts for presorting.

Both in the 1990 rate hearings and in discussions with us, Postal Service officials expressed reservations about Taylor's results, especially the positive own-price elasticity that Taylor estimated for First-Class letters. They believed the variations in the different price components are so highly intercorrelated that this method is unworkable in practice. They also questioned the suitability of superlative price indexes, as employed by Hausman. They believed this approach is less commonly used in economic research. They further told us that when they explored this technique, it produced anomalous results.

In its critique of the Tolley model in Docket R90-1, PRC agreed with the criticisms offered by Hausman. In addition, PRC was concerned about the use of proxy variables, such as net trend variables, which they considered ad hoc in nature, as opposed to more directly measured variables. Postal Service officials told us that these variables improved the fit of the model.

Statistical Techniques for Estimating the Parameters

Tolley used two basic stages to estimate a model for each mail class.[15] In the first stage, Tolley computed ordinary least squares estimates of the parameters including price elasticities. In the second stage, Tolley modified these estimates by the smallest amount that was required to make them conform to the assumptions about the timing of consumers' responses to price changes (footnote 7).[16] Both of Tolley's estimation

[15]Tolley, p. I-32.

[16]Tolley introduced additional estimation stages for selected classes of mail, e.g., to incorporate assumptions about seasonal patterns in the demand for the Postal Service's services and—in the case of third-class bulk rate mail—to account for factors such as market penetration phenomena that are not accounted for by directly measured variables.

stages use a single-equation technique. That is, Tolley estimated the regression equation for each mail class separately from the equations for the other mail classes. However, cross-elasticities were included in the equations either by estimating them freely, or—when the results of this estimation were judged unreasonable—by applying constraints derived from economic theory (the Slutsky-Schultz conditions).[17]

Hausman proposed an alternative method of incorporating inter-equation relationships; namely, a two-equation joint estimation procedure to estimate the parameters in the equations he considered to be related. Tolley reported that, following Hausman's suggestion, he experimented with a simultaneous estimation technique in preparation for the R90-1 hearing. However, he chose not to use the estimates obtained using this technique because (1) the results obtained with the simultaneous estimation were often similar to those previously used, and (2) there was the risk that misspecification of one equation could affect another equation that was estimated simultaneously.[18]

Alternative Methods of Obtaining Information on the Postal Service's Competitive Position Have Been Considered

Several other methods of estimating the effects of changing the postal rate structure have come to our attention in the course of this review.

Pricing Experiments

Pricing experiments would involve raising or lowering prices for selected classes of mail in selected markets for a limited period of time and observing the resulting change in the volume of business.[19] As in the case with econometric models, the results of the experiment would normally be expressed as elasticities of demand. Pricing experiments have not routinely been used in ratemaking, although PRC officials told us of one

[17]The Slutsky-Schultz conditions are based on the notion that different classes of mail can serve as substitutes for each other and thus that the price elasticities in different equations are functionally related.

[18]Tolley, pp. I-40 to I-42.

[19]Casual empiricism would seem to suggest that informal, trial-and-error experimentation with different prices is quite common in the business world.

small-scale experiment some years ago. There may be legal and practical obstacles to performing such experiments. In particular, it appears that any rate change requires PRC review. In addition, price cuts (or increases) in selected markets could be viewed as discriminatory. Some experts have also questioned whether observed behavior under experimental conditions can be generalized to permanent changes in prices in the real world.

Market Surveys

Market surveys have not routinely been used in the ratemaking process, although the Postal Service has used surveys of customers for other purposes (e.g., identifying perceived problems with the quality of service).[20] If surveys were used for ratemaking purposes, they would presumably include questions about customers' responses to hypothetical rate changes. The Postal Service did conduct a survey of this kind in connection with the R90-1 rate case to forecast the proposed new automation mail categories, because no econometric evidence was available on rates not yet in existence. Postal Service officials told us that market surveys yielded inconsistent results, in terms of their ability to accurately predict actual behavior.

Directly Ascertaining Competitors' Prices

If it could be ascertained that private competitors were offering the same or a very similar service as a given class or subclass of mail, then postal rates could be adjusted accordingly. PRC officials have told us they give particular weight to this type of evidence. However, a Postal Service official told us that the Postal Service has had difficulty in obtaining reliable information on competitors' prices. Private competitors, unlike the Postal Service, are generally under no legal obligation to publish their prices. Further, even if competitors' list prices were available for some services, they would not necessarily correspond to actual prices charged, to the extent that discounts were offered to selected customers.

Conclusion

In this appendix, we have reviewed several methods for gathering and analyzing data on the demand for postal services. We have also identified a number of criticisms of the econometric models that have been offered as evidence in rate cases. The practical importance of these criticisms is not clear. We find it significant that so far as we have been able to determine, the critics of the Tolley econometric model do not object to econometric modeling per se. For instance, Hausman said: "Professor Tolley's

[20]In the R90-1 rate case, PRC mentioned the potential for using market surveys for a different purpose; namely, as a tool for ascertaining the value of postal services to recipients. As we note in chapter 4, this is one of the criteria specified by the Postal Reorganization Act.

elasticities, even if imperfect, provide a reasonably reliable indication of relative demand elasticities among classes for pricing purposes."[21] Further, the Institute of Public Administration (IPA) noted that PRC, one of the strongest critics of the Tolley model, believes there should be more reliance on econometric analysis.[22] Postal Service officials also told us that PRC is committed to econometric modeling.

If demand factors are to be given increased importance in postal ratemaking decisions, then improvements and refinements in econometric models—as well as the data used to estimate these models—would potentially be valuable, as would the development of new information tools that would complement econometric models.[23] However, alternative methods have their own limitations. Further, it is possible that in any given instance, different methods—for instance, econometric models and market surveys—may give conflicting guidance as to the direction and magnitude of price changes that should be implemented. It appears that econometric models will remain the primary source of evidence on the Postal Service's competitive position for the foreseeable future. Therefore, the evaluation of the Postal Service's competitive position—and the resulting pricing decisions—will continue to involve elements of professional judgment.

[21]Jerry A. Hausman, "Rebuttal Testimony on Behalf of Direct Marketing Association, Inc., et al.," Postal Rate and Fee Changes, 1987, Docket R87-1. U.S. Postal Rate Commission, Washington, D.C., 1987, p. 19.

[22]The Ratemaking Process for the U.S. Postal Service, report of the Institute of Public Administration to the Board of Governors of the U.S. Postal Service (New York: Institute of Public Administration, October 8, 1991), p. 133.

[23]Postal Service officials told us they have an ongoing research program to develop refinements of their methodology. These proposed refinements are not discussed in this appendix.

An Illustration of the Application of Demand Elasticities to the Pricing of Postal Services

In appendix II, we review the current status of efforts to estimate elasticities of demand for postal services with sufficient precision to implement a policy of demand-based pricing for the different classes of mail. In this appendix, we use selected estimates of demand elasticities derived from the principal version of the Tolley econometric model reviewed in appendix II to illustrate how demand elasticities could be applied in order to derive relative markups for First-Class and third-class mail. We compare these relative markups with those contained in the most recent Postal Service rate proposal, Docket R90-1, as well as with those eventually adopted by PRC.

For the purpose of this illustration, we employ IER, a form of demand-based pricing discussed in appendix I. One student of postal pricing policies has argued that the markups prescribed by IER are quite sensitive to small changes in the estimated demand elasticities.[1] Accordingly, we are particularly interested in knowing whether this is indeed the case and, if so, whether it has any practical implications for the use of demand pricing.

The discussion in this appendix is restricted to First-Class letters and third-class bulk regular mail. These two classes accounted for approximately 82 percent of total domestic mail volume in 1989.[2] The analysis assumes that all cross-price elasticities equal zero, because cross-price elasticity estimates are not available for the prices charged by private competitors.[3]

IER pricing requires that the following equalities are satisfied:

$C_1 = k/E_1$ (1)

$C_3 = k/E_3$ (2)

where

[1]William B. Tye, "Ironies to the Application of the Inverse Pricing Rule to the Pricing of U.S. Postal Services," Logistics and Transportation Review, Vol. 19 (1983), pp. 245-60.

[2]Tolley, pp. 6-7.

[3]Strictly speaking, use of IER is based on the assumption that there are no cross-price elasticities among the several classes of mail. If there are nonzero cross-price elasticities (the evidence presented in appendix II indicates that this may be the case), a more complex formula than IER is called for (Sherman and George). The calculations presented in this appendix are for illustrative purposes only.

$C_1 = (P_1 - M_1)/P_1$ = the markup ratio for First-Class letters;

$C_3 = (P_3 - M_3)/P_3$ = the markup ratio for third-class bulk regular mail;

M_1 = the marginal cost of First-Class letters;

M_3 = the marginal cost of third-class letters;

P_1 = the price of First-Class letters;

P_3 = the price of third-class bulk rate mail;

E_1 = the elasticity of demand for First-Class letters;

E_3 = the elasticity of demand for third-class letters;

and k is a proportionality constant.[4]

Unfortunately, estimates of the marginal costs M_1 and M_3 and of the constant k were not available. Hence, it is not possible to directly apply equations (1) and (2) to determine IER markups for First- and third-class mail.

However, dividing equation (1) by equation (2) yields

$C_1/C_3 = E_3/E_1$, (3)

a formula for the relative markup, i.e., the percentage markup of First-Class letters divided by the percentage markup of third-class bulk regular mail. For example, if our estimated ratio of elasticities E_1/E_3 is equal to 2, then according to IER, the markup of First-Class letters should be twice as large as the markup of third-class bulk regular mail, i.e., $C_1/C_3 = 2$.

[4]For economic interpretations of k, see Tye, p. 251.

For this analysis, we have assumed that the ratio of attributable costs (which we interpret as average variable cost) for the two classes is similar to the corresponding ratio of marginal costs.

Table III.1 presents estimates of the relative markup ratios based on nine different assumptions about the error in the elasticity estimates. We computed IER First-to-third-class relative markup ratios using all combinations of "low," "medium," and "high" First- and third-class elasticity estimates (in absolute value terms). "Low," "medium," and "high" correspond to the lower limit, midpoint, and upper limit of 95-percent confidence limits of the elasticity estimates.[5]

For purposes of comparison, the table shows the relative markup proposed by the Postal Service in the R90-1 ratemaking case, as well as the actual relative markup ratio eventually selected by PRC.[6]

[5]We wish to make two observations about this procedure. First, under the assumptions of the model used to generate these estimates, there is a bell-shaped distribution associated with each estimated elasticity that is centered around the estimate labeled "medium." As such, the true elasticity is more likely to be close to this estimate than to those labeled "high" and "low," which are in the tails of the distribution. In this sense, the "medium-medium" estimate should be given more weight than the other scenarios. A second and related point is that the probability that both elasticities are in a tail of a 95-percent confidence interval, as in the "low-low," "low-high," "high-low," and "high-high" scenarios, is smaller than the probability that a single true elasticity is in a tail.

[6]PRC and the Postal Service do not calculate markup ratios as given by C_1 and C_3. Both PRC and the Postal Service define the markup percentage for a class of mail as the markup over attributable cost, rather than as a percentage of price. We have adjusted the PRC and Postal Service markup ratios so that they are consistent with the other markup ratios presented in the table.

Table III.1: Relative Markup Ratio: the Postal Service Proposal and PRC Recommendation Versus IER

Source of markup[a]	Estimated elasticities: First-Class	Estimated elasticities: Third-class	Relative markup ratios[b]
Postal Service 1990 proposal	[d]	[d]	1.42[c]
PRC 1990 recommendation	[d]	[d]	1.21[c]
IER			
Low-low	0.112	0.509	4.56
Low-medium	0.112	0.624	5.59
Low-high	0.112	0.740	6.62
Medium-low	0.245	0.509	2.08
Medium-medium	0.245	0.624	2.55
Medium-high	0.245	0.740	3.02
High-low	0.378	0.509	1.35
High-medium	0.378	0.624	1.65
High-high	0.378	0.740	1.96

Note: Relative markup ratio is the ratio of First-Class letter and third-class bulk regular markups.

[a]The low, medium, and high estimates of demand elasticities for First-Class letters and third-class bulk regular mail are based on 95-percent confidence intervals of the elasticities computed using the Shiller parameter estimates and standard errors of Tolley, pp. 4-33 to 4-35, and 4-163 to 4-165. See also table II.1.

[b]Under IER pricing this column is computed as the ratio of third-class elasticity to First-Class elasticity, i.e., the third column is divided by the second column (see text). For these calculations, we have assumed that the ratio of attributable cost per piece is similar to the corresponding ratio of marginal costs.

[c]Raw data are from Docket R90-1, appendix G, schedule 3. For explanation, see footnote 6.

[d]Estimated elasticities do not apply.

The conclusions we draw from table III.1 are as follows:

- The relative percentage markups for First-Class and third-class mail implied by IER are indeed quite sensitive to changes in the estimated elasticities used in the calculations that are within the range of statistical error of currently used econometric models.[7] The IER relative markup ratios range from a low of 1.35 to a high of 6.62.
- Even given the range of imprecision in available estimates of demand elasticities, demand pricing using IER would result in higher relative

[7]As we point out in appendix II, it is possible that the model is not specified correctly and thus the range of uncertainty associated with these estimated elasticities may be larger than the confidence intervals would indicate. On the other hand, Postal Service officials argued that the robustness of estimates to the addition of new data and alternative specifications suggest that the range could be less than the confidence intervals indicate.

markups for First-Class Mail, and lower relative markups for third-class, than those contained in the PRC recommendation, for which the relative markup ratio was 1.21. The relative markup ratio proposed by the Postal Service (1.42) is within the range implied by IER, although even this is at the low end of the range.

Comments From the U.S. Postal Service

THE POSTMASTER GENERAL
Washington, D C 20260-0010

February 10, 1992

Dear Mr. Fogel:

This refers to your draft report entitled U.S. Postal Service: Pricing Postal Services in a Competitive Environment.

We accept all the report's major points, i.e.,

1. The Postal Service is facing a changing and increasingly competitive environment that requires greater flexibility in pricing postal services.

2. Since the late 1970s, the Postal Service and the Postal Rate Commission (PRC) have disagreed over the extent to which the rate-making criteria in the Postal Reorganization Act allow the use of demand factors to allocate the Postal Service's overhead among the various mail classes.

3. Demand pricing, which considers the "value of service" to the sender, should be given greater weight in the criteria used as a guide for allocating overhead costs and setting postal rates.

4. If demand-based pricing is not given more weight in the criteria as one of several factors to be considered in rate-making, the Postal Service could experience serious losses in its price sensitive third-class market as well as its second-class market and thus drive up the cost of First-Class postage to cover these losses. Congress could then be faced with demands to further open postal markets to competition, or to subsidize the national delivery network through appropriations.

5. The Postal Service's inability to offer volume discounts prevents it from competing head-to-head with major competitors. The Postal Rate Commission's interpretation of Section 403(c) of the Postal Reorganization Act of 1970 has impeded the Service's adoption of such a pricing strategy, widely used by private carriers.

In addition, we think Appendix I of the report offers some valuable technical comment on the PRC's approach to rate-making. In effect, the PRC has been backing itself into a substantially mechanistic Equal Percentage Markup approach for which there is no economic justification and that ignores the flexibility Congress intended to vest in postal rate-making.

We also accept the report's recommendation that Congress should:

1. Reexamine the contemporary applicability of the nine rate-setting criteria set forth in the Postal Reorganization Act and consider amending the criteria to state that (1) in allocating institutional costs, demand factors, including elasticities of demand, are to be given a weight that takes into account the need to maintain the long-term viability of the Postal Service as a nationwide full-service provider of postal services, and (2) such use of demand factors will not be inconsistent with the rate criterion requiring the establishment of a fair and equitable rate schedule as long as each mail class recovers the direct and indirect cost assignable to that service and makes some contribution to institutional costs.

2. Consider reexamining the provisions of Section 403(c) of the Postal Reorganization Act to determine if volume discounting by the Postal Service would in fact result in "undue or unreasonable discrimination" among mailers and "undue or unreasonable preference" to a mailer.

Actually, there is nothing in the rate-setting criteria established by the Postal Reorganization Act or in any subsequent court decisions that would preclude the PRC from adopting the report's recommendations regarding demand pricing without the need for Congressional action. The courts have made it clear that the approaches to pricing that are to be employed are a matter of agency discretion. As long as all existing statutory noncost criteria are given due consideration, there appears to be no bar to expanding the role of demand factors in the pricing process.

Similarly, as we interpret Section 403(c), volume discounts do not necessarily constitute "undue discrimination," and therefore could be recommended by the Commission under the existing statute, but have not been.

Thank you for the opportunity to comment on this extremely important and excellently done report.

Sincerely,

Anthony M. Frank

Mr. Richard L. Fogel
Assistant Comptroller General
United States General
Accounting Office
Washington, DC 20548-0001

Comments From the Postal Rate Commission

Note: GAO comments supplementing those in the report text appear at the end of this appendix.

POSTAL RATE COMMISSION
Washington, D.C. 20268-0001

January 8, 1992

Honorable Richard L. Fogel
Assistant Comptroller General
General Government Division
General Accounting Office
441 G Street, N.W.
Washington, D.C. 20548

Dear Sir:

In this letter we respond to GAO's invitation to comment on the draft report entitled *U.S. Postal Service: Pricing Postal Services in a Competitive Environment*. We appreciate the opportunity to review this ambitious project and offer our thoughts on it.

In general, we believe that

See comment 1.

1. The draft report makes some helpful contributions -- most notably the independent analysis of the present state of postal volume and price elasticity estimation (Appendix II);

2. In discussing the pricing of types of mail which face competition, it concentrates heavily on the assignment of institutional costs to classes -- a single aspect of postal ratemaking -- so that a reader new to the subject could remain unaware of the many other ways the ratemaking process facilitates appropriate competitive responses; and

See comment 2.

3. It reflects some substantial misunderstandings of how the Postal Rate Commission interprets and administers the ratemaking provisions of the Postal Reorganization Act, and of the economic notions connected with postal pricing.

Insofar as the report recommends simply that competitive situations, and evidence of demand, be an important factor in ratemaking, we do not disagree. Where a rate case record shows us that competition is an important factor, we make appropriate rate recommendations to deal with it. (We discuss some of these actions at page 7 et seq.)

That we may not be in substantial disagreement about the importance of demand and competition as ratemaking inputs does

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not mean that the Commission can accept as valid all of the discussion in the draft report. This is true for several reasons.

First, the draft does not always convey an accurate impression of the way in which the Commission actually administers the ratemaking statute.

The Commission, as certain quotations GAO has drawn from its opinions indicate (see pages 69-70 of the draft), seeks to balance all the ratemaking factors of § 3622, including the one [§ 3622(b)(2)] calling attention to relative demand ("value of service"). This approach has received judicial approval, particularly in Direct Marketing Association v. U.S. Postal Service, 778 F.2d 96 (2d Cir. 1985). Insofar as the draft recognizes that this is the Commission's procedure, we can accept its description as substantially right.

Now on p. 61.

However, Appendix I of the draft report asserts (page 95) that

> Since 1970, PRC rate-making decisions have been guided by two methods of allocating institutional costs: the Inverse Elasticity Rule (IER), also known as Ramsey pricing, and the Equal Percentage Markup (EPM) principle.3/
>
> 3 In a multi-product enterprise, institutional (overhead) costs can be distributed in different ways. One such way would be that each product contributes to overhead an amount equal to the same percentage of its direct costs. We define this as the Equal Percentage Markup Principle.

It is not the case that the Commission, or the Postal Service or the many participants in our cases, have been mainly guided by just these pricing principles. As noted above, the Commission's approach has been to balance all the statutory ratemaking criteria (which do not, of course, include equality of markups). While in the early 1970s the Commission explored, but did not unreservedly adopt, pricing on the basis of inverse elasticity, it has never enunciated or been guided by the "Equal Percentage Markup Principle" stated by GAO. Indeed, when such a system was proposed by an intervenor in Docket R87-1 and again in Docket R90-1, the Commission firmly rejected it. *See* PRC Op. R87-1, para. 4087; PRC Op. R90-1, paras. 4030-32.

That a reduction of the disparity between the markups on the two largest classes of mail in the most recent case was the outcome of the customary balancing process does not imply that the

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Now on p. 64.

Commission entertains a general policy of equalization. However, the draft report (page 100) states that:

> EPM has not been implemented in its purest form. PRC has noted that putting the same institutional cost burden on most mail would essentially eliminate the policy factors enunciated by Congress from postal rate-making, and PRC does not consider this consistent with the intent of Congress. However, beginning with the 1977 rate decision, PRC did not use the IER in the process of allocating institutional costs among classes of mail. In the 1984 rate decision, PRC stated its belief that it was not appropriate at that time to use Ramsey methods for pricing postal services. Furthermore, in its most recent rate decision, PRC reiterated its belief that First-Class should bear a markup at or only slightly above, the systemwide average, while third-class should also bear an approximately average markup.

As suggested above, the draft draws a false dichotomy between IER and EPM, as though they jointly exhausted the possible range of pricing approaches. Since they do not, the possible inference from this passage that, because the Commission does not use IER it must use (some form of) EPM, is invalid. The Commission's statements condemning the equal markup approach were made in the two most recent cases. Thus, the decision in Docket R90-1 to reduce (not eliminate) the disparity between First- and third-class markups reflects consideration of all the factors of the Act (see PRC Op. R90-1, paras. 4054-64), and not a belief in a mechanical system of equalizing markup percentages.[1]

Now on p. 7.

A somewhat similar misimpression emerges on page 11 of the draft, which asserts that

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[1] We use the term "mechanical" because, under GAO's above-quoted definition of EPM, it appears to be a form of fully-distributed costing approach. The hallmarks of such an approach are that it applies to all classes of service, regardless of their individual characteristics (including, especially, demand characteristics); and that it rests primarily on accounting conventions. A review of the major-class markup percentages actually assigned by the Commission in Docket R90-1, which range from five to 85, should dispel the notion that the Commission favors a mechanical system of this kind. A further indication is the history of the markup on Express Mail, which the Commission has lowered from 4.56 times the system average markup (in Docket R80-1) to only 0.57 times (in Docket R90-1) -- precisely because of the competitive situation of this class.

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> Since the late 1970s, there has been a basic disagreement between the Commission and the Postal Service over how to distribute institutional costs for the purpose of rate-setting. The Commission maintains that institutional costs . . . should be distributed so that First- and third-class bear shares of these costs in fairly equal proportions that are near the systemwide markup over attributable costs. In making this allocation, the Commission considers the noncost criteria listed in the Postal Reorganization Act, as well as the general theme specified in the Act that all postal rates must be fair and equitable to all mailers. The Postal Service supports the view that "value-of-service" or demand pricing should be given greater weight in distributing the overhead burden. The Commission's view on demand pricing, based on its interpretation of a 1976 court case, is that it cannot be given greater weight than any of the other non-cost rate making criteria. . . .

See comment 3.

While the Commission's view does not rest solely on expressions in the "1976 court case"[2] some of the description given of it here is apt, however it is not the Commission's view that each ratemaking factor must be given equal weight in each case. In fact, the Commission generally must give more or less weight to the various factors depending on the specific factual situation before it. It is not correct to say that the Commission has followed a policy of equalizing or nearly equalizing First-and third-class markups.[3] The history of these markups shows as much:

[2] Presumably National Association of Greeting Card Publishers v. U.S. Postal Service, 569 F.2d 570 (D.C. Cir. 1976).

[3] The report does not note that in Docket R87-1 the Commission explicitly reduced the third-class markup below the level it thought most clearly consistent with the Act. PRC Op. R87-1, paras. 4146 et seq., 5842. This determination (necessitated largely by the need to avoid excessive increases for second- and third-class mail) actually increased the disparity between First- and third-class markups by comparison with both the R84-1 levels and the Postal Service request.

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	Markups (percent)		Markup Indices[4]	
	First-Class Letters	Third-Class BRR	First	Third
R90-1	62	46	1.235	0.941
R87-1	58	41	1.20	0.84
R84-1	59	46	1.135	0.885
R80-1	25	34	0.926	1.259
R77-1	24	20	1.00	0.83
R76-1	63	55	1.21	1.06
R74-1	87	82	1.26	1.19
R71-1	96	104	1.13	1.22

See comment 4.

Moreover, we cannot agree with the proposition that the Service has advocated more emphasis on demand pricing, or has supported the use of IER. The Commission, under the Act, must act on the basis of the evidence; and the Service's pricing evidence, in recent rate cases, has stressed consideration of all the § 3622(b) factors and presented the Postal Service's view of an appropriate balance among them. See USPS-T-18, Docket R90-1 at 5-18 (testimony of witness Lyons). In our view, it is a mistake to treat the present situation as an "impasse" when, despite disagreements as to the result that should be reached, the Service's pricing witnesses and the Commission evidently start with similar general approaches.

See comment 5.

There is reason to fear that the draft report rests on material misconceptions about why the Commission has not embraced Ramsey pricing or a related technique. At pages 85-86, it states that:

Now on p. 54.

> The first rate-setting criterion specifies that rate schedules are to be "fair and equitable." One of the principal grounds on which PRC moved away from the use of demand pricing using IER or Ramsey pricing was the concern that the resulting rate structure, with its unequal percentage markups, implied cross-subsidization, and hence was per se inequitable. . . .

This statement is not referenced to any Commission opinion, and is not accurate either historically or as a matter of economics. First, "cross-subsidization" refers only to a situation in which a class does not recover its attributable costs, leaving them to

[4] Markup index is the appropriate measure for comparing markups from case to case. For each case the average markup index for all mail is 1.00. Thus, in R90-1 the markup for third-class bulk was 94% of average while the markup for First-Class letters was 123.5% of average.

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be paid by other classes. Therefore, a difference in markups above attributable costs cannot imply anything with respect to cross-subsidization, which by definition does not exist when markups are positive.[5] It is true that the Commission has stated that cross-subsidization is inequitable as well as economically inefficient. PRC Op. R87-1, paras. 3012-13. That is one of the reasons it is absolutely prohibited by § 3622(b)(3). But the requirement, partly equitable and partly efficiency-based, that all classes recover attributable costs does not imply anything about equality or inequality of markups.

Now on p. 64.

The Commission, as the draft notes (page 100), indicated in its Docket R84-1 opinion that Ramsey pricing was then infeasible. Its reasons were more diverse and much less simplistic than the quoted portion of the draft report would imply:

1. Data needed to quantify relative demand for the various postal services "are not sufficiently reliable to serve as the basis for Ramsey pricing" (PRC Op. R84-1, para. 4120).[6]

2. The Postal Service demand model used in that case (and not much changed since) was "inadequate for Ramsey pricing" (id., para. 4125), largely because of absence of essential information on cross-elasticities. See as well PRC Op. R87-1, paras. 4046-50.

3. Ramsey pricing is fundamentally efficiency-oriented, but its advocates did "not adequately address[] the question of the widened agenda Congress might have for a public enterprise, such as the Postal Service, nor how these policies should be reflected." Id., para. 4129.

4. The policy of § 101(a) of the Act, favoring nationwide provision of service and requiring that "[t]he costs of . . . the Postal Service shall not be apportioned to impair the overall value of such service to the people" did not seem adequately reflected in pure demand pricing. Id., para. 4130.

5. Unanswered questions remained concerning, e.g., the proper way (if any) to reflect the effects of the statutory letter

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[5] The only cases in which they are not are the statutorily-preferred, congressionally-subsidized mail categories identified in title 39, U.S.C., including free mail for the blind and similar services, and the § 3626 preferred-rate categories.

[6] Appendix II to the draft report suggests that this is still the case.

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monopoly and Congressional subsidies to the preferred-rate subclasses; the adequacy and up-to-dateness of marginal-cost data on the Postal Service; the effect of (otherwise desired) infrequency of rate changes; and other areas. Id., paras. 4132-40.

In this discussion it is nowhere suggested that unequal markups are in and of themselves "inequitable."

See comment 2.

The report provides an extensive and often enlightening discussion of postal services, and of the actual and potential competitive challenges to them which GAO perceives. While it might be helpful to make more clear-cut distinctions among the kinds of possible competition[7] it is true that successful competition of any kind can deprive the Service of some part of its net revenues. However, we do not find in the draft any indication that the ability of the present ratemaking approach to meet such challenges has been adequately recognized.

See comment 6.

This seems to be true, in part, because the draft concentrates heavily on the distribution of institutional costs as a pricing technique. As we have suggested above, the Commission does this in a balanced fashion, rather than according to the mechanical principle of equal markups which, in some parts of the report, GAO suggests is controlling. More specifically, however, the Commission does recognize competitive challenges and adjusts markups accordingly.

See comment 7.

The most continuous record of such adjustment has been in parcel post. This category was known, from the outset, to be subject to private-sector competition. Its markups, as assigned by the Commission, have been substantially below the system average and in recent cases have often been below those suggested by the Postal Service, although markups are not fully comparable due to

[7] Drawing on general transportation concepts, one can usefully distinguish product competition (where a user finds that an entirely different product will serve its needs, and ceases to patronize the transportation firm that carries the formerly-used product), intermodal competition (where a basically similar product is transported by entirely different means -- such as the substitution of barge for rail movements), and intramodal competition (choice among similar carriers for the same movement). GAO's examples of potential electronic diversion from First Class, for instance, might fall into the first category; competition between Express Mail and a private-sector express carrier would fall into the last.

See comment 12.

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adjustments in cost attribution, particularly in Dockets R90-1 and R80-1.[8]

Parcel Post

	System Average Markup	Commission Markup	Postal Service Proposed Markup
R90-1	50	11	2
R87-1	48	12	17
R84-1	52	16	28
R80-1	27	6	26
R77-1	24	3	3

A second example is that of Express Mail, also discussed in chapter II of the draft. The markup history of this class reflects the growing competitive challenge to which GAO refers:

Express Mail

	Markup	Markup Index
R90-1	28	.572
R87-1	69	1.42
R84-1	139	2.673
R80-1	123	4.556
R77-1	422	17.58

Here too, the Postal Service has presented probative evidence of the nature and prospects of private-sector competition. As a result, the Commission has reduced Express Mail's markup from the highest in the system (as late as Docket R84-1) to a level well below third-class bulk regular rate (27.8 percent versus 46.2 percent) and close to the markup of second class (at 23.8 percent), which benefits from special consideration under § 3622(b)(8).

Nearly exclusive concentration on markups has led GAO to ignore another extremely important way in which firms (including the Postal Service) respond to competition: improved product -- and hence price -- definition. Given the long history of Commission decisions promoting such improved product definition, this is a serious omission in any critique of the Commission's work.

[8] Lower markups have not always produced lower rates, since Commission cost attributions have differed from those the Service proposed.

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Put briefly, the issue arises when two related but distinguishable Postal Service products are lumped together for pricing purposes. If these products, for example, have different cost characteristics, it is possible for a competitor to sell only the lower-cost one, at a price reflecting only those lower costs (and thus lower than the Postal Service's price which reflects an average of low and high costs). A common-sense remedy is to differentiate (separately cost and price) the two products, so that the "cream-skimming" entrant loses the cost advantage created by the incumbent's cost averaging -- in other words, the incumbent seeks to exploit the low cost of the second product, rather than letting the entrant do so.[9] Of course, this approach may imply price increases for consumers of the higher-cost product. But the entrant would face the same necessity if it chose to offer that product as well.

The draft report virtually ignores this method of facing competition, even though in the most recent rate case the Commission provided practical illustrations.

Now on p. 34.

Now on p. 28.

Now on pp. 34-35.

The draft discusses (pages 48 et seq.) the potential for alternate delivery of third- and second-class mail matter. In addition, at pages 39-40 it observes that more profitable or lower-cost business is a target for competitive entrants.[10] GAO's examples of private delivery for magazines (pages 48-49) indicate that such competition is likely to arise in metropolitan markets where density is relatively high. Saturation advertising matter, of course, would exhibit even higher densities. All this implies that if high-delivery-density products are differentiated and priced on the basis of their own (lesser) costs, potential competition may be more effectively met than it would be by a broad-brush price-cutting initiative.

In Docket R90-1 the Commission endorsed the Postal Service's proposal to establish separate discount rate categories for walk-sequenced saturation third-class bulk mail.[11] As suggested

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[9] GAO considers the "cream-skimming" issue in the draft, when it suggests (pages 39-40) that under some circumstances the Service could be left with only the higher-cost part of the traffic.

[10] This observation is made in the Express Mail-parcel post context, but seems to be generally applicable.

[11] In fact, the Commission pressed the refinement of third-class bulk product definition farther than the Service had proposed, by recommending, on the basis of cost differences shown in the record, a discount for walk-sequenced mail at the 125-piece-per-carrier-route level. The Governors rejected this

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above, this mail is most attractive to alternative carriers. As a result of the reclassification, its R90-1 rate increase was as low as 4 percent for mail entered at the destination facility, rather than the 25 percent average for the bulk regular subclass.

This change, it should be noted, was independent of, though perfectly consistent with, the Commission's pricing decision respecting third-class regular mail as a whole.

GAO's treatment of the issue -- again, with particular reference to third class -- essentially ignores this aspect of response to competition and concentrates on the markup decision applying equally to all existing or potential subcategories within the class. Attempting to meet competition by lowering the classwide markup, however, is likely to be an effective strategy only if competition is present throughout the class. This is by no means necessarily the case in either third or second class. Indeed, GAO's recommended general approach -- an increase in emphasis on demand as a determinant of rates -- would itself imply a need for more accurately focused demand information so that the demand characteristics of one identifiable subcategory of mail are not misapplied to other, perhaps very different, categories.[12] By concentrating on the question of markup, the report seems not to call due attention to the fact that responding to competition may require differentiating competitive from noncompetitive subcategories, and at least considering increased prices of the latter to finance competitive price response on behalf of the former.

See comment 10.

The draft quite correctly recognizes the importance to the Postal Service of avoiding both perceptions of product inferiority and operating costs that are higher than necessary. It might with

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recommendation (an action currently pending on appeal) but later authorized the Service to request a similar classification change limited to flat-shaped pieces. This case (Docket MC91-2) was settled favorably to the proposal, which has just (January 7, 1992) been ordered into effect by the Board of Governors.

See comment 9.

Section was deleted as stated in comment 9. There is no new page number.

[12] Appendix II identifies numerous weaknesses in the currently available measures of price elasticity for postal products. This Appendix notes that price is not the principal cause of recent trends in demand for First- and third-class mail (page 121), and requires the conclusion that existing elasticity measures, while perhaps adequate for their limited use in the Postal Service's volume projection model, and to provide an indication of the relative ranking of mail classes in terms of value of the service to mailers, are subject to significant bias and are not sufficiently reliable for use in a demand pricing model.

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advantage lay somewhat more emphasis on the interdependence of pricing policy with these other factors. Changing the relative burden of institutional costs as between competitive and noncompetitive categories will not secure a competitive position that is undermined by unduly high attributable costs; competitors, insofar as willing to accept reduced profit margins, will still be able to offer lower prices. It should be remembered, in this connection, that the theory underpinning demand pricing assumes normal technical efficiency on the part of the firm whose prices are in question. Since it appears inevitable that more emphasis on relative demand would require less emphasis on other statutory pricing policies, with a corresponding decline in the system's ability to carry out all of Congress's directives, it becomes a question of considerable importance whether such demand-oriented pricing would in fact produce the benefits GAO expects from it. The draft could usefully make more explicit than it now does the dependence of such a policy on competitively adequate control of costs and maintenance of service quality.

We appreciate the opportunity to comment on this draft. If we can be of further assistance, please call on us.

Sincerely yours,

George W. Haley

George W. Haley
Chairman

GAO Comments

1. Appendix II concerns econometric estimation of price elasticities. The appendix PRC reviewed was revised substantially for the final report in response to a number of technical points raised in our internal review process and additional information provided by the Postal Service's Rates and Classification Department. PRC did not review the revised appendix.

2. We believe that the report accurately describes how PRC interprets and applies the ratemaking criteria set forth in the Postal Reorganization Act and, more importantly, the potential effects of its ratemaking policies on postal competitiveness. In comments 3 and 4 that follow and on pages 58 and 59 of the report, we respond to the specific concerns raised by PRC on this issue.

3. We believe that the table PRC provides on page 5 of their comments shows that PRC has pursued a policy in the last several rate cases that First-Class letters should bear a markup slightly above the systemwide average and third-class bulk regular should bear a markup slightly below the systemwide average. This stated PRC policy severely limits the Postal Service's ability to apply demand factors, including elasticities of demand in setting postal rates for its two major mail classes.

4. In its comments, the Postal Service said that we have accurately characterized its position on the need for PRC to place greater emphasis on demand pricing. Further, the Postal Service has advocated various forms of IER since PRC abandoned it in the late 1970s and has tried to get PRC to accept interpretations of the value-of-service criterion which would give demand greater weight in ratemaking.

5. We corrected our statement that said PRC moved away from using IER or Ramsey pricing out of concern that the unequal percentage markups implied cross-subsidization and thus were inequitable per se. The statement was intended to mean that one of the concerns was that the IER or unequal percentage markups could be perceived by major users of the Postal Service as a cross-subsidization issue. The revised language states that PRC moved away from the use of demand pricing using IER or Ramsey pricing for a variety of reasons. The reasons include PRC's concerns about the reliability of data needed to quantify relative demand and the question of whether such a pricing policy would be compatible with the fairness and equity standard among other standards set forth in the Postal Reorganization Act. In its latest rate decision, Docket R90-1, PRC said that shifting institutional costs from third-class users to First-Class Mail users,

as proposed by the Postal Service, would be contrary to the requirement that the rate schedule be fair and equitable.

6. We state in the report that PRC does not apply EPM in its purest form and acknowledge that PRC considers the eight noncost criteria in the allocation of institutional costs. We do believe, however, that PRC decisions have taken on a consistent pattern in allocating overhead to the two major mail classes—First- and third-class mail. This pattern fails to recognize the differences in the demand elasticities of these mail classes (see discussion in app. III).

7. We do not believe that the history of parcel post and Express Mail are good examples of how PRC's ratemaking decisions have been responsive to Postal Service competition. The lower markups assigned by PRC generally were not enough and came too late to allow the Postal Service to be on an equal footing with its competitors. Furthermore, PRC's rejection of the Postal Service's request to offer volume discounts illustrates PRC's reluctance to adopt a market-oriented approach to pricing postal services.

8. We agreed with PRC that classification changes are an important strategy for responding to competition as illustrated by its discussion on third-class saturation advertising mail. However, it fails to mention that it has assigned the highest institutional cost markup (200 percent) to this subcategory, which is not consistent with the goal of meeting the potential competitive threat from private delivery.

9. The sections of appendix II cited by PRC have been deleted from the final report, for reasons stated in comment 1. As a matter of econometric theory and practice, the proposition that "price is not the principal cause of recent trends in First- and third-class mail" does not "require the conclusion" that estimate elasticities are biased or otherwise unreliable. On the basis of the evidence provided in the revised appendix, we do not agree that currently available estimates of price elasticities are not sufficiently reliable to guide demand pricing, especially when supplemented with other types of evidence.

10. We agree with PRC on the importance of the Postal Service controlling postal costs and improving service quality that is discussed in chapter 1 of the report. Lack of solid progress in these two areas will prevent the Postal Service from maintaining a competitive position in the marketplace regardless of whether PRC allows demand factors to play a more important role in the pricing of postal services.

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Bibliography

Baumol, William J., and David F. Bradford. "Optimal Departures From Marginal Cost Pricing." American Economic Review, Vol. 60 (1970), pp. 265-82.

Baumol, William J., "On the Proper Cost Test for Natural Monopoly in a Multiproduct Industry." American Economic Review, Vol. 67 (1977), pp. 809-22.

Fuss, Melvyn A. "Cost Allocation: How Can the Costs of Postal Services Be Determined?" Perspectives on Postal Service Issues, ed. Roger Sherman. Washington, D.C.: American Enterprise Institute, 1980.

Hausman, Jerry A. "Direct Testimony on Behalf of the Reuben H. Donnelley Corporation, et al." Postal Rate and Fee Changes, 1987, Docket R87-1. U.S. Postal Rate Commission, Washington, D.C., 1987.

Hausman, Jerry A. "Rebuttal Testimony on Behalf of Direct Marketing Association, Inc., et al." Postal Rate and Fee Changes, 1987, Docket R87-1. U.S. Postal Rate Commission, Washington, D.C., 1987.

The Household Diary Study, Fiscal Year 1988. U.S. Postal Service, Rate and Classification Department, Demand Research Division. Washington, D.C.: 1989.

Judge, George G., et al. The Theory and Practice of Econometrics. 2nd ed. New York: John Wiley and Sons, 1985.

Arthur D. Little, Inc., "Electronic Alternatives to Traditional Mail." Task Order 89-11, U.S. Postal Service, Technology Resource Department, Washington, D.C., 1989.

Postal Rate and Fee Increases, 1971, Docket R71-1, Chief Examiner's Initial Decision on Postal Rate and Fee Increases. U.S. Postal Rate Commission. Washington, D.C.: 1972.

Postal Rate and Fee Increases, 1973, Docket R74-1, Chief Administrative Law Judge's Initial Decision on Postal Rate and Fee Increases. U.S. Postal Rate Commission. Washington, D.C.: 1975.

Postal Rate and Fee Increases, 1975, Docket R76-1, Opinion and Recommended Decision. U.S. Postal Rate Commission. Washington, D.C.: 1976.

Postal Rate and Fee Changes, 1983, Docket R84-1, Opinion and Recommended Decision. U.S. Postal Rate Commission. Washington, D.C.: 1984

Postal Rate and Fee Changes, 1980, Docket R80-1, Opinion and Recommended Decision. U.S. Postal Rate Commission. Washington, D.C.: 1981.

Postal Rate and Fee Changes, 1989, Docket R87-1, Opinion and Recommended Decision. U.S. Postal Rate Commission. Washington, D.C.: 1988.

Postal Rate and Fee Changes, 1990, Docket R90-1, Opinion and Recommended Decision. U.S. Postal Rate Commission. Washington, D.C.: 1991.

Ramsey, Frank. "A Contribution to the Theory of Taxation." Economic Journal, Vol. 37 (1927), pp. 47-61.

The Ratemaking Process for the U.S. Postal Service. Report of the Institute of Public Administration to the Board of Governors of the U.S. Postal Service. New York: 1991.

Scherer, F.M. and David Ross. Industrial Market Structure and Economic Performance, 3rd ed. Boston: Houghton Mifflin Co., 1990.

Sherman, Roger, and Anthony George. "Second-Best Pricing for the U.S. Postal Service." Southern Economic Journal, Vol. 45 (1979), pp. 685-95.

"Strategic Plan, FY 1990 Through 1995." U.S. Postal Service, Washington, D.C.: (n.d.).

Taylor, Lester D. An Econometric Study of the Demand for First-Class Letters and Cards. Washington, D.C.: U.S. Postal Rate Commission, 1989.

Theil, Henri Principles of Econometrics. New York: John Wiley and Sons, 1971.

Tolley, George S. "Direct Testimony on Behalf of the United States Postal Service." Postal Rate and Fee Changes, 1990, Docket R90-1. U.S. Postal Rate Commission, Washington, D.C., 1987.

Toward Postal Excellence: The Report of the President's Commission on Postal Reorganization. President's Commission on Postal Organization. Washington, D.C.: 1968.

Tye, William B. "Ironies to the Application of the Inverse Pricing Rule to the Pricing of U.S. Postal Service." Logistics and Transportation Review, Vol. 19 (1983), pp. 245-60.

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