USPS-T-6

BEFORE THE
POSTAL RATE COMMISSION
WASHINGTON, D.C. 20268-0001

POSTAL RATE AND FEE CHANGES, 1997	Docket No. R97-1

DIRECT TESTIMONY
OF
GEORGE S. TOLLEY
ON BEHALF OF
UNITED STATES POSTAL SERVICE

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DIRECT TESTIMONY
OF
GEORGE S. TOLLEY

AUTOBIOGRAPHICAL SKETCH

My name is George S. Tolley. I am a professor of economics and formerly director of the Center for Urban Studies at the University of Chicago. I am co-editor of the professional journal Resource and Energy Economics and until recently was a member of the Energy Engineering Board of the National Research Council of the National Academy of Sciences. I am also President of RCF, Inc., an independent firm located in Chicago, Illinois, specializing in economic and econometric analyses for policy uses.

I received a Bachelor of Arts degree in Economics from American University in 1947, and an M.A. and Ph.D. in Economics from the University of Chicago in 1950 and 1955, respectively.

I was an assistant professor at the University of Chicago from 1950 to 1955 and have occupied my present position at the University since 1966. I was an associate professor and then a professor of economics at North Carolina State University from 1955 to 1966. I was a visiting professor at Purdue University in 1970, and a visiting professor in 1962 and visiting scholar in 1971 at the University of California at Berkeley.

I was director of the Economic Development Division, Economic Research Service, United States Department of Agriculture, from 1965 to 1966 and was Deputy Assistant Secretary and director of the Office of Tax Analysis in the Department of Treasury from 1974 to 1975. In these positions I directed staffs whose primary function was to conduct research and analysis for policy purposes. My other duties in government have included advising Cabinet and White House officials, participating in the legislative proposal process, and writing testimony for and participating in congressional hearings.

My published works include 16 books and over 40 articles. Among the journal articles, four were published in Econometrica, three each in the Journal of Political Economy and the American Economic Review, and one in the Quarterly Journal of Economics.

I have participated in the preparation of 9 technical bulletins, over 70 chapters contributed to books, conference proceedings, and other research studies, and have written 11 book reviews and made a number of published remarks as a professional meeting discussant.

As a member of the faculty at the University of Chicago, I teach graduate economics courses, and chair and attend workshops and seminars dealing with economics and econometrics.

I have served as a consultant on economic and agricultural policy in Egypt, Iran, Israel, Korea, Panama, Puerto Rico, Thailand and Venezuela, and I have performed analyses of mortgage interest deductions, accelerated depreciation and housing instability for the Department of Housing and Urban Development and of capital taxation for the Treasury Department. I served as a consultant on econometric and simulation techniques in work on postal prices and competition and demand component markets of mailstreams carried out for the U.S. Postal Service. During 1989, I served as a consultant to Australia Post on mail volume forecast methodology and as a consultant to the World Bank on housing policy for China. I have testified on behalf of the Postal Service as the volume witness in Docket Nos. R80-1, R84-1, R87-1, R90-1, R94-1, MC95-1, and MC96-2.

PURPOSE AND SCOPE OF TESTIMONY

The major purpose of this testimony is to present forecasts of volumes for the major categories of mail service offered by the United States Postal Service. Two sets of forecasts are presented:

(a) Mail volumes that will occur in the Test Year if the current Postal Service permanent rate schedules remain in effect, referred to as the "before-rates" forecast; and

(b) Mail volumes that will occur in the Test Year if the rates proposed by the Postal Service in this proceeding are adopted, referred to as the "after-rates" forecast.

The method used in forecasting mail volumes is to project changes in mail volumes between a Base Year and a Test Year. The Base Year used in the forecasts is the four postal quarters beginning with the third postal quarter of 1996 and ending with the second postal quarter of 1997. The Test Year begins October 1, 1997 and ends September 30, 1998.

In the testimony, recent volume experience is reviewed, and factors determining mail volumes which are taken into account in making the forecasts are discussed. A detailed explanation of the econometric analyses used in making the volume forecasts is provided in the direct testimony of Thomas Thress (USPS-T-7). Additional information that is considered in making volume forecasts is discussed where appropriate below.

SUMMARY

This testimony presents the Test Year volume forecasts for eighteen domestic mail subclasses and five special services offered by the Postal Service. Priority Mail and Express Mail forecasts are presented in the testimony of Gerald Musgrave (USPS-T-8) but are presented in the summary table below. In the before-rates forecast, the existing postal rate schedules are projected to continue to prevail from the Base Year through the Test Year, whereas in the after-rates forecast, the new rates proposed by the Postal Service in this proceeding are projected to be implemented on the first day of the Test Year.

The Base Year for these forecasts consists of four postal quarters starting at the beginning of the third postal quarter of the 1996 Postal Fiscal Year (PFY) and ending with the second postal quarter of the 1997 Postal Fiscal Year. The Test Year coincides with Government Fiscal Year (GFY) 1998 which starts on October 1, 1997 and ends on September 30, 1998. After-rates Test Year volumes are projected assuming that proposed rates will be implemented on October 1, 1997. Table 1 summarizes the before- and after-rates projections of mail and service volumes for the Test Year. Also presented for comparison are Base Year volumes used in this rate case from which the Test Year volumes are projected. The Base Year and Test Year volumes include mail of the executive and legislative branches of the federal government.

The last column of Table 1 gives Test Year After-Rate adjusted volumes for the mail categories as they appear in witness O'Hara's materials. Adjustments were made by other Postal Service witnesses due to proposed service changes, the elimination of Standard single-piece mail and other reasons not considered in my testimony. The sources of these adjustments are referenced in the footnotes to the table. My testimony is based on the next to the last column in Table 1.

TABLE 1
VOLUME PROJECTIONS
(Million Pieces)

Category of Mail or Service	Base Year	Test Year Before-Rates	Test Year After-Rates	Adjusted After-Rates
FIRST-CLASS MAIL				
First-Class Letters & Flats	92,899.506	95,901.297	95,446.568	95,550.984
(Single-piece)	53,738.949	54,394.309	54,413.387	54,517.802[2]
(Nonautomated Presort)	7,846.568	5,369.390	4,855.407	4,855.407
(Automated)	31,313.989	36,137.599	36,177.775	36,177.775
First-Class Cards	5,217.264	5,693.117	5,523.046	5,523.046
Stamped Cards	570.329	594.894	583.005	583.005
Private Cards	4,646.935	5,098.223	4,940.041	4,940.041
(Single-piece)	2,437.427	2,546.540	2,476.656	2,476.656
(Nonautomated Presort)	710.712	643.732	667.024	667.024
(Automated)	1,498.796	1,907.951	1,796.361	1,796.361
TOTAL FIRST-CLASS MAIL	98,116.770	101,594.414	100,969.614	101,074.030
Priority Mail[1]	991.280	1,123.760	1,087.829	1,152.413[3]
Express Mail[1]	58.719	64.377	63.410	62.721[3]
Mailgrams	5.558	4.757	4.757	4.757
PERIODICALS				
Within County	910.993	911.204	901.870	901.870
Nonprofit	2,182.805	2,186.677	2,161.077	2,161.077
Classroom	58.647	51.194	47.452	47.452
Regular Rate	7,013.337	7,172.571	7,147.574	7,147.574
TOTAL PERIODICALS	10,165.782	10,321.646	10,257.973	10,257.973
STANDARD A MAIL				
Single-Piece	158.735	165.695	161.574	0.000[4]
Regular Rate Bulk	60,923.517	66,783.249	66,313.735	66,313.736
Regular	30,924.312	34,359.008	37,627.554	37,627.555
(Nonautomated)	10,247.842	8,904 147	9,184.917	
(Automated)	20,676.469	25,454.861	28,442.638	
Enhanced Carrier Route	29,999.206	32,424.240	28,686.181	28,686.181
(Nonautomated)	28,790.811	30,301.017	26,626.519	
(Automated)	1,208.395	2,123.223	2,059.662	
Nonprofit Rate Bulk	12,718.009	13,255.224	13,122.251	13,122.251
Nonprofit	9,711.959	10,123.229	10,550.968	10,550.968
(Nonautomated)	5,059.538	4,086.150	3,658.517	
(Automated)	4,652.422	6,037.079	6,892.451	
Nonprofit ECR	3,006.050	3,131.995	2,571.283	2,571.283
(Nonautomated)	2,831.120	2,775.082	2,216.626	
(Automated)	174.930	356.913	354.654	
TOTAL STANDARD A	73,800.261	80,204.168	79,597.559	79,435.987

(Continued on next page)

TABLE 1
(Continued)
VOLUME PROJECTIONS
(Million Pieces)

Category of Mail or Service	Base Year	Test Year Before-Rates	Test Year After-Rates	Adjusted After-rates
STANDARD B MAIL				
Parcel Post	220.034	241.598	231.879	234.660[5]
(Inter-BMC)	64.941	55.256	50.375	
(Intra-BMC)	48.009	49.406	43.566	
(DBMC)	107.085	136.937	137.938	
Bound Printed Matter	515.988	567.896	561.718	574.742[6]
Special Rate	194.157	200.562	200.511	200.511
Library Rate	28.922	30.245	28.709	28.728[6]
TOTAL STANDARD B	959.101	1,040.302	1,022.817	1,038.641
Postal Penalty	347.651	297.820	297.820	297.820
Free-for-the-Blind	50.388	56.390	56.390	56.390
TOTAL DOMESTIC MAIL	184,495.511	194,707.635	193,358.170	193,380.731
SPECIAL SERVICES				
Registry	18.149	16.195	14.288	14.288
Insurance	30.069	31.438	30.600	30.600
Certified	283.138	304.153	293.118	292.720[7]
Collect-on-Delivery	4.611	3.936	3.886	3.886
Money Orders	214.709	236.661	236.570	236.570
TOTAL SPECIAL SERV.	550.843	592.383	578.463	

[1] Volume projections before adjustment for Priority Mail and Express Mail are taken from Dr. Gerald Musgrave's testimony (USPS-T-8), and adjusted for the MC96-3 decision as explained in Library Reference H-173.
[2] An explanation of the adjustment to First-Class single-piece is presented by witness Fronk (USPS-T-32).
[3] An explanation of the adjustment to Priority and Express mail is presented by witness Sharkey (USPS-T-33).
[4] An explanation of the adjustment to Standard single-piece is presented by witness Moeller (USPS-T-36).
[5] An explanation of the adjustment to parcel post is presented by witness Mayes (USPS-T-37).
[6] An explanation of the adjustment to bound printed matter and library rate is presented by witness Adra (USPS-T-38).
[7] An explanation of the adjustment to certified mail is presented by witness Needham (USPS-T-39).

As shown in Table 1, total domestic mail volume is projected to increase from 184.5 billion pieces in the Base Year to 194.7 billion pieces in the before-rates situation in the Test Year. The increase is 5.5 percent over a period of about one and one-half years, corresponding to an annual growth rate of approximately 3.6 percent. The projection for domestic mail volume in the after-rates situation is 193.4 billion pieces, which is a 4.8 percent increase over the same period, corresponding to an annual growth rate of about 3.2 percent.

For the five special services covered in the testimony, the projection is for an increase from 550.8 million transactions in the Base Year to 592.4 million transactions before-rates in the Test Year, an increase of 7.5 percent. The after-rates projection for special services is 578.5 million transactions, an increase of 5.0 percent over the Base Year. Note that special delivery service, which existed in the Base Year, will not exist in the Test Year.

The basic volume forecasting approach consists of projecting the volume in the Test Year through use of a series of projection factor multipliers. Each projection factor considers the impact of a particular variable on volume from the Base Year to the Test Year. A first variable considered in projecting mail volumes is the price paid by the mailer. The effect of price on volume is estimated as a response to price in real terms, i.e., nominal price deflated by an index of the general level of prices.

Rather than occurring immediately, response to price occurs over a period of time. A change in real or deflated price is estimated to lead to a volume response in the quarter in which the price change occurs and the three following quarters. The volume responses to price are expressed as price elasticities (where price elasticity is percent change in volume resulting from a one percent change in real price). Effects of deflated price changes on the Test Year volume forecast are obtained by applying estimated

price elasticities to percentage changes in real prices between the Base Year and the Test Year.

A second factor considered is income. The effect of long-term growth in real income per adult on mail volume is projected by combining the long-term income elasticity of demand (the percentage increase in volume resulting from a one percent increase in real long-term income per adult) for each mail category with the projected percentage increase in real long-term income. The effect of short-term income changes due to business fluctuations is projected by combining the short-term income elasticity with the projected change in short-term income between the Base Year and the Test Year.

Adult population is a third factor considered. The projected percentage increase in adult population is estimated to increase the mail volume of all categories by an equal percentage amount. A 1.9 percent increase in adult population is projected to occur between the Base Year and Test Year.

Volumes for some categories of mail are affected by the price of substitute mail categories. As a result, the price of the substitute, or cross price, is a fourth factor considered for selected categories of mail. Cross elasticity of demand (percentage change in volume for a category resulting from a one percent change in price for a substitute category) is used to take account of the effects of changes in prices for substitute categories.

Additional specific factors also affect demand for some mail categories. For those factors that are quantifiable and for which predicted values are available, an elasticity is estimated and used in connection with the projected percentage change for that factor. Seasonal multipliers are included to provide the seasonal pattern for the volume forecasts. Finally, the effects of other factors that affect demand for mail service, but are not individually quantified, are consolidated into a single additional net trend factor.

The text of this testimony presents a discussion of factors that affect the demand for individual mail categories and presents the resulting volume projections. The Technical Appendix and workpapers as well as the direct testimony of Thomas Thress (USPS-T-7) provide a detailed description of the procedures used.

I. INTRODUCTION

A. Trends in Mail Volume

The total volume of domestic mail handled by the U.S. Postal Service reached 182.6 billion pieces in Postal Year 1996, one percent higher than the 180.8 billion pieces in the previous year. New yearly highs have been typical for mail volume. Since the Postal Reorganization Act of 1970, when volume was 84.5 billion, total mail volume has grown in every year except 1975, 1991 and 1992.

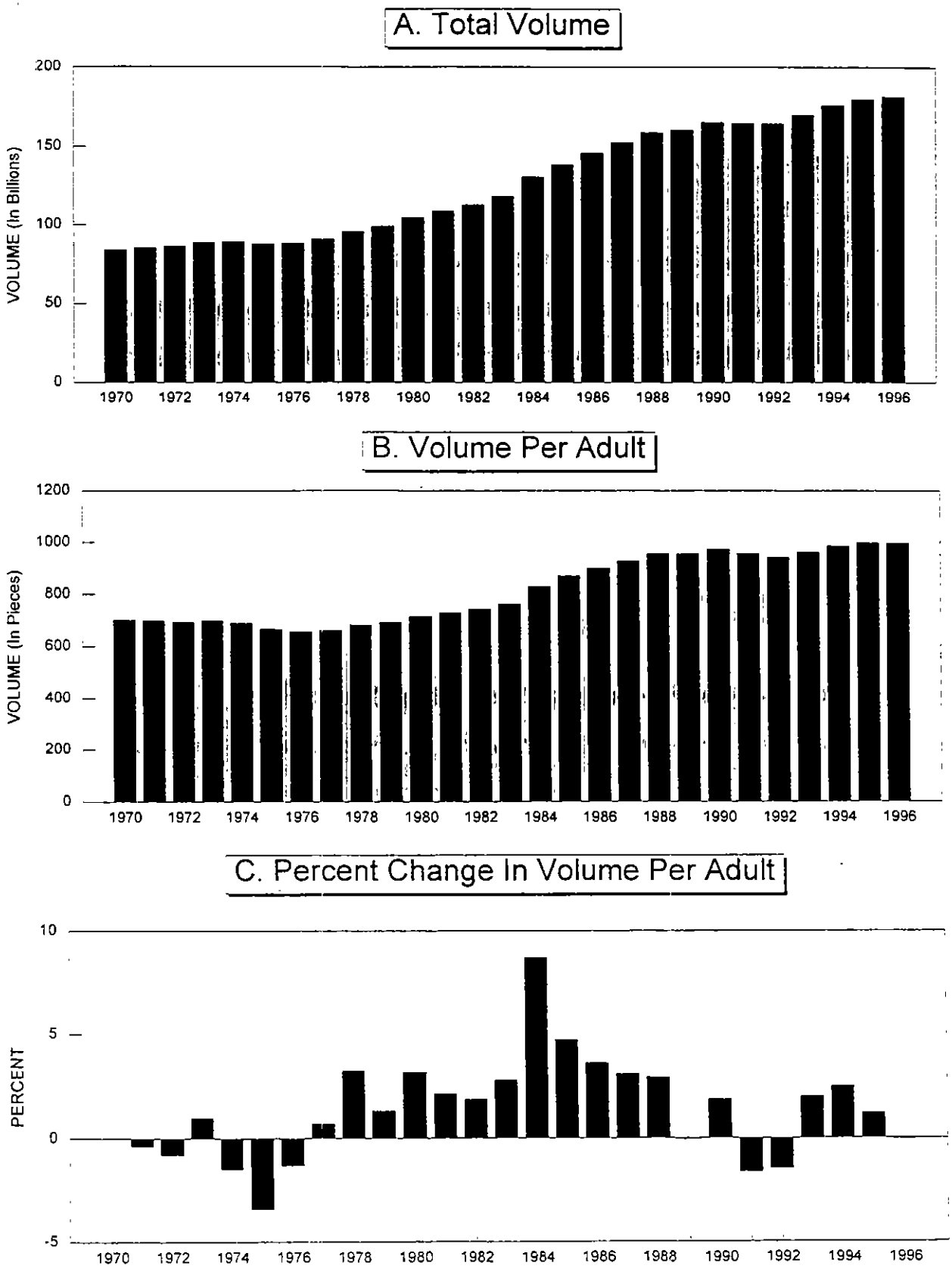
Increasing population explains much of the mail volume growth. Adults are generally responsible for generation of mail. The adult population as measured by persons 22 years of age or older rose 50.8 percent from 1970 to 1996, during which time total mail volume grew by 115.0 percent. Population growth has been a relatively steady influence. The rate of growth of the adult population varied from about one to two percent per year.

The influence of population is separated out by comparing the top and middle charts in Figure 1. The top chart shows total mail volume from 1970 to 1993, revealing growth that was on the whole slower in the 1970s than in the 1980s. The middle chart shows volume per adult, reflecting influences other than population. It reveals a more varied situation. Starting at 702 pieces per adult in 1970, pieces per adult dipped to 657 in 1976 and then recovered to 715 pieces by 1980. On net, then, in the 1970s mail volume increased approximately in proportion to population. The early 1980's continued and accelerated the expansion of the late 1970's, with pieces per adult reaching its peak of 973 in 1990. Pieces per adult declined the next two years to 943 in 1992 before increasing to 994 in 1996.

The lower part of Figure 1 enables a closer look by giving the yearly percentage changes in pieces per adult, derived from the middle chart. Periods of systematically different change are brought out in the lower chart. Pieces per adult declined in five of

Figure 1

Total Domestic Mail



the six years from 1971 to 1976. Pieces per adult increased in every year subsequent to 1976 through 1990, including the large gain of 8.7 percent in 1984. After declining in 1991 and 1992, pieces per adult rose between 1993 and 1995 while staying relatively constant in 1996.

The total mail volume experience in Figure 1 is largely reflective of the two most important mail subclasses, First-Class letters and Standard A (formerly third-class) bulk regular mail. As will be brought out later in this testimony, for these two subclasses, experience has been similar in that growth for both picked up in the late 1970's and early 1980's, followed by a tapering off of growth, but the swings were much wider in third bulk regular mail. Experience has been extremely varied for the numerous other subclasses which have a lesser effect on total mail volume. The testimony is concerned with the underlying subclass behavior leading to the volume totals shown in Figure 1.

B. Approach to Forecasting Used in This Testimony

The two major tasks of the testimony are (1) to understand the volume changes for each subclass and (2) to use the understanding to make projections through the Test Year.

1. Understanding of Volume Responses

a. Factors Affecting Mail Volume Behavior

The testimony is based on the belief that past behavior of mail volumes provides the most valuable source of information about what is likely to happen in the future, particularly if the reasons for past volume changes can be understood and used as the basis for forecasting.

Income and price changes, which are traditional variables used to explain economic changes, are among the reasons that mail volumes change. For example, as incomes rise, the demand to communicate rises in the course of fulfilling the demands

for growing amounts of goods and services in the economy. Prices affect mail volumes in several ways. The rate charged for a piece of mail in the subclass whose volume is being explained, or its own price, acts to deter use if the price is raised. Rates charged for mail that might be used as an alternative, or postal cross prices, as illustrated by the rate for a letter whose contents could be sent either by First-Class or Standard A, may affect which mail subclass is used. Another type of cross price is for nonpostal alternatives, as for example United Parcel Service rates that affect usage of, among others, parcel post mail.

In addition, mail volumes are influenced by considerations beyond readily measurable income and price variables. Lifestyle and demographic changes influence mail volumes in a variety of ways. Mail is one type of communication among many. As is well known, communications are in a rapid state of flux and are particularly affected by electronic communications developments. The developments are having both adverse and positive effects on mail volumes. Advertising mail is not an isolated entity but rather is one among several advertising media which are in competition with each another. The individual media are subject to changes in input costs, technology and exposure effectiveness that alter their attractiveness and the competitiveness of non-mail media with mail.

b. Strategy for Analyzing Mail Volume Behavior

The *first* step in gaining an understanding of mail volume behavior is to specify regression equations attempting to explain mail volume in terms of independent variables influencing mail volume behavior. The econometric work includes regressions for each mail subclass using quarterly data. The econometric analysis gives estimates of the degree of response to the measured variables, which then can be used to explain how these variables contribute to volume change. For example, the analysis indicates the extent to which rises in volume per adult have been due to rising income. For each

subclass of mail, the coefficient giving response of the subclass volume to a one percent change in long-run or permanent income, multiplied by the percentage change in income, gives the effect on volume attributable to the income change. As another example, volume declines in the middle 1970's can be explained partly as a response to postal rate increases that occurred at the time.

Ideally, ordinary least squares (OLS) regressions in raw or uncorrected form would yield satisfactory estimates of the responses to the explanatory variables in the equation. One would project the values of the explanatory variables into the future, use them in the equations estimated by OLS and emerge with forecasted mail volumes. A complication precluding this simple approach is that OLS estimates in uncorrected form in some cases do not yield satisfactory estimates. Corrections for serial correlation are needed. Another notable consideration is the existence of intercorrelation among the independent variables, which is beyond the control of the investigator and makes some of the individual coefficient estimates from raw OLS equations unreliable.

The *second* step in gaining an understanding of mail volume behavior is to introduce procedures into the OLS estimation needed to obtain more reliable estimates. These procedures take several forms. For example, the Household Diary Study, which gives cross section data at a point in time, throws light on effects of income on mail volume which can be introduced into the basic time series regressions replacing unreliable income coefficients from the raw time series regressions. As other examples, economic theory is used to constrain the relations among estimates to reasonable values, ensuring that lagged responses to price changes conform to a reasonable pattern and that reciprocal relations among cross price elasticities are reasonable.

Underlying the econometric work used in the forecasts in this testimony is a strong predisposition to rely as much as possible on received economic theory, observed data

and standard statistical methods. The procedures just noted to correct for problems arising from intercorrelations among independent variables are guided by this predisposition rather than being in any sense ad hoc. They utilize state of the art econometrics.

In addition to complications arising from intercorrelations among included independent variables, quarterly time series measures in a form useable in regressions are not available for all variables affecting mail volumes. Because of limitations on data useable in regressions, the specification of the econometric equations realistically cannot be completely ideal. However, a wealth of other information exists on factors affecting mail volumes. The philosophy underlying the present testimony is that all information, not just that small subset includable in a quarterly time series regression, should be used in gaining an understanding of mail volume behavior and predicting future mail volumes. According to this approach, goodness-of-fit statistics, which are of some help in choosing between specifications, do not necessarily provide an adequate criterion for judging results or their usefulness for forecasting.

The *third* step in understanding mail volume behavior is to introduce information not amenable to inclusion in econometric analysis. This information throws light on the effects of variables that have to be omitted from the regressions. Noneconometric information is used to check the reasonableness of econometric results, to check prediction performance in the recent past and to contribute to the accuracy of the Test Year forecasts.

c. Measurement of Important Variables

i. Postal Prices

With regard to the measured independent variables, the price of a mail subclass is measured as a fixed weight index (FWI) of the prices of the various categories of the subclass. For example, the 32 cent rate commonly referred to as the price of a First-

Class letter is only the rate of a basic letter weighing one ounce or less. Other types of letters can cost more or less than 32 cents and the FWI price of letters reflects the impact of the additional cost for letters weighing more than one ounce, the discount for letters that are presorted or automated, and the cost -- known as a "user cost" -- of preparing presorted mail.

Extra Ounce Costs. Not all letters weigh one ounce or less. The average price of a First-Class letter must be adjusted to consider the fact that letters weighing more than one ounce are charged a higher rate. At present, the extra ounce charge for First-Class letters is 23 cents per ounce, so a two-ounce letter costs 55 cents. Similar adjustments are made for other subclasses of mail.

Presort and Automation Discounts. The measurement of price is further affected by presort and automation discounts. Nearly 40 percent of First-Class letters receive a discount for being presorted or prebarcoded. The presence of presort and automation discounts, referred to as worksharing discounts, makes the weighted average price of sending a First-Class letter less than indicated by considering only nonpresorted letters. Worksharing discounts are available for other subclasses of mail and their impact is included in the measurement of postal price.

User Costs. The price paid by mailers for workshared mail presorted letters is not solely represented by the postal rate paid. The reason is that mailers or their agents must bear extra costs of performing the tasks that qualify the mailing for a discount. The additional cost borne by mailers to satisfy worksharing requirements is referred to as a user cost and user costs are included as part of the FWI price paid by mailers.

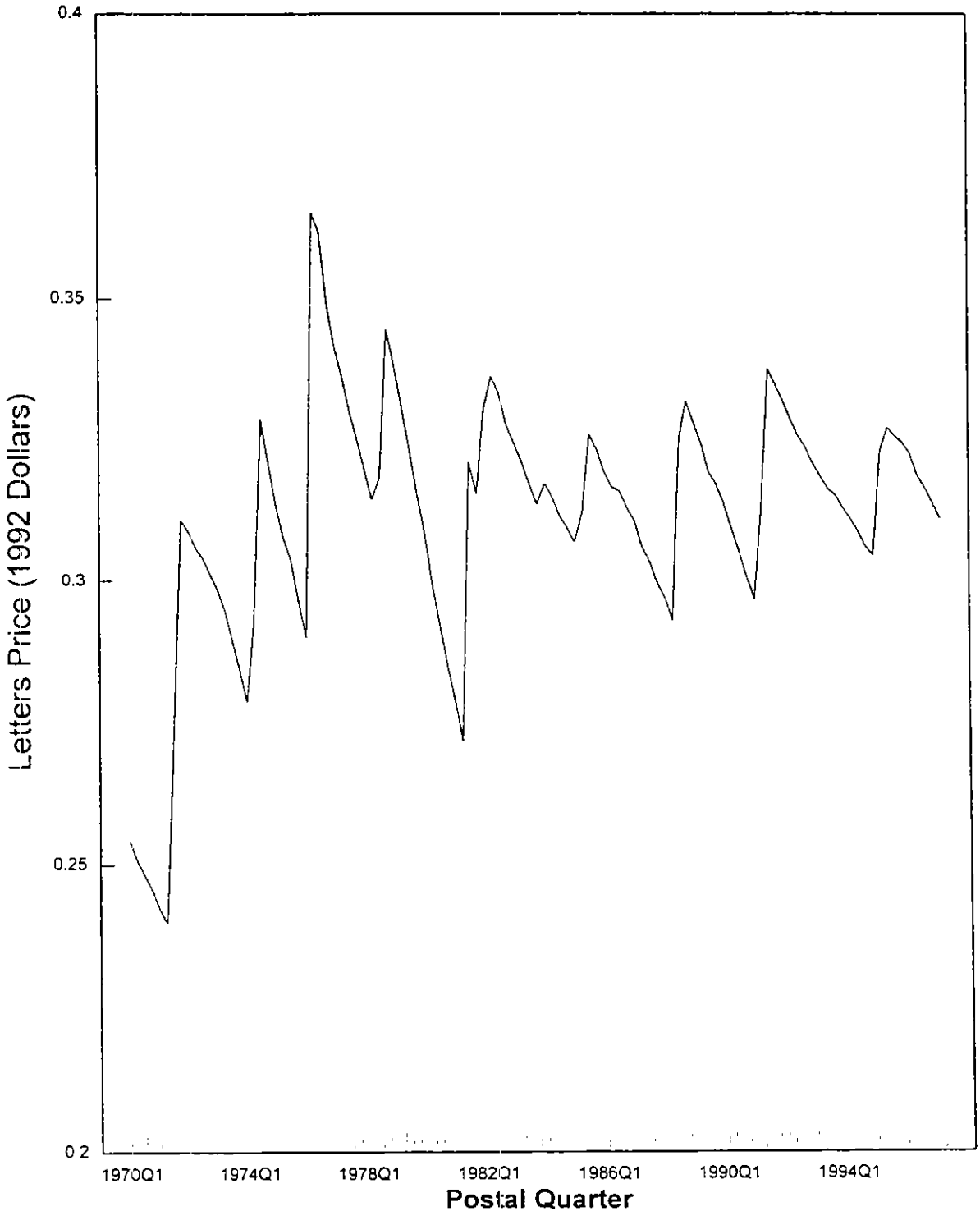
Inflation Adjustment. The price of sending a basic one ounce First-Class letter has risen nine times since the beginning of 1971. In May 1971 the price was increased from 6 to 8 cents, where it remained for nearly three years until being raised to 10 cents in March 1974. Less than two years later, in December 1975, it was raised to 13 cents.

Subsequent increases have occurred at approximately three-year intervals. The price became 15 cents in May 1978, rising to 18 cents in March 1981 and 20 cents in November 1981. The price was raised to 22 cents in February 1985, to 25 cents in April 1988, and to 29 cents in February 1991. The current price of 32 cents for a one ounce single-piece letter has been in effect since January 1995.

Although the nominal price has increased substantially over the years, much of this increase has paralleled the increase in the general price level over the same period. Mailers can be expected to respond to real or deflated postal price, which requires dividing the nominal postal prices considered so far by an index of the general level of prices. Nominal postal prices are changed only intermittently, typically staying constant between rate cases. On the day new rates go into effect, postal prices rise by the full amount of the rate increase, and then the prices in real terms begin to fall as inflation reduces the real value that must be paid to send mail. Real postal prices exhibit a saw-tooth pattern, rising vertically at the time of a nominal rate increase and then gradually falling from that day forward due to inflation until there is another vertical rise at the time of the next rate increase. Whether real or deflated postal prices rise from one rate case to another depends on whether nominal postal prices are raised by more, or less, in a rate case than the rise in the general price level since the last rate case.

Chart A shows the fixed weight index price (in 1997 dollars) for First-Class letters. The price exhibits a saw-toothed pattern, rising following a rate case and then falling as inflation reduces the real price of mail. As can be seen, over and above the saw-tooth pattern, the price rose during the 1970s and then fell somewhat, ending the decade higher than at the beginning. Price has fluctuated during the 1980s and 1990s, but remained generally constant in real terms meaning that First-Class letter prices have risen at the same rate as the general price level.

Chart A
Deflated First-Class Letter Price



ii. Population

Another factor affecting mail volume is population. Since adults are generally responsible for mail, the measure of population used in the econometric analysis is adult population age 22 and over as reported by Data Resources, Inc. (DRI). Mail volumes are measured as volumes per adult.

iii. Income

A third factor affecting mail volume is income. For most mail subclasses, the econometric impact of income is decomposed into separate effects of permanent and transitory income. Permanent income is measured as an exponentially weighted average of past real (inflation adjusted) disposable income, as reported by Data Resources, Inc. (DRI). Transitory changes in income associated with business cycles can also affect mail volume. The transitory effects will tend to average out over time. They could however have an effect for any specific period of years if the beginning and end of the period are not at the same stage of the business cycle. Transitory income is measured by the Federal Reserve Board Index of Capacity Utilization (UCAP) as reported by Data Resources Inc. (DRI).

iv. Other variables

Other variables included in the estimation of the volume of some mail subclasses include the prices of other postal products, measured as the real fixed weight index price of the product, prices of nonpostal alternatives also measured in real terms, and variables reflecting changes in Postal Service rules and regulations. In addition, variables accounting for the seasonal pattern of mail volumes are also included.

The companion testimony of Thomas Thress (USPS-T-7) presents a detailed discussion of the econometric estimation of mail volume responses.

d. Non-Econometric Information

In addition to the above measured variables included in the econometric analysis, there remain influences on mail volumes that cannot be measured with enough precision or frequency to be included directly in the econometric analysis. These additional influences are responsible for some systematic changes in mail volume. As an example, regulatory changes led to greater amounts of mail being sent by financial institutions in the late 70's and early 80's. Examples of more gradual changes have to do with lifestyles, as in changes in shopping habits associated with the growing number of professional two-earner families, leading to more mail order shopping or a general decline in the reading of newspapers and magazines. Mail usage is affected to some extent by changes in age composition of the adult population, changes in the number of single-headed households and changes in number of children per family which occur too gradually and smoothly over time for their influence to be picked up in a regression.

Some of the most important unmeasured reasons for mail volume change have to do with wide ranging changes in communications that have been and still are occurring. Many of these changes have occurred only in the last few years, such as the growth of E-Mail and the Internet. Time series data going back several years are not available for much of this information making it difficult, if not impossible, to include the effects of these variables in econometric equations. Instead, the effect of these and other recent developments is estimated non-econometrically, through analysis of studies and reports.

2. Forecasting Model Based on Understanding

A forecasting model has been developed based on the analysis of reasons for mail volume changes. It brings together econometrically estimated response coefficients, drawing on the subclass regressions and share equations predicting worksharing proportions for First-Class and Standard A mail, and making quarter length

and other adjustments. Projections of the price, income and other measured variables, in conjunction with the response coefficients or degree of responsiveness estimated from econometric analysis, gives a basis for forecasting the future effects of these variables.

In addition, the forecasting model allows for influences that cannot be formally estimated econometrically. The effects on future volumes of influences that are not estimated in the econometric analysis are termed net trends. The net trend indicates how volume changes have been different from what would be predicted by the coefficients of variables included in econometric analysis. It gives an estimate of the effects of these variables in the recent past. The net trend over the most recent five year period (1992 to 1997) is evaluated in light of non-econometric information. If the non-econometric information indicates that the unmeasured variables have a marked effect and will continue to act in the same way in the forecast period as in the past five years, the annualized net trend is added as an influence to the predicted effects using the econometric variables. In some cases, if warranted by further analysis, a net trend different from the 1992 to 1997 net trend is used in the forecast.

The net trends, and the considerations underlying them, are an integral part of the forecasting approach. For most mail categories, it is found that econometric considerations satisfactorily account for changes in mail volumes. Specifically, for 46 of the 66 mail categories for which forecasts are made, the forecasted net trend is zero. The noneconometric analysis indicates that other factors either do not have enough effect to warrant being included in the forecast or, in some cases, are significant but offsetting. For 17 categories, a nonzero 5-year net trend is projected to continue into the forecast period. For 3 categories, a nonzero net trend is used but is based on a shorter time period.

The Technical Appendix to this testimony presents a discussion of the volume forecasting methodology.

3. New Features Since R94-1

Since the last general rate case, Docket No. R94-1, the Postal Service has completed two major classification reforms, MC95-1 and MC96-2. These classification reforms led to an increased interest in the volumes of the automation categories of First-Class and Standard A (formerly third-class) mail. A new methodology for forecasting the volumes of automated and presorted mail was developed for those classification reform cases and that approach is included in the volume forecasts presented in the current docket. The testimony of Thomas Thress (USPS-T-7) presents a discussion of the forecasts of the automation and presort categories of First-Class and Standard A mail.

In addition to the classification changes to First-Class letters and Standard A mail, the econometric equations for these subclasses have been improved for the current case. Separate equations are estimated for single-piece and workshared (presorted or automated) First-Class letters, reflecting the fact that the volumes of these two components of First-Class letters are influenced differently by econometric and non-econometric factors. The equations for Standard A regular, enhanced carrier route, and nonprofit mail have been modified to bring in econometric considerations specific to the direct mail industry. These econometric equations are presented in the testimony of Thomas Thress (USPS-T-7). The new equations for First-Class letters and Standard A mail no longer use the logistic market penetration Z-variable which was included in the demand equation for these subclasses in R94-1.

Among the other improvements since R94-1 is the re-estimation of the permanent income elasticities based on information from the 1994 Household Diary Study and the development of a new methodology for calculating the seasonal coefficients. Various

other improvements in the econometric estimation of individual subclasses have also been made.

C. Guide to Testimony and Supporting Documentation

The total volume testimony submission includes the body of my testimony, the companion testimony by Thomas Thress, and the Technical Appendix, Workpapers and Library References that accompany our testimonies. A guide to these materials is as follows.

> Following the presentation of introductory background material, the body of my testimony contains separate sections on the individual mail subclasses and special services for which volume projections are made. In each of these sections, the subclass is first defined, and then its volume history is reviewed. Then estimates of the contribution of the econometric factors to volume change for the subclass from 1992 to 1997 are given, providing an estimate of how volume would have changed taking account only of the econometric factors. The difference between the contribution of the econometric factors and the actual volume change, called the five year net trend, is next presented. Then a discussion is provided of available non-econometric evidence, throwing light on reasons for the 1992 to 1997 net trend for the subclass and on net trend prospects for the forecast period. Next, the net trend used in forecasting volumes beyond the Base Year is presented, augmented by analysis of the yearly and quarterly forecast errors over the past five years. Finally, the before- and after-rates projections for the subclass are presented. The order of subclass sections is the same as the order of the rows in Table 1 that begins on page 5 in the initial Summary section. The quarterly and annual before- and after-rates volume projections for 1999q1 to 1999q4, one year beyond the Test Year, for all mail categories and special services are presented as Exhibit USPS-6A accompanying the testimony.

The Technical Appendix, Workpapers and Library References accompanying my testimony provide a detailed description of the volume forecast methodology and present sufficient information to replicate the forecasts:

> Technical Appendix: Forecast Model describes the basic approach to forecasting that is used, describes the multiplicative projection factor methodology by which each factor affecting future mail volumes is entered into the forecasting model, describes the Forecast Error Analysis program

used to analyze the net trend results for 1992 to 1997, and presents the net trends used in the forecasts.

Workpaper 1. Data Used in Volume Forecasts gives the derivation of the quarterly series used in the forecasts. These include before- and after-rates postal prices, and projected values of economic variables.

Library Reference H-171. Derivation of the Before-Rates FWI Values gives the derivation of the fixed weight index (FWI) values for prices in the regressions and in the before-rates volume forecasts. Included in this library reference are the Lotus 1-2-3 files used in the FWI calculations, on diskette.

Library Reference H-172. Derivation of the After-Rates FWI Values gives the derivation of the fixed weight index (FWI) values for prices in the regressions and in the after-rates volume forecasts. Included in this library reference are the Lotus 1-2-3 files used in the FWI calculations, on diskette.

Workpaper 2. Step by Step Calculations of Volume Projections contains step-by-step calculations illustrating the derivation of the projection factors or multipliers and their use in arriving at forecasted values for First-Class letters, Periodicals regular and Standard A regular mail, applying the forecast methodology presented in the Technical Appendix.

Library Reference H-173. Before- and After-Rates Volume Forecasting Spreadsheets gives technical documentation of the Lotus program used in producing the forecasts, lists the inputs used in the forecasts and supplies instructions for running the forecast program. It includes diskettes containing the Lotus 1-2-3 spreadsheet used in the forecasts.

The testimony of Thomas Thress is concerned with the econometric estimation leading to many of the parameters used in the forecast model.

The body of the Thress testimony presents the structure of the subclass time series econometric equations and describes the approaches used in the estimation. The final econometric coefficient estimates for each subclass are presented, and the research involved in selecting the final estimates is described. Witness Thress's testimony also develops the methodology and presents the estimates for the share equations used in forecasting the worksharing categories for First-Class and Standard A mail.

Workpaper 1 accompanying Thress testimony. Data Used in Econometric Work and Econometric Results lists the sources for data used and explains the derivation of variables that are calculated rather than being used in original source form in the subclass time series regressions. The latter include 1) fixed weight postal price indexes, 2) permanent income, 3) costs of competing advertising media and 4) fixed-weight price indexes for UPS and Priority Mail used in the parcel post equation. The data tables in the workpaper give the quarterly series used in the regression. Computer printouts are presented for the subclass time series regressions from which coefficients in the Thress testimony are obtained. The printouts include goodness of fit statistics, Shiller k^2 values and variance-covariance matrixes. In addition, the econometric results from the historical share equations are presented.

Library Reference H-174. Data and Programs Used to Develop Econometric Results in USPS-T-7 (hard copy and diskette), to be used in conjunction with Workpaper 1 accompanying the Thress testimony, includes a diskette containing data series ready for use in the regressions. The dependent variable for each subclass is given as the logarithm of volume per adult per business day. Among the independent variables, prices and permanent income are expressed as logarithms of deflated values. The other economic variables are generally expressed as logarithms, while dummy variables are 0 or 1. The data used to forecast worksharing categories for First-Class and Standard A mail are presented. This library reference also includes the files containing code used to generate the regression outputs.

Workpaper 2 accompanying Thress testimony. Estimation of Permanent Income Elasticities and for Mail Categories from the 1994 Household Diary Study contains details on the estimation of cross-sectional income elasticities and standard errors from the Household Diary Study and their transformation to obtain permanent income elasticities for use in the basic quarterly time series subclass regressions.

Library Reference H-175. Documentation for USPS-T-7, Workpaper 2 (hard copy and diskettes) describes the software and data preparation methods, and gives the input and regression output files underlying the foregoing workpaper.

Workpaper 3 accompanying Thress testimony. Choice Trail Results for Modeling Demand Equations presents intermediate econometric results leading to econometric results presented in the Thress testimony.

II. FIRST-CLASS MAIL

A. General Characteristics

1. First-Class Mail as a Means of Communication

Of the 182.6 billion pieces of total domestic mail handled by the Postal Service in 1996, more than half or 98.1 billion pieces consisted of First-Class Mail. The most distinguishing feature of First-Class Mail is that it contains private messages. Handwritten or typewritten messages, as well as hard copy computer output if it has the character of personal correspondence, must be sent by First-Class Mail. Bills, statements of account and messages associated with a business transaction are considered to be private messages and must be sent by First-Class Mail.

First-Class Mail is guaranteed against postal inspection and is accorded expeditious handling. It is forwarded without extra charge. First-Class letters are returned without extra charge if not deliverable. The use of First-Class Mail is enhanced by restrictions on competition for the carriage of private messages created by the Private Express Statutes. In important instances, exceptions to these restrictions are made, permitting nonpostal carriers to deliver private messages, as in the case of private delivery of overnight mail. Electronic communication by computers is not covered by the Private Express Statutes and can serve as an alternative to sending First-Class Mail in some cases. In the past, impediments to adopting standardized procedures have inhibited growth of this type of communication except among offices of the same firm, though fax and the adoption of uniform communication standards and declining equipment and telecommunication costs are now changing the situation.

2. First-Class Mail Substreams

Chart B shows a breakdown of First-Class Mail based on data from the 1995 Household Diary Study. Nonhousehold entities, primarily businesses, are involved in

Chart B
BREAKDOWN OF FIRST-CLASS MAIL ACCORDING TO FLOWS BETWEEN SENDER AND RECEIVER GROUPS, 1995

Nonhouseholds to Households (239.5 pieces/adult)		44.8%
Business or Non-Federal Government		
Advertising Only	7.6%	
Notice of Order	1.1%	
Bill/Invoice/Premium	5.9%	
Financial Statements	5.2%	
Payments	1.4%	
Invitation or Announcement	3.8%	
Other	6.3%	
Social, Charitable, Political or Nonprofit		
Announcement/Meeting	2.1%	
Request/Confirmation of Donation	0.6%	
Other	0.8%	
Don't Know / Don't Answer	0.4%	
Nonhouseholds to Other Nonhouseholds (184.4 pieces/adult)		34.5%
Households to Nonhouseholds (70.6 pieces/adult)		13.2%
Response to Advertising	1.7%	
Payment of Bills	4.2%	
Other	6.8%	
Don't Know / Don't Answer	0.6%	
Households to Other Households (37.4 pieces/adult)		7.0%
Correspondence	2.6%	
Holiday/Greeting Cards	4.0%	
Other	0.3%	
Unknown Incoming or Outgoing (2.1 pieces/adult)		0.4%
Total (535.5 pieces/adult)		100%

Source: 1995 Household Diary Study, Table 4-1, Table 4-10, Table 4-48

the preponderance of First-Class Mail. Chart B shows that in 1995, 44.8 percent of First-Class Mail was sent from nonhouseholds to households and an additional 34.5 percent was sent from nonhouseholds to other nonhouseholds.

Chart B shows that 13.2 percent of the First-Class Mail sent from nonhouseholds to households consists of bills, invoices, or premiums. Other important types of nonhousehold to household First-Class Mail include advertising and financial statements. First-Class Mail sent by nonhouseholds to other nonhouseholds involves not only bills, but also statements, checks, correspondence and advertising.

In 1995, 13.2 percent of First-Class Mail was sent by households to non-households. Much of the First-Class Mail sent by households consists of payments of bills or responses to advertising. The relatively small proportion of the mail sent between households (7.0 percent of total First-Class Mail) is devoted mostly to personal correspondence with greeting and holiday cards representing a majority of household to household mail.

3. Changes Since 1977

Important changes in the composition of First-Class Mail have occurred over the years. Chart C gives figures for 1977, based on the earlier Household Mailstream Study and Nonhousehold Mailstream Study as detailed in the volume testimony for Docket No. R87-1, USPS-T-2 pages 16-20. In Chart C, the sum of the components of a flow between a sender and receiver group may add to more than the total percentage for that flow because a single-piece of mail can contain more than one item, as when correspondence and payment of a bill are sent together.

Chart C
BREAKDOWN OF FIRST-CLASS MAIL ACCORDING TO FLOWS
BETWEEN SENDER AND RECEIVER GROUPS, 1977

Nonhouseholds to Households		39%
Bills	16%	
Contains Advertising (Only Advertising 2%)	6%	
Financial Statements	5%	
Checks and Other Negotiable Instruments	4%	
Correspondence	3%	
Other	15%	
Nonhouseholds to Other Nonhouseholds		33%
Bills	17%	
Correspondence	9%	
Contains Advertising	4%	
Checks and Other Negotiable Instruments	3%	
Other	1%	
Households to Nonhouseholds		16%
Payment of Bills	12%	
Correspondence	2%	
Other	2%	
Households to Other Households		12%
Correspondence	6%	
Holiday/Greeting Cards	5%	
Other	1%	
Total First-Class Mail		100%

Source: USPS-T-2, Docket No. R87-1, p. 20.

Comparing Chart B for 1995 to Chart C for 1977, it can be seen that the general trend has been a decrease in the share of First-Class letters sent by households and an increase in the share sent by nonhouseholds. Nonhouseholds sent about 72 percent of First-Class Mail in 1977 and about 79 percent of First-Class Mail in 1995. The increase in nonhousehold mail between 1977 and 1995 reflects the importance of mail as an input in the production of goods and services in the economy, with mail volume being associated importantly with growth in output of goods and services in the economy and in demands for communication in production.

Charts B and C also show that there has been a decrease in the proportion of First-Class Mail that was sent between households. In 1977, 12 percent of First-Class Mail was household to household mail as compared with only 7.0 percent in 1995.

4. Organization of the Remainder of this Chapter

The remainder of this chapter is organized as follows. Section B discusses First-Class letter mail. The First-Class letter subclass is defined and the recent volume history of the subclass is described. Factors affecting the volume of First-Class letters are discussed, with special attention given to the distinction between single-piece letters and workshared (presorted or automated) letters. Section B concludes with a discussion of the before- and after-rates forecasts of letters.

Section C provides a similar analysis of stamped First-Class cards and Section D discusses private First-Class cards.

B. First-Class Letters

1. Definition

First-Class letters are the most commonly used type of mail and consist of envelopes and sealed packages containing private messages, provided the weight is less than 11 ounces. Priority Mail, considered in the testimony of Dr. Gerald Musgrave (USPS-T-8), is available for weights of 11 ounces or more.

2. Volume History

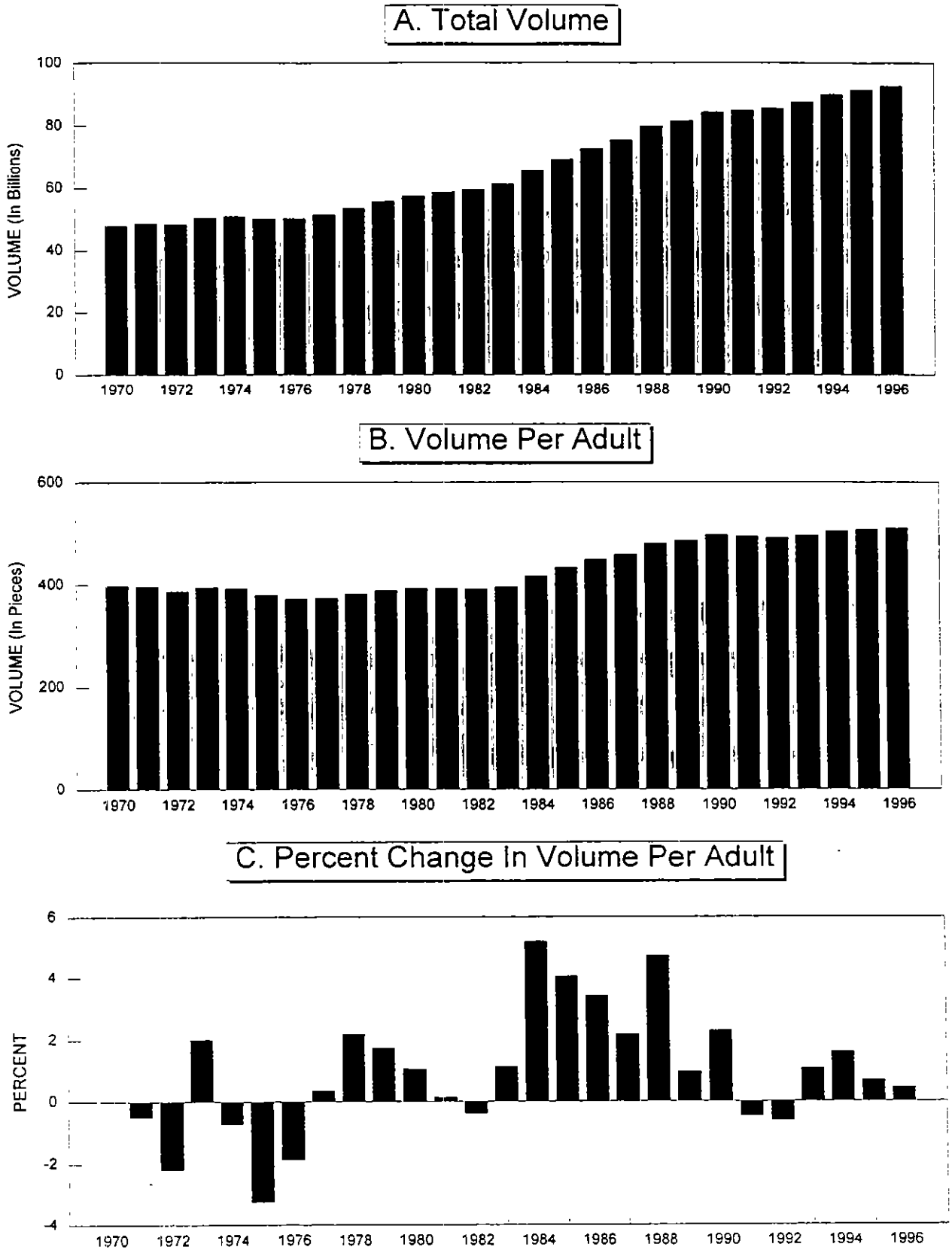
a. Total Letters

Comparison of Figure 1 for total domestic mail and Figure 2 for First-Class letters reveals quite similar volume movements, due in part to the fact that First-Class letters, at 92.8 billion pieces in 1996, is such an important component of total mail. As shown in the upper part of Figure 2, total First-Class letter volume grew sluggishly in the 1970's. The middle panel reveals that population growth alone was responsible for most of the growth in the 1970s. Volume was 393 pieces per adult in 1980, actually a little less than the 398.5 pieces per adult in 1970.

In the 1980s, volume growth substantially exceeded population growth, with 483.0 pieces per adult being reached in 1990. The vigor of the growth in the 1980s varied, and it did so in a rather systematic fashion. The bottom panel shows that growth in volume per adult was nil in the first years of the 1980s, then became extremely high at 5.21 percent per year in 1984. Starting from this high, growth continued but at a declining rate until reaching 1.37 percent in 1989 and 2.22 percent in 1990. (The growth figure for 1988 should be disregarded as it reflects the change in definition when government mail began to be included.) Volume per adult declined in 1991 and 1992, followed by some growth every year since 1993. Volume per adult in 1996 was 509.8 pieces, 27.9 percent greater than its value in 1970.

Figure 2

Total First-Class Letters



b. Inclusion of Government Mail

Government mail consists of mail sent by government agencies, often referred to as penalty mail because unauthorized use is punishable by a $300 penalty. In 1988, the Postal Service began reporting a separate set of mail volumes with government mail distributed, meaning that the volume totals of each mail subclass include the government mail sent via that subclass. The mail volume presented in Figure 2 and all subsequent figures, does not include government mail in the years before 1988, but does include government mail in the years 1988 and after. Generally, government mail represents a small portion of total volume, usually less than two percent.

The before- and after-rates volume forecasts presented in this testimony include government mail to conform with the present reporting standards. The five-year analysis of reasons for changes in volume from 1992 to 1997, including the net trend analysis, also employs mail volumes which include government mail.

c. Single-piece Letters and Workshared Letters

Figures 3A and 3B decompose total First-Class letter volume into single-piece and workshared volumes. Workshared mail consists of all mail for which the mailer received a discount for performing some work that could otherwise be performed by the Postal Service. Included in this definition is mail sent as presorted or automated mail, including prior to the MC95-1 classification reform, mail bearing the ZIP + 4 barcode. Figures 3A and 3B present total volume, volume per adult, and percentage change in volume per adult for postal years 1984 through 1996.

Comparing Figures 3A and 3B reveals that single-piece and workshared mail have experienced markedly different patterns of growth. Accordingly, separate econometric analysis is performed for these two categories of First-Class letters. Regression equations are analyzed using data beginning in 1983q1. The analysis runs through

Figure 3A

Single-Piece First-Class Letters

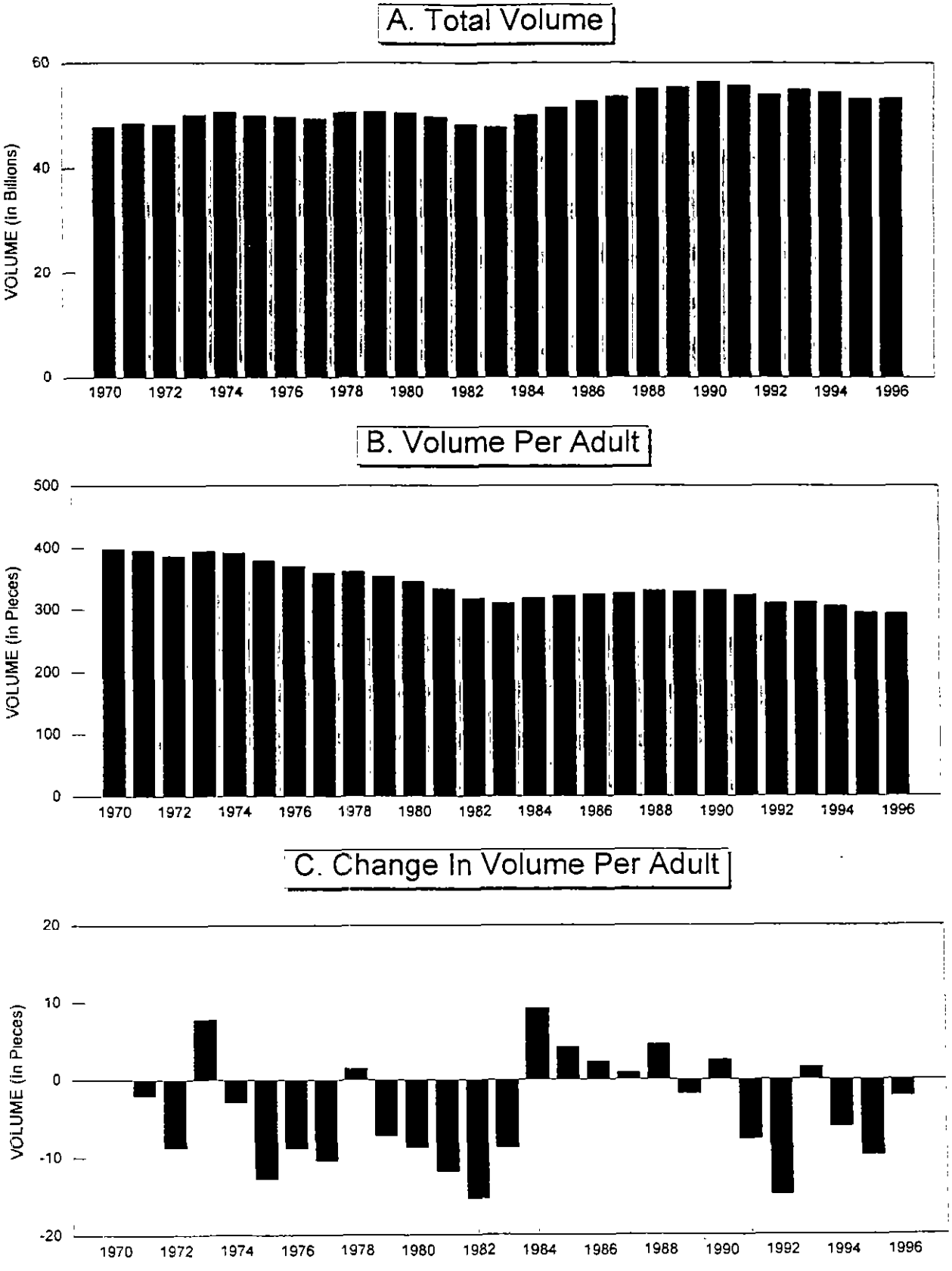
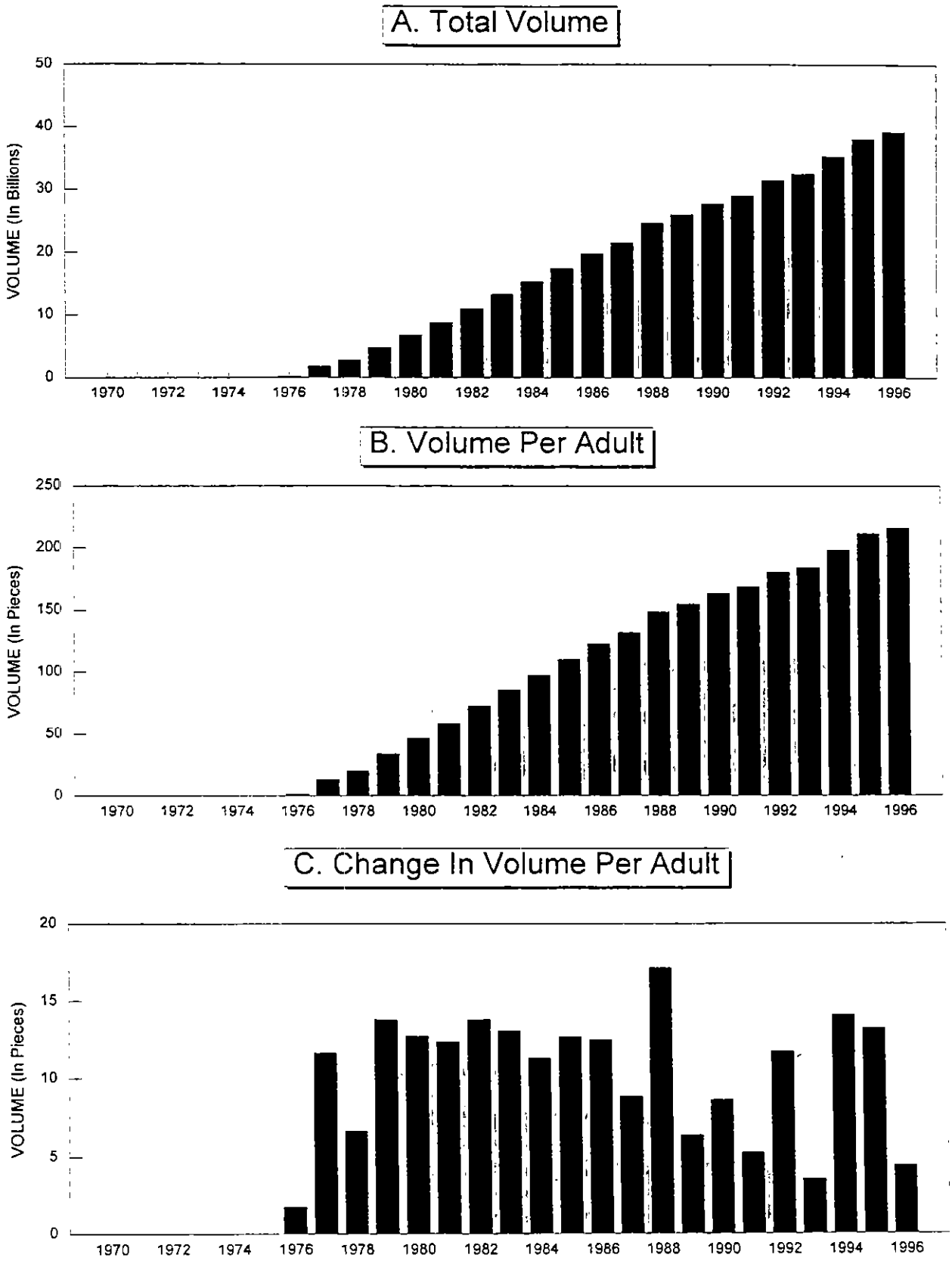


Figure 3B

Workshared First-Class Letters



1996q3 which is the last full quarter before the implementation of the MC95-1 classification reforms. Quarters subsequent to 1996q3 were not included because the introduction of the new automation basic category, for which there was no previous counterpart, created a problem in the construction of a fixed weight index for First-Class letters under classification reform. Note that the creation of an automation basic category did not create a problem for the analysis of First-Class cards which, under the old classification system, had a nonpresort prebarcode category that was similar enough to the new Automation Basic category to allow for creation of a consistent price index before and after classification reform.

3. Factors Affecting Volume of Single-piece Letters

Table 2 shows the impact of different factors on the volume of single-piece letters over the five year period ending with the third postal quarter of 1996. The total volume of single-piece letters declined by 6.40 percent over this five-year period, as shown in the final row of Table 2. The first column lists factors that have been found to influence the volume of single-piece letters. The second column gives the percentage change in each of the variables over the five year period. The third column gives the estimated yearly elasticity of First-Class single-piece letter mail volume with respect to each variable. If the basic analysis was carried out using yearly instead of quarterly data, the fourth column would give the results of applying the estimated elasticity in the third column to the percentage change in the second column to obtain the estimate of the effect of the variable on mail volume. The estimates in the fourth column result from applying quarter by quarter multipliers at a greater level of detail than shown in Table 2 (or in the subsequent tables showing contributions to change for other mail categories later in this testimony). The estimates come from the five year in-sample forecast

described in the Technical Appendix to my testimony using quarterly data, so that exact yearly relationships are only approximately fulfilled.

In addition to factors included in the econometric analysis explaining the volume of single-piece letters influences not measured econometrically have also had an affect. The impact of these latter influences is given in the second to last row of Table 2, called Other Factors. The impact on single-piece volume of each of the different econometrically measured factors presented in Table 2 is discussed in turn, after which a discussion of the Other Factors is presented.

a. Own Price

Table 2 shows that the real price of First-Class single-piece letters, measured as a fixed weight index (FWI) price, increased by 5.8 percent from 1991 to 1996. The increase in real price leads to a decline in volume. The response of mailers to changes in real price occurs over a period of several quarters as mailers gradually adjust to the new price. The single-piece own price elasticity of -0.189 presented in Table 2 is the long-run own price elasticity. The long-run price elasticity measures the impact on volume that would occur if the price were to rise one percent and stay at its new level indefinitely. The long run elasticity is the sum of the elasticity responses occurring in the quarter of the price change and each quarter in which it has an effect after that.

Table 2 shows that the long-run response of First-Class single-piece letter volume to price is estimated to be that, after allowing for adjustment, a one percent increase in real price will lead to a decline in single-piece letter volume of 0.189 percent, -0.189 being the long-run price elasticity of demand. Applying this estimated own price elasticity to the 5.80 percent increase in the real price of single-piece letters leads to a 1.06 percent decline in volume, as shown in Table 2.

TABLE 2

CONTRIBUTIONS TO CHANGE IN
SINGLE-PIECE FIRST-CLASS LETTERS VOLUME FROM 1991 TO 1996

Variable	Percent Change In Variable	Elasticity	Estimated Effect of Variable on Volume
Own Price	5.8%	-0.189	-1.06%
Cross Price			
Worksharing Discount	3.4%	-0.164	-0.51%
Single-Piece Cards	11.8%	0.005	0.06%
Standard Regular	10.4%	0.019	0.19%
Income			
Permanent	3.9%	0.456	1.76%
Transitory (Lag 3)	2.0%	0.135	0.27%
Cross Volume			
Regular ECR	6.3%	0.040	0.17%
Nonprofit ECR	-4.4%	0.013	-0.06%
Declining User Costs			-11.17%
Adult Population			5.64%
Other Factors			-1.07%
Total Change in Volume			-6.40%

b. Cross Prices

First-Class single-piece letter volume is influenced not only by its own price but also by the price for other mail categories which serve as substitutes for single-piece letters. One factor which influences the volume of single-piece letters is the discount for workshared letters, measured as an average discount of the various workshared categories. An increase in the discount for workshared letters, holding the base price of

single-piece letters constant, would make worksharing relatively more attractive and some mailers who were not previously presorting or automating their mail would be induced to do so. It is estimated that a one percent increase in the average discount for workshared letters leads to a 0.164 percent decline in the volume of single-piece letters. Table 2 shows that the 3.4 percent increase in the average worksharing discount from 1991 to 1996 led to a 0.51 percent decline in the volume of single-piece letters.

The volume of single-piece letters is also affected by the price of First-Class single-piece cards, which serve as a substitute for letters. Table 2 shows that the real price of single-piece cards increased by 11.8 percent from 1991 to 1996. It is estimated that the cross-price elasticity between the volume of single-piece letters and the price of single-piece cards is 0.005. Thus, the 11.8 percent increase in the price of cards is estimated to lead to a 0.06 percent increase in the volume of single-piece letters.

Table 2 shows that the estimated cross-price elasticity between the volume of single-piece letters and the price of Standard regular mail is 0.019. This means that the 10.4 percent increase in the real price of Standard regular mail has lead to a 0.19 percent increase in the volume of single-piece letters, as shown in Table 2.

c. Income

Another factor affecting mail volume is income. The impact of income on the volume of single-piece letters, and many other mail products, is decomposed into separate affects of permanent and transitory income. Table 2 shows that a one percent increase in real permanent income per adult is estimated to lead to a 0.456 percent increase in the volume of single-piece letters. Applying that estimated elasticity to the 3.9 percent increase in real permanent income per adult that occurred from 1991 to 1996 yields a 1.76 percent increase in the volume of single-piece letters.

Single-piece letter volume is also affected by transitory changes in income associated with business cycles. The transitory effects will tend to average out over time but they could have an effect for any specific period of years if the beginning and end of the period are not at the same stage of the business cycle. Transitory income is measured by the Federal Reserve Board's Index of Capacity Utilization, or UCAP, and the econometric analysis shows that the impact of transitory income on single-piece volume comes after a three quarter lag.

Table 2 shows that transitory income, lagged three quarters, increased by 2.0 percent from 1991 to 1996. The estimated elasticity of First-Class single-piece volume with respect to transitory income is 0.135, meaning that the 2.0 percent increase in transitory income contributed 0.27 percent to the volume of single-piece letters.

d. Cross Volume Effects

The volume of single-piece letters is also affected by the volumes of bulk Standard A mail. When volumes of advertising mail and nonprofit solicitation mail go up, the replies of those people who choose to respond will lead to induced increases in First-Class letter mail. The induced responses will consist not only of first replies but also of subsequent payments and correspondence about the transactions. The impact on First-Class single-piece letter volume from a change in Standard A bulk mail volume is given by the cross-volume elasticity which measures the percentage change in single-piece volume resulting from a one percent change in the volume of advertising or nonprofit solicitation mail.

Standard A regular and enhanced carrier route mail are estimated to exert a significant influence on First-Class letter mail in the quarter following the sending of the Standard A mailing. From 1991 to 1996, there was a 6.3 percent increase in the combined volumes of Standard A regular and enhanced carrier route mail volume per adult. With an

estimated cross-volume elasticity of 0.04, the estimated effect was to increase single-piece letter volume by 0.17 percent.

The largest share of Standard A nonprofit mail is solicitation of funds and memberships. The effects on single-piece letter volume are estimated to occur in the same quarter that the nonprofit mailings take place, so calculation of lagged volume is not required here. Table 2 shows that from 1991 to 1996, Standard A nonprofit volume per adult fell by 4.4 percent, which with an estimated cross volume elasticity of 0.013 led to a decrease in First-Class letter volume of 0.06 percent.

e. Declining User Costs for Workshared Mail

The decision whether to send single-piece or workshared letters is affected by the cost of satisfying the worksharing requirements as well as the discount for worksharing discussed earlier. The cost of satisfying worksharing requirements is known as a user cost that is borne by mailers or their agents. A decrease in user costs makes it more attractive to send workshared mail and less attractive to continue to send single-piece mail. User costs have declined in real terms, primarily as a result of technological advances which have lowered the cost of machine presortation and automation of mail. Table 2 shows that it is estimated that the decline in real user costs from 1991 to 1996 led to an 11.17 percent decline in the volume of single-piece letters as mailers have shifted toward workshared letters.

f. Adult Population

Mail volumes are measured on a per adult basis in the econometric estimation of mail demand and the impact on mail volume of the factors discussed above is presented on a per adult basis as well. Total mail volume is equal to volume per adult multiplied by adult population. Similarly, changes in mail volume can be decomposed into changes in volume per adult and changes in adult population. If there were no change in mail volume per

adult, total mail volume would still change due to the growth in adult population over time. Table 2 shows that from 1991 to 1996, growth in adult population by itself is responsible for a 5.64 percent increase in the volume of single-piece letters.

g. Other Factors

The factors considered so far are those whose influence it has been possible to estimate econometrically. The econometric approaches and the coefficient estimates are given in the direct testimony of Thomas Thress (USPS-T-7). Supporting procedural details and the data used are given in the workpapers filed with the testimony.

In addition to the above effects of own- and cross-prices, long-run income, short-run income, cross-volumes, declining user costs, and adult population, it is found that other factors are responsible for a 1.07 percent decline in First-Class single-piece letter volume over the last five years. The impact of other factors is calculated by comparing the total change in volume to the change in volume due to the econometric factors. This difference between the estimated and actual change in volumes from 1991 to 1996, given as the last entry in Table 2, and labeled Other Factors, is an estimate of influences on volume other than the econometrically estimated ones. An in-depth discussion of the important non-econometric factors affecting the volume of single-piece letters will follow a discussion of the econometrically measured factors affecting the volume of workshared letters.

4. Factors Affecting Volume of Workshared Letters

First-Class workshared letters consist of all letters that are either presorted or automated. Table 3 shows that from 1991 to 1996, the volume of workshared letters has increased by 37.93 percent. This increase in volume is due to changes in own price, cross-prices, income, user costs and adult population as well as the influence of other factors not included in the econometric estimation of workshared letter volume.

TABLE 3

CONTRIBUTIONS TO CHANGE IN
WORKSHARED FIRST CLASS LETTERS VOLUME FROM 1991 TO 1996

Variable	Percent Change In Variable	Elasticity	Estimated Effect of Variable on Volume
Own Price	4.7%	-0.289	-1.31%
Cross Price			
Worksharing Discount	3.4%	0.222	0.82%
Workshared Cards	9.9%	0.006	0.05%
Standard Regular	10.4%	0.035	0.35%
Income			
Permanent	3.9%	0.405	1.57%
Transitory	3.8%	0.361	1.35%
Declining User Costs			23.91%
Adult Population			5.64%
Other Factors			1.51%
Total Change in Volume			37.93%

a. Own Price

Table 3 shows that the real price of workshared letters increased 4.7 percent from 1991 to 1996. The econometrically estimated long-run own price elasticity of workshared letters is -0.289. Applying this own price elasticity to the 4.7 percent increase in real own price yields a 1.31 percent decline in workshared volume from 1991 to 1996.

b. Cross-Prices

As noted in the discussion of factors affecting single-piece volume, the volume of workshared letters is affected by changes in the average discount, where the average discount is measured as a fixed weight index of the discounts for the various worksharing

categories of First-Class letters. Table 3 shows that the average workshare discount increased 3.4 percent from 1991 to 1996. It is estimated that the elasticity of workshared letter volume with respect to the average discount is 0.222 and applying this elasticity to the change in the discount results in a 0.82 percent increase in the volume of workshared letters.

The volume of workshared letters is also affected by the price of First-Class workshared cards. From 1991 to 1996, the real price of workshared cards increased 9.9 percent. It is estimated that the cross-price elasticity between the volume of workshared letters and the price of workshared cards is 0.006. Therefore, the increase in the price of workshared cards contributed 0.05 percent to the volume of First-Class workshared letters, as shown in Table 3.

A third cross-price effect on the volume of workshared letters is from the price of Standard regular mail, which has an estimated cross-price elasticity of 0.035. Applying this estimated elasticity to the 10.4 percent increase in the real price of Standard regular mail from 1991 to 1996 lead to a 0.35 percent increase in the volume of workshared letters.

c. Income

The elasticity of workshared letter volume with respect to permanent income per adult is estimated to be 0.405. Permanent income per adult increased by 3.9 percent from 1991 to 1996 which, after applying an elasticity of 0.405, leads to a 1.57 percent increase in workshared letter volume.

Transitory income also affects the volume of workshared letters. The elasticity of workshared volume with respect to transitory income is estimated to be 0.361. From 1991 to 1996, transitory income increased by 3.8 percent and this increase is found to have contributed 1.35 percent to the volume of First-Class workshared letters.

d. Declining User Costs

As mentioned in the discussion of single-piece letters, the decision to send workshared mail is based partly on the user costs for presortation and automation. A decline in user costs will encourage mailers to send workshared mail. It is estimated that the decline in real user costs from 1991 to 1996 contributed 23.91 percent to the volume of workshared mail, as shown in Table 3.

e. Adult Population

Table 3 shows that growth in adult population led to a 5.64 percent increase in the volume of First-Class workshared letters.

f. Other Factors

Table 3 shows that in addition to the econometric influences on mail volume, other factors were responsible for a 1.51 percent increase in workshared mail volume from 1991 to 1996. The following section details the important non-econometric influences on the volume of First-Class letters and concludes with a discussion of how these factors are projected to affect the future volumes of workshared and single-piece letters.

5. Net Trend Analysis

In recent years, the volume of First-Class letters has been affected by a number of important considerations for which adequate measures for inclusion in econometric analysis do not exist. Three especially important influences on the volume of letters are growth in the financial services industry, growth in nonpostal communications alternatives, and increases in First-Class advertising mail. The following section discusses the impact of each of these influences on the volume of First-Class letters. Their influences on letter volume are then compared to information obtained from the analysis of a recent forecast of single-piece and workshared letters. Taken together, the non-econometric evidence and the forecast error analysis are used to determine whether a net trend factor should be

included in the Test Year forecasts of single-piece or workshared letters and, if so, the magnitude of the net trend.

a. Growth in the Financial Services Industry

Financial transactions and the number of financial accounts are important determinants of First-Class letter mail volume. According to The Household Diary Study, 21.1 percent of First-Class Mail consisted of bills and financial statements received by households [Table 4-10]. These in turn generate remittances, another source of letter volume. The Household Diary Study estimates only account for households, and does not include bills and statements to businesses, or their return mailings. In addition, households holding banking accounts, credit cards and financial policies are often placed on mailing lists which also generate First-Class mail.

The largest volume of First-Class mail sent by industry was concentrated in the financial sector, according to The Household Diary Study. The three largest senders of First-Class industry mail were banks, insurance companies, and credit card companies. The number of pieces per household per week sent by the financial sector increased from 3.24 pieces in 1991 to 3.43 pieces in 1995 [Table 4-18].

The largest volume of First-Class Mail by type in 1995 was bills. According to The Household Diary Study, bills accounted for 2.91 pieces of First-Class mail per household per week [Table 4-10]. The majority of bills came from the service sector, including telephone, utility, medical, insurance and credit card bills. Given an estimated 98.3 million households, this means that the financial services industry generated 17.5 billion First-Class mailings in 1995, and bills alone generated 14.9 billion.

Deregulation in the financial services sector has brought great growth in the number and types of financial transactions. Growth in financial services increases First-Class letter volume because financial accounts and transactions lead to monthly or periodic

statements, entail payments, or deposits from customers, and necessitate written correspondence between financial institutions and their customers.

i. Commercial and Savings Bank Accounts

According to the Household Diary Study, banks generated 5.87 percent of total First-Class mail volume [Table 4-18], the most of any single industry. In 1995, the banking industry sent approximately 1.08 First-Class mailings per households per week [Table 4-18]. Given an estimated 98.3 million households, this means that banks sent 5.5 billion First-Class mailings to households that year.

The Federal Deposit Insurance Corporation reports a 4.6 percent compound annual average growth rate for the value of deposits at commercial and savings institutions over the period June, 1992 to June, 1996, suggesting that banks are a significant source of growth of First-Class mail. [Federal Deposit Insurance Corporation, Summary of Deposits, 1996].

ii. Credit Union Accounts

With financial deregulation, credit unions have been able to offer members services comparable to banks, including share draft accounts, savings and time deposit accounts, and short-term consumer loans. As more households use their credit union as their primary financial institution, credit union membership has increased from 34.2 million in 1970 to 55.7 million in 1990, a compounded average annual growth rate of 2.5 percent. Over the more recent six year period 1990 to 1995, credit union membership has grown at a more rapid rate. In 1990, there were 55.7 million members at federal and state-chartered credit unions. In 1995, there were 67.1 million, according to the National Credit Union Association. [U.S. Statistical Abstract, 1996. Table 783]. These numbers reflect a compounded average annual growth rate of 3.8 percent. Credit unions appear to have been a modest source of growth of First-Class letters.

iii. Mutual Fund Accounts

Mutual funds have been the fastest-growing segment of the financial services industry. Assets under management by mutual funds grew from $1,067 billion in 1990 to $2,820 billion in 1995, a compound average annual growth rate of 22 percent. To offer perspective, the mutual fund industry's total assets equaled about three percent of total assets at commercial banks in 1980, according to figures from the Investment Company Institute and the Federal Deposit Insurance Corporation. They equaled approximately 32 percent in 1990 and 65 percent of commercial bank assets by 1995. Using assets as a yardstick, mutual funds have become the nation's second largest type of financial institution, exceeded only by commercial banks.

The number of mutual fund shareholder accounts increased from 34.7 million in 1985 to 131.8 million by year-end 1995. [Mutual Funds Fact Book, Investment Company Institute, 1996]. This growth represents a compound average annual growth rate of 14.3 percent. The most dramatic surge in accounts has been over the period 1990 to 1995, during which time the industry witnessed average annual growth rates that exceeded 16 percent.

iv. Stock Exchange Transactions

According to The Household Diary Study, the securities industry generated 1.74 percent of all First-Class mail in 1995 [Table 4-18]. The industry sent 0.32 pieces of First-Class mail per household per week [Table 4-18]. Given 98.3 million households, this amounts to 1.64 billion First-Class mailings in 1995.

Significant growth has been occurring. Annual share volumes, as reported by the New York Stock Exchange and the National Association of Securities Dealers, indicate large increases in activity on the major stock exchanges. From 1990 to 1995, the New York Stock Exchange (NYSE) has benefitted from an average annual growth in share

volume that has exceeded 17 percent. Over the same period, the NASDAQ and AMEX stock exchanges have enjoyed average annual growth in share volumes of roughly 22 percent and 10 percent, respectively. Total annual share volume for the NYSE, AMEX and NASDAQ stock exchanges in 1990 was over 76 billion. In 1995, combined total share volume reached more than 193 billion. [NYSE Fact Book 1996, AMEX Fact Book 1996, NASDAQ Fact Book 1996].

v. Mortgages and Bank Loans

According to The Household Diary Study, the mortgage industry generated 0.65 percent of total First-Class mail volume in 1995 [Table 4-18]. The industry sent 0.12 pieces of First-Class mailings per household per week [Table 4-18]. With 98.3 million households, this means the mortgage industry sent 613 million First-Class mailings to households in 1995, the majority of which were First-Class letters.

According to The Statistical Abstract, total lending for home mortgages and commercial mortgages has grown over the 1990 to 1994 period at compound average annual growth rates of 6.5 percent and 8.1 percent, respectively [U.S. Statistical Abstract, 1996. Table 771]. Bank loans have expanded at a 31.6 percent compound average annual rate over the same five year period [Table 771]. Development in the mortgage and bank loan industry is another source of First-Class mail volume growth because it entails periodic payments and installments which are likely to be conducted by mail.

vi. Credit Card Accounts

According to The Household Diary Study, the credit card industry generated 5.70 percent of all First-Class mail volume in 1995 [Table 4-18], the most of any single industry other than banking. The credit card industry sent 1.04 pieces of First-Class mail per household per week in 1995 [Table 4-18]. Given 98.3 million households, this means the credit card industry's household mailings contributed 5.32 billion to First-Class volume in

1995, the majority of which we assume were letters. The credit card industry has shown more growth than any single industry in terms of its contribution to First-Class mail volume since 1987, the first year The Household Diary Study was conducted.

The credit card industry has been particularly innovative over the past two decades. Both retailers and banks aggressively have expanded their marketing efforts. At the same time, computerization of the financial services industry has reduced the cost of credit card account management, making such expansion profitable. Computerized mailing lists, in particular, have decreased the costs of contacting new customers and have facilitated the extension of the card industry.

Figures from by HSN Consultants, Inc., publishers of The Nilson Report, corroborate strong development in the number of cardholders and credit cards. Over the five year period 1990 to 1994, the number of cardholders increased from 113 million to 124 million and the number of credit cards rose from 1,026 million to 1,131 million. [U.S. Statistical Abstract, 1996. Table 793]. Both categories indicate ten percent growth over the five year period. According to The Nilson Report, there were approximately 463 million retail credit cards in 1994, 41 percent of the 1,131 million credit cards that year. Bank, phone and oil credit cards represented 28 percent, 14 percent and 10 percent, respectively. By the year 2000, Nilson expects the number of cardholders to increase to 141 million and the number of credit cards to grow to 1,344 million, 14 percent and 19 percent gains, respectively, from 1994 levels. [Abstract, Table 793].

To assess the impact of credit card accounts on First-Class letter mail volume, some credit cards must be excluded. In 1994, there were 161 million phone cards, according to Nilson. Generally, these cards are not separate accounts, and do not receive billing apart from monthly phone bills. Similarly, there were 51 million airline and rental credit cards in 1994, according to Nilson, which usually do not receive monthly billing statements.

The fastest growing charge cards are ones that automatically deduct money from checking accounts. According to Nilson, dollar volume of debit card use could increase nearly 600 percent over the next eight years. Nilson cites the fact that Visa's credit card business grew only 16 percent in 1993 while use of its Checkcard debit service increased 47 percent, as consumers sought to avoid interest expenses. [Thomas McCarroll, "No Checks. No Cash. No Fuss?," (Time, May 9, 1994)]. Unlike credit card accounts, debit cards do not generate periodic statements. Instead, debit card transactions are accounted for in monthly bank statements.

b. Growth in Nonpostal Communication Alternatives

Much has been said about the growth of electronic communications and its potential for diverting messaging away from mail. The growth suggests that diversion is taking place, but not all electronic communication represents a loss of volume for the Postal Service. Many electronic communications are substitutes for non-mail alternatives, such as telephone. Others represent messages that never would have been sent in the absence of electronic technology. In many cases, the electronic communication is accompanied by a letter mailing. Finally, it is not clear that a decline in the Postal Service's market share represents a loss to electronic competition or merely reflects the fact that Postal Service volume and revenue have grown less rapidly than the volume and revenue of electronic alternatives.

i. Telephone Services

Falling long distance telephone rates may have diverted letters, but probably have encouraged more communication as well. Expansion of telephone use can imply growth in First-Class mail volume. Virtually every household which has telephone service receives a monthly statement which requires a return mailing. In 1994, 94 percent of the 97.1 million households in the United States had telephones. [U.S. Statistical Abstract, 1996.

Table 876]. This suggests that there were a combined 182.6 million phone bills and payments sent each month. Converted to an annual figure, this means that approximately 2.2 billion pieces of mail were generated by telephone service use in 1994 from bills and payments alone.

According to The Household Diary Study, the U.S. telephone industry generated 2.46 percent of total First-Class mail volume in 1995. The industry sent 0.45 pieces of First-Class mail per household per week, which amounts to 2.3 billion First-Class mailings to households in 1995, the majority of which were First-Class letters. [Table 4-18].

An aspect of telephone use that is more dramatic is growth of the cellular phone business. There were 2.1 million subscribers to cellular service in 1988. In 1992, there were 11.0 million subscribers. By 1995, that figure grew more than threefold to 33.8 million, a compound average annual growth rate of more than 45 percent. [U.S. Statistical Abstract, 1996, Table 884]. This means that from 1992 to 1995 there were an additional 22.8 million users of cellular phone service.

ii. Computer and Internet Use

As a result of strong sales of home personal computers, the fraction of households owning personal computers grew from 7 percent in 1988 to 25 percent in 1994, according to The Quarterly Interview Study conducted by the Bureau of Labor Statistics. ["Are Postage Stamps Going the Way of Horse & Buggy?" (Business Wire, December 11, 1996)]. IDC/LINK estimates that 40 percent of households, or 39 million, currently have personal computers. They project that 53.2 million, or 52 percent of all households, will own personal computers by 1999. IDC/LINK also states that nearly two-thirds of all computer-owning households have modems, and expects this percentage to reach 89 percent by 1999 with 35 percent of households, or 36 million, subscribing to at least one online service by the end of the decade. [IDC/LINK, U.S. Consumer Interactive Services

Forecast, 1996]. Typically, computer ownership will elicit use of personal communication devices, like E-mail and fax. However, computers foster far-reaching interpersonal and business interaction, which is likely to stimulate the flow of mail to households.

Wolak estimates that prior to 1992 ownership of a computer increased household expenditures on postage, but has had a negative effect since then. [Frank Wolak, "Changes in the Household-Level Demand for Postal Delivery Services from 1986 to 1994", Stanford University, December 1996.].

iii. Fax Machines

Many businesses use their fax machines to send and receive purchasing orders, contracts, billing statements, and intra-company or inter-company memos. In addition, personal computers have brought the benefits of faxing to many households. Advances in computer technology have introduced fax/modems, upgrade components for personal computers which allow fax transmission between computers, between computers and a network, or between computers and stand-alone fax machines. Fax technology has been supported also by many E-mail services which have fax transmission capacity.

The expansion of the fax market can be explained, in part, by the rather substantial reduction in prices for fax machines, in conjunction with enhancements to their technology. In 1980, a machine that could transmit a page of data in about three minutes cost $15,000. In 1989, $2000 would buy a machine whose transmission speed was three times faster. Today, a sale price of under $200 is not uncommon for a basic fax machine. According to Giga Information Group, the total number of fax machines in use has expanded at a compound average annual rate of 14.75 percent from 1992 to 1996. Giga, however, expects the accelerated pace of fax machine penetration over the past decade to slow dramatically, forecasting 2.87 and 1.91 percent rates of growth in 1997 and 1998, respectively. [Giga Information Group in the 8th Annual Computer Industry Almanac, 1996].

Since faxing can be a substitute for First-Class mail, some fax messages are diverted First-Class letters. However, while fax usage has grown in recent years, fax transmissions still have some important disadvantages to First-Class letters. A faxed signature on a document, for example, is generally not accepted as official. Second, faxing does not provide the privacy or certification of integrity that First-Class letters offer. Consequently, faxing is often unsuitable for confidential communications. Finally, the print quality of faxes remains inferior to the resolution of a mailed letter, even though fax printing quality has improved considerably.

iv. Electronic Mail

The Electronic Mail Association estimated that 1.6 billion messages in 1987, 3.5 billion in 1988, and 6.1 billion in 1993 [Direct Testimony of George Tolley, Docket No. R94-1, USPS-T-2]. Yet, only a fraction of the growth of E-Mail represents mail diversion. First, many messages never would have been sent in the absence of E-Mail technology. In other words, E-Mail allows for increased communication without any diversion from mail in many cases. This is particularly true if most E-Mail is sent within firms, where letters would never have been a substitute. More than being a substitute for letter mail, E-Mail also competes with other messaging technologies. It is important to understand the extent which E-Mail acts more as a replacement for telephone communications, inter-office memos, and fax.

v. Electronic Data Interchange (EDI)

Electronic data interchange (EDI), the intercompany computer-to-computer transmission of business forms in a standard format, is a primary electronic commerce medium for business-to-business transactions today. EDI is governed by standardized trading agreements and association rules. It is used routinely to transact inventory order-related information. It is growing, though it is still a limited displacer of mail.

In a 1995 poll of 250 large and mid-sized companies, Gallup Organization found that more than 90 percent of respondents use mail to deliver bills, invoices and statements, 36 percent hand out bills at the point of sale, as at the cash register, 27 percent use overnight mail or couriers, 30 percent fax bills, and 30 percent send some bills by E-mail or electronic data interchange. ["Who Needs a Sunday Paper When There's the Web?" (Investor's Business Daily, April 23, 1996)]. In a survey of businesses by Deloitte and Touche Consulting Group, 28 percent of respondents indicated equal current use of the Internet, integrated E-mail, and EDI for communications with business partners. [Andrew Gurbaxani, "Trends in Corporate Network: A User Survey," (Telecommunications Magazine, December, 1996)]. MIDRANGE Systems estimates that while 90 percent of the Fortune 500 companies are equipped with EDI, only 6 percent of the remaining 10 million U.S. companies are EDI capable. According to MIDRANGE, the worldwide EDI market is projected to more than quadruple to $3.2 billion by the year 2001 from $1 billion in 1995. ["The Future of Electronic Commerce," (MIDRANGE Systems, Oct. 27, 1995)].

vi. Electronic Banking

Banks are investing in information technologies as a means of achieving improvements in service delivery, productivity and competitiveness. The Business Communications Company believes it is likely that sales of ATMs, POS terminals and other sophisticated electronic banking devices combined will increase 17 percent annually, from $734 million in 1994 to $1.9 billion in the year 2000. [Business Communications Co., Feb. 1995 in The 8th Annual computer Industry Almanac, 1996]. The services provided by these electronic banking outlets will include both simple transactions and more complex ones such as loan applications.

Data from The Household Diary Study, show that a majority of household's pay bills either by mail or in person, and that only a small percentage use electronic means. In

1995, 96 percent of households paid by mail and 39 percent in person. Use of automatic deductions from banking accounts, personal computers, and phones accounted, respectively, for 17 percent, 0.8 percent and 1.3 percent of the way household monthly bills were paid in 1995 [Table 4-49].

Banks such as ABN AMRO, Chase Manhattan, Citibank, First Union, and Nationsbank all have electronic commerce initiatives such as home banking and cash management underway on a small scale. But most banks do not expect a financial return on their electronic commerce initiatives anytime soon. "We consider it an R&D investment today," says Mike Oberholtzer who heads the home-banking initiative as senior vice president at ABN AMRO Information Services Company in Chicago. [(Kelly Higgins, "Closeup - Electronic Commerce," (Communications Week, Nov. 4, 1996)]. Business Communications Inc. estimates that by 2000, the home computer banking market will approach $205 million.

vii. Electronic Funds Transfer (EFT)

Electronic Funds Transfer (EFT) is gaining popularity as a way of settling transactions. According to a Time Magazine article by Thomas McCarroll, the number of electronic transfers increased nearly 200 percent from 1986 to 1994, in contrast to a 17 percent rise in the number of check and cash transactions. [Thomas McCarroll, "No Checks. No Cash. No Fuss?," (Time, May 9, 1994)]. Faulkner & Gray, publishers of *Bank Network News*, estimate that electronic funds transfer volume has nearly tripled from 3,579 million in 1985 to 10,464 million in 1995. [U.S. Statistical Abstract, 1996 Table 795].

EFT enables customers to send an electronic remittance command to their financial institution instead of sending a supplier a check to pay for products or services. Services like those offered by ScanFone and CheckFree allow bank customers to dial up computer servers by modem and establish a list of merchants to pay electronically. The financial

institution will use EFT to transfer the funds to the supplier's financial institution which will credit the supplier's account and forward the remittance command to the supplier.

In 1995, 35.9 billion electronic transactions, including credit card, phone card, debit card, ATM and other electronic transfers, represented 18.9 percent of the total number of all payments, according to Jules Street, vice president of California-based research firm Killen & Associates. [Paul Miller, "USPS's Electronic Nightmare," (Catalog Age, July, 1996)]. Street expects the volume of electronic-commerce to increase to nearly 60 billion transactions or about 25 percent of the total number of all bill payments by the year 2000. Statistics from the check printing industry corroborate Street's expectations. Check printing volume rose an average of three percent annually during the 1980s and early 1990s. The American Bankers Association, however, anticipates that U.S. check printing volume will grow no more than one percent a year over the next decade. [(Paul Miller, "USPS's Electronic Nightmare," (Catalog Age, July, 1996)].

Thomas McCarroll reports that more than one-third of all U.S. workers already have their paychecks directly deposited into their bank accounts via direct deposit, compared with 8 percent in 1988. The Federal Government has reaped substantial benefits from becoming one of the biggest users of electronic transfers. It saved $133 million in 1993 by paying 47 percent of its 815 million bills by computer rather than by mail. [Thomas McCarroll, "No Checks. No Cash. No Fuss?," (Time, May 9, 1994)]. However, today most checks are still printed and sent via the Postal Service because not all merchants are ready for electronic payments, and because no definitive standards for how online payments should be made exist. Nationsbank, for example, which has offered home banking for nearly seven months, still issues paper checks for about 55 percent of its PC-based and online home-banking transactions. [(Kelly Higgins, "Closeup - Electronic Commerce," (Communications Week, Nov. 4, 1996)].

c. First-Class Advertising Mail

There has been an increase in the volume of advertising mail send First-Class. The Household Diary Study for 1995 states, "when advertising-only, advertising-enclosed and business invitations and announcements are combined, the total First-Class Mail advertising received by a household showed a substantial increase." [page I-12] The increase consisted of a change from 2.36 pieces in 1987 to 3.73 pieces in 1995, a 58 percent gain during this time. This gain in First-Class advertising is, in percentage terms, greater than the gain in third-class advertising mail volume. Moreover, the increase in First-Class advertising is more than can be explained by changes in the real price of Standard mail.

The growth in First-Class advertising indicates that advertisers are finding that First-Class advertising has some important advantages over Standard mail advertising that can outweigh the higher First-Class postage. First-Class advertising is delivered more expeditiously, and may be more likely to be read by the recipient. The Household Diary Study notes that "it is likely that higher value goods and services are marketed by First-Class Mail rather that third-class." [page III-11]. Free forwarding of First-Class Mail is also a valuable feature for advertisers who wish to maintain contact with a consumer.

d. Forecast Error Analysis Program

In addition to non-econometric evidence on net trend, a second type of evidence is provided by the Forecast Error Analysis Program which examines quarterly forecast errors within the five year net trend period (1991q4 through 1996q3 for First-Class letters and 1992q3 through 1997q2 for all other categories of mail). The Forecast Error Analysis Program is described in detail in the Technical Appendix. For each mail category the program generates the following:

1) In-sample quarterly forecast errors.

2) Quarterly SPLY differences of the forecast errors.

3) 4-quarter averages of SPLY differences.

Forecast errors are measured as the difference in natural logarithm of the actual and forecasted volumes in a particular quarter. The forecasted volumes are made using the standard volume forecasting approach with a Base Year beginning five years earlier. For First-Class letters, this Base Year is the four postal quarters beginning in 1990q4 and ending in 1991q3. Quarterly forecasts are made for the 20 quarters beginning in 1991q4 end ending in 1996q3, using changes in the variables included in the econometric analysis discussed in Table 2. For other categories of mail, the Base Year for the forecast error analysis is the four quarters ending in 1992q2 and volume forecasts are made through 1997q2.

The top section of the forecast error analysis shows the difference in natural logarithms between the actual and forecast quarterly volumes, so that a positive difference means that actual volume exceeded forecasted volume and a negative difference means the opposite. Since this difference is approximately equivalent to a percentage error, a quarterly forecast error of 0.01 means that in that quarter, the actual volume was one percent more than forecasted volumes.

The SPLY difference in the forecast errors is equal to the forecast error in a given quarter minus the forecast error in the **S**ame **P**eriod **L**ast **Y**ear. Thus, SPLY differences in forecast errors measure the growth in the forecast errors over time. If the net trend is operating in a consistent fashion the forecast errors will grow smoothly over time and the SPLY differences in forecast errors will be a constant value equal to the annual net trend. If the SPLY differences are not constant, but instead undergo substantial changes in magnitude, the SPLY differences serve as evidence that the net trend over the past five years has been changing. Because exact smoothness over time is unlikely, the 4-quarter

averages of SPLY differences often provide a more reasonable measure of any substantive changes in the net trend during the previous five years.

i. Forecast Error Analysis for Single-Piece Letters

Table 2 showed that non-econometric influences were responsible for a decline in single-piece letter volume of about 0.22 percent per year from 1991 to 1996. This value is equal to the Five Year Mechanical Net Trend of 0.997846 minus 1.0, or -0.02154 which, when converted to a percentage rounds to -0.22 percent per year.

Analysis of the individual quarterly forecast errors, SPLY differences in forecast errors, and 4-quarter averages of SPLY differences suggest that this small negative net trend is not operating consistently through the five year period. Note, in particular, that the 4-quarter average of the SPLY differences starts positive, turns negative, and then turns positive at the end of the five year period. Among the individual SPLY differences, ten are positive and ten are negative. Overall, the forecast error analysis fails to confirm the presence of a persistent downward trend in single-piece letter volume.

ii. Forecast Error Analysis for Workshared Letters

The Five Year Mechanical Net Trend for workshared letters is 1.002999, indicating the non-econometric factors added an average of 0.30 percent per year to the volume of workshared letters. The forecast error analysis, however, fails to confirm the presence of a consistent positive trend. The four-quarter average of SPLY difference are negative, then positive, then negative again. The fact that the four-quarter average of SPLY differences is negative at the end of the sample period suggests that the positive influences on workshared mail volume are fading in importance.

e. Net Trend for the Forecast of Single-piece Letters

If the factors influencing First-Class single-piece letter volume which are not included in the regressions continue to operate into the future as in earlier years, then the net trend

computed for the earlier years (1991 - 1996) will give reasonable estimates of volume changes in addition to those expected from the econometrically estimated effects. The forecast error analysis fails to confirm a persistent trend for single-piece volume. Consequently, no net trend is included in the forecast of single-piece letters, equivalent to a net trend projection factor of 1.000000.

f. Net Trend for the Forecast of Workshared Letters

The discussion of non-econometric influences on First-Class letter volume detailed both positive and negative factors. Diversion to electronic alternatives undoubtedly has reduced volume, but growth in the financial industry and First-Class advertising have supported volume. The positive five-year mechanical net trend shows that on average the positive influences outweighed the negative influences over the recent five year period. Still, the forecast error analysis showed a choppier volume pattern than would be consistent with a positive net trend. Consequently, no net trend is included in the forecast of First-Class workshared letters.

6. Volume Forecasts

a. Single-Piece First-Class Letters

Adult population is projected to grow by 1.9 percent from the Base Year to the Test Year, contributing a percentage growth of this amount to First-Class letter volume. Estimates of the contributions of the various other influences included in the econometric analysis can be obtained by multiplying each econometrically estimated elasticity coefficient by a projection of the percentage change in the associated explanatory variable between the Base Year and the Test Year. The projections were done on a quarterly basis and then aggregated to obtain results for the entire Test Year. The projections of explanatory variables, needed to apply the approach, were taken from projections by Data Resources, Inc. (DRI).

In the before-rates projection, real postal prices are based on the assumption that the present rate schedule for First-Class letters remains in effect through the Test Year, with the result that the real price declines in line with the Data Resources, Inc. (DRI) projection of the increase in the general price level as measured by the Department of Commerce price index of personal consumption expenditures.

The after-rates projection is the same as the before-rates projection, except that the rate schedule proposed by the Postal Service in this proceeding is assumed to go into effect at the beginning of the Test Year, on October 1, 1997, which falls during the first quarter of Postal Year 1998.

Details of the projection methodology are given in the Technical Appendix to this testimony and in Workpaper 2 which gives sample calculations enabling replication of the projections.

The before-rates projection of total single-piece letter volume in the Test Year, obtained by applying the methodology, is 54,394.309 million pieces. The after-rates projection based on the rates proposed by the Postal Service in this case is 54,413,387 million pieces. The after-rates volume of single-piece letters is greater than the before-rates volume because the proposed decline in the discount for presorted nonautomated letters causes some of this mail to shift to single-piece letters.

To the above volume, additional adjustments are made by witness Fronk (USPS-T-32), leading to a final after-rates volume projection of 54,519.485 million pieces.

b. Total Workshared First-Class Letters

Assuming present postage rates are continued, the volume of workshared First-Class letters, equal to the sum of the volumes of presorted nonautomated and automated letters mentioned immediately below, is projected to be 41,506.989 million pieces in the Test

Year. The projected after-rates volume of workshared First-Class letters is 41,033.182 million pieces.

c. Presorted Nonautomated Letters

In the Test Year, the projected before-rates volume of presorted nonautomated First-Class letters is 5,369.390 million pieces. In the after-rates scenario, the estimated volume of presorted nonautomated First-Class letters is 4,855.407 million pieces.

d. Presorted Automated Letters

The projected before-rates volume of presorted automated First-Class letters is 36,137.599 million pieces. The projected after-rates volume of presorted automated letters in the Test Year is 36,177.775 million pieces. The after-rates volume is greater than the before-rates volume due to a shift of presorted nonautomated letters into automated letters in response to the proposed decline in the presort discount.

C. Stamped cards

1. Definition

Stamped cards are postcards sold by the Postal Service with the postage imprinted. The cost to the buyer is only the price of postage for all cards, currently 20 cents. The preponderance of post cards are not stamped cards, which accounted for only about ten percent of total card volume in 1996.

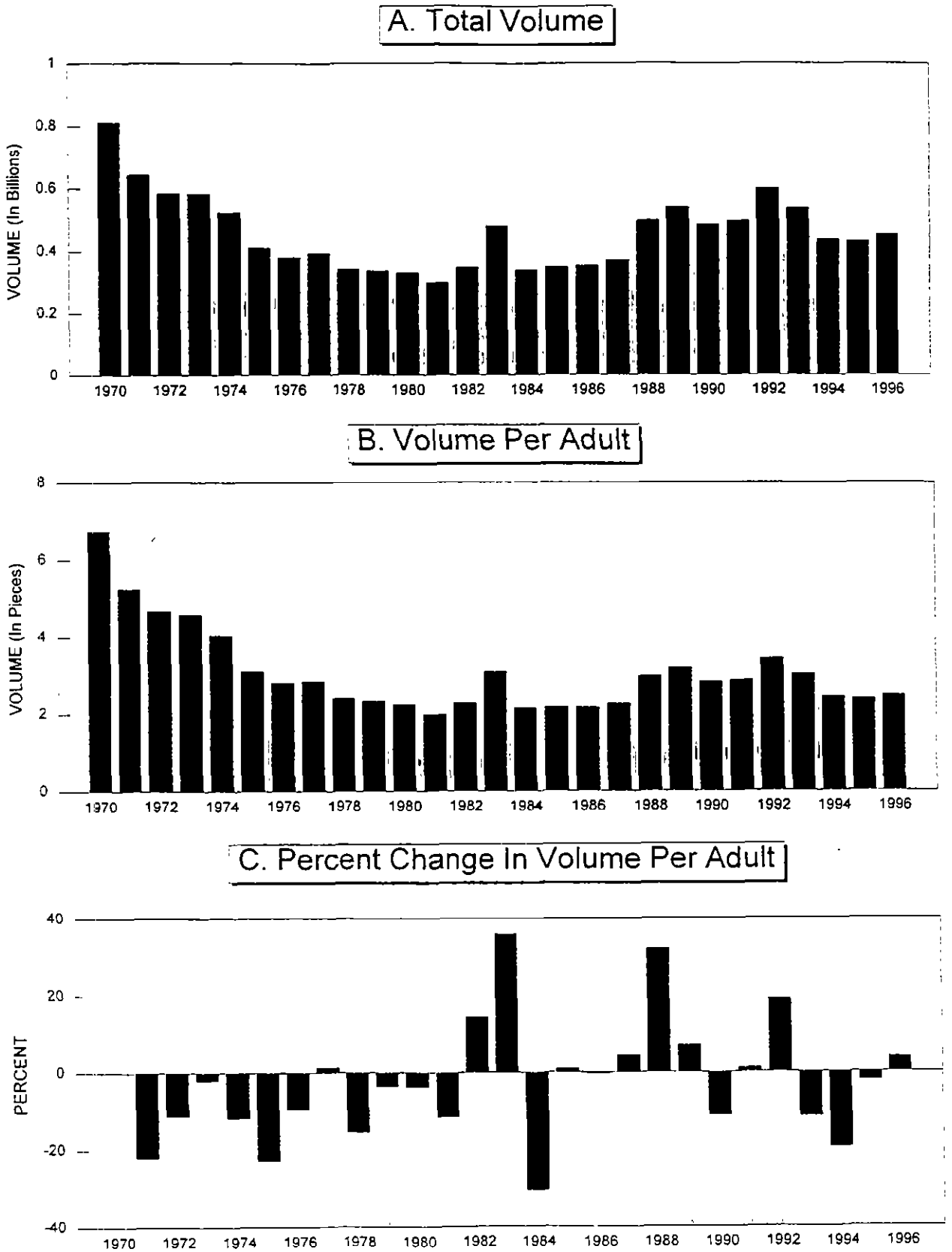
2. Volume History

As shown in Figure 4, the total volume of stamped cards declined in the 1970s, increased in the 1980s, and fell again from 1990 to 1996. Total volume was 812.5 million in 1970, 329.8 million in 1980, 484.4 million in 1990 and 452.8 in 1996.

The fact that stamped card usage is not typical for the population as a whole is

Figure 4

Stamped Cards



indicated by the small number of cards per adult sent each year. The figure was 6.75 cards per adult in 1970, 2.26 in 1980, 2.85 in 1990 and 2.49 in 1996.

3. Factors Affecting Volume

a. Own Price

Table 4 shows that the real price of stamped cards decreased by 5.7 percent over the past five years. The estimated long-run own price elasticity of stamped cards volume is -0.168. Applying this elasticity to the 5.7 percent price decline yields a 0.99 percent increase in stamped cards volume.

b. Income

Permanent income, measured on a per adult basis, increased 4.8 percent over the past five years. The estimated elasticity of stamped cards volume with respect to

TABLE 4

CONTRIBUTIONS TO CHANGE IN
STAMPED CARDS VOLUME FROM 1992 TO 1997

Variable	Percent Change In Variable	Elasticity	Estimated Effect of Variable on Volume
Own price	-5.7%	-0.168	0.99%
Permanent Income	4.8%	0.711	3.37%
Transitory Income	5.1%	0.160	0.80%
Adult Population			5.64%
Other Factors			2.46%
Total Change in Volume			14.39%

permanent income is 0.711. Therefore, the growth in permanent income contributed 3.37 percent to the volume of stamped cards.

Stamped cards volume is also affected by transitory changes in income. The 5.1 percent increase in transitory income combined with an estimated elasticity of 0.160 produces a 0.80 percent increase in the volume of stamped cards.

c. Adult Population

Table 4 shows that growth in adult population added 5.64 percent to the volume of First-Class stamped cards.

d. Other Factors

i. 1992 - 1997 Net Trend

As Table 4 shows, in addition to the aforementioned econometric effects, a five year net trend of 2.46% is needed to fully account for the volume changes from 1992 to 1997.

ii. Reasons for Net Trend

Personal, household-to-household use of First-Class cards rose from 4.2 percent of all cards in 1991 to 4.4 percent in 1995, according to The Household Diary Study [Table 4-38]. That increase marks a change from the steady decrease in household-to-household use since 1987, when they accounted for 9.2 percent of all cards. The long period of declining use has reflected an overall shift by households away from correspondence mail and toward communication by telephone and other means.

Stamped card prices are equal only to the postage cost so that the stamped cards themselves entail no extra cost. That can be attractive to small advertisers and organizations who would otherwise have to pay both postage and paper costs, but are not sufficiently large or technically established to enjoy cost savings through presortation and barcoding. Stamped cards also serve as a cheaper though less attractive alternative to

picture post cards. Cost-conscious households may prefer sending stamped cards for simple announcements and correspondence.

iii. Net Trend for Forecast

Table 4 shows that non-econometric factors have contributed 8.10 percent to the volume of stamped cards over the past five years. However, the forecast error analysis shows that this positive influence is entirely the result of surprising strong volume in the first two postal quarters of 1997. Since these two quarters are part of the Base Year of the volume forecast, the recent increases in volume will be reflected in the Test Year volumes. As such, no net trend appears to be at work and a net trend projection factor of 1.000000 is used in the volume forecast.

4. Volume Forecast

The projected volume for the Test Year, at current rates, is 594.894 million pieces. The projected volume at the rates proposed by the Postal Service (including the proposed fee for stamped cards) is 583.005 million pieces.

D. Private Cards

1. Definition

Private cards differ from stamped cards in that they are privately printed and distributed, and they require that the mailer provide postage. Private cards are used for short notices and greetings and are sent by households, respondents to firms that engage in business-reply advertising, utility companies and other firms. The current price for mailing a nonpresorted private card is 20 cents.

2. Volume History

a. Total Volume of Private Cards

As can be seen in Figure 5, private cards volume has behaved somewhat similarly to First-Class letter volume (shown in Figure 2) in that per adult volume declined in the early 70's and then picked up, with quite vigorous growth in the 80's. The movements for cards have been more pronounced than for letters.

Volume was 13.8 pieces per adult in 1970, and ranged between 12.7 and 14.5 pieces per adult throughout the 1970's. From 1980 to 1991, volume per adult almost doubled, rising from 13.8 pieces to 26.7 pieces. Much of this rise occurred from 1987 to 1991 as a result of the R87-1 rate changes which resulted in Presort cards being priced less than Presort third bulk regular. Private cards were again priced more expensively than third bulk regular after the R90-1 rate case, and volume declined to 24.8 pieces per adult by 1996.

b. Volumes of Single-piece and Workshared Cards

Chart D presents single-piece and workshared volumes of total cards since 1984. Chart D shows the impact of the R87-1 pricing of presort cards less than third-class regular mail, with workshared cards rising from 30.1 percent of total private cards in 1987 to 45.5 percent in 1991. In 1992, workshared cards volume declined as presort cards were priced more expensively than third-class regular mail in the R90-1 case. Since 1992, the percentage of total private cards that are workshared (presorted or automated) has increased in each year, reaching 47.0 percent of total private cards in 1996.

Figure 5

Private Cards

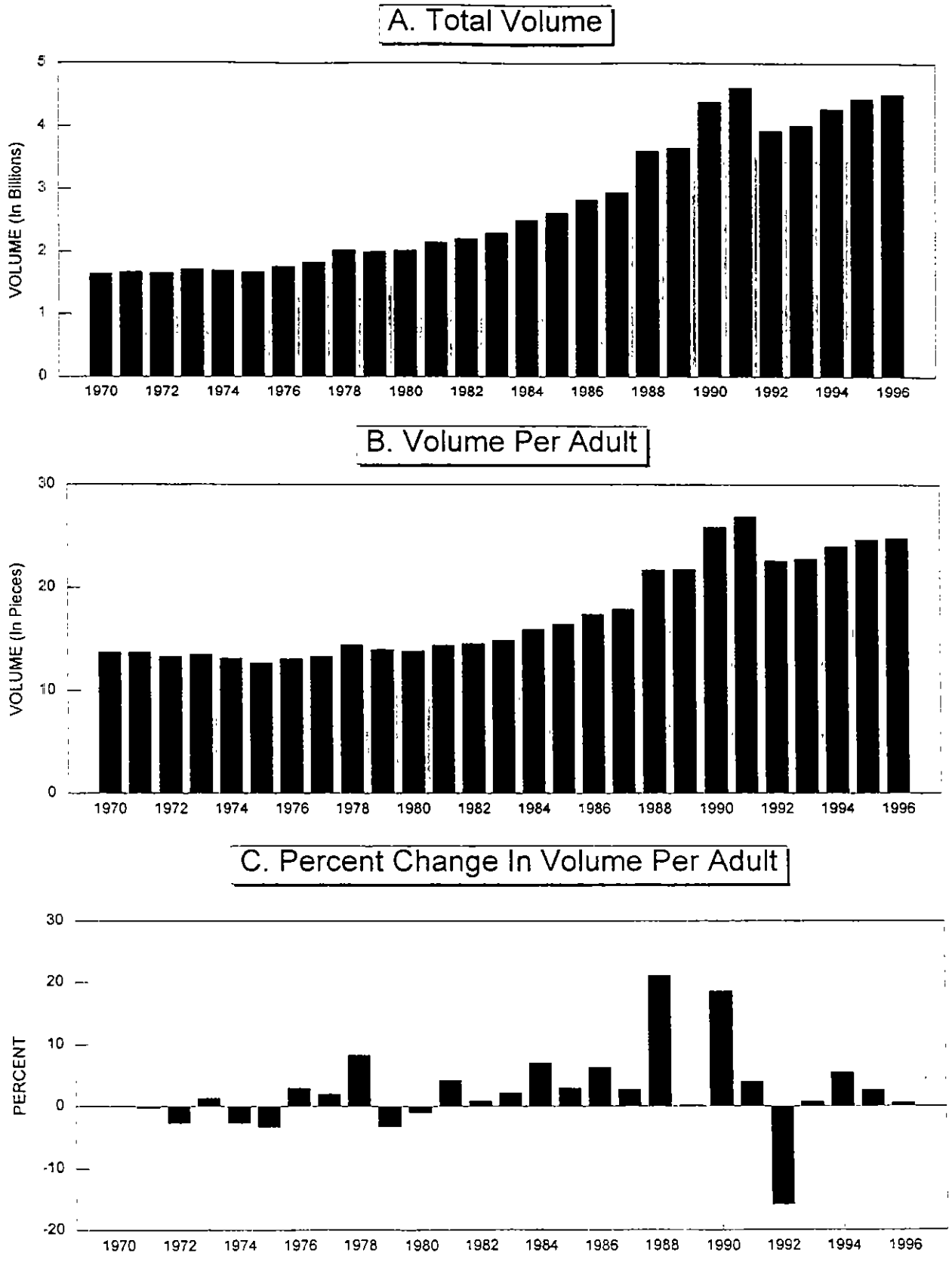


Chart D
Single-Piece and Workshared Volumes of Private First-Class Cards
(in millions of pieces)

Private First-Class Cards				
	Single-piece		Workshared	
Year	Volume	Percentage	Volume	Percentage
1984	1,798.166	71.9%	703.246	28.1%
1985	2,001.836	76.5%	613.495	23.5%
1986	2,009.369	71.1%	815.431	28.9%
1987	2,105.437	71.5%	839.475	28.5%
1988	2,524.109	69.9%	1,089.185	30.1%
1989	2,437.418	66.6%	1,224.487	33.4%
1990	2,799.608	63.8%	1,591.745	36.2%
1991	2,519.904	54.5%	2,101.385	45.5%
1992	2,443.237	62.0%	1,494.472	38.0%
1993	2,364.010	58.8%	1,657.148	41.2%
1994	2,390.950	55.7%	1,897.844	44.2%
1995	2,393.037	53.8%	2,052.358	46.2%
1996	2,393.737	53.0%	2,120.533	47.0%

3. Factors Affecting Volume

a. Own Price

The real price of private cards decreased by 2.9 percent from 1992 to 1997. That price increase combined with an econometrically estimated own price elasticity of -0.944 results in a 2.85 percent increase in volume of private cards from 1992 to 1997, as shown in Table 5.

b. Cross Price

The volume of private cards is affected by the price of a substitute mail product, namely, First-Class letters. It is estimated that a one percent increase in the real price of First-Class letters induces a 0.197 percent increase in the volume of private cards.

Therefore, the 1.5 percent decrease in the real price of letters during the years 1992 to 1997 is estimated to have reduced private cards volume by 0.30 percent.

c. Income

Private card volume is estimated to respond positively to increases in income. It is estimated that a one percent increase in long-run income increases volume by 0.699 percent. The observed 4.8 percent gain in long-run income from 1992 to 1997 indicates that volume rose over this period by 3.31 percent due to this factor.

d. Adult Population

Table 5 shows that growth in adult population contributed 5.64 percent to the volume of First-Class private cards over the past five years.

TABLE 5

CONTRIBUTIONS TO CHANGE IN
PRIVATE FIRST-CLASS CARDS VOLUME FROM 1992 TO 1997

Variable	Percent Change In Variable	Elasticity	Estimated Effect of Variable on Volume
Own price	-2.9%	-0.944	2.85%
Cross Price First-Class Letters	-1.5%	0.197	-0.30%
Permanent Income	4.8%	0.699	3.31%
Adult Population			5.64%
Other Factors			0.61%
Total Change in Volume			9.23%

e. Other Factors

i. 1992 - 1997 Net Trend

Table 5 shows that from 1992 to 1997, the total change in the volume of First-Class private cards was 9.23 percent. In addition to the econometrically estimated effects discussed above, other factors were responsible for 0.61 percent increase in volume.

ii. Reasons for Net Trend

Single piece private cards are subject to many of the same sluggish influences as stamped cards, for which they can serve the same purposes. On the other hand, travel and tourism act to bolster single-piece private cards. The expansion of workshared private cards reflects their growing popularity as an advertising medium. Workshared private cards are also used for some bills, with increased worksharing discounts increasing their attractiveness.

iii. Net Trend for Forecast

As shown in Table 5, other factors contributed 0.61 percent to private cards volume over the past five years. On an annual basis, this is equal to 0.12 percent per year. Chart D reveals how differently single-piece and workshared private cards volumes have been behaving, with single-piece volume declining 2.0 percent and workshared volume growing 41.9 percent between 1992 and 1996. These growth rates suggest that non-econometric factors are affecting single-piece and workshared mail volumes differently.

Information presented in the Technical Appendix shows that after consideration of the econometrically forecasted factors, single-piece card volume has declined by about 1.8 percent per year over the past five years. All of the four-quarter averages of the SPLY differences for single-piece cards are negative, confirming the consistency of this downward trend. Therefore, the net trend used in the forecast of single-piece cards is the five-year mechanical net trend of 0.981974 as shown in the Technical Appendix.

With regard to workshared cards, the five-year mechanical net trend is 1.025634, meaning that non-econometric factors have added about 2.56 percent per year to the volume of workshared cards. The fact that all of the four-quarter averages of SPLY differences are positive shows a consistency to this trend. Therefore, the net trend projection factor used in the forecast is 1.025634.

4. Volume Forecast

a. Total Private Cards

The total volume of private cards is the sum of the volumes of single-piece and workshared private cards. Combining these two volumes, discussed immediately below, yields a before-rates Test Year projection for total private cards of 5,098.223 million pieces. After considering the impact of the proposed change in rates, the after-rates Test Year projection is 4,940.041 million pieces.

b. Single-Piece Private Cards

The before-rates Test Year volume of single-piece private cards is projected to equal 2,546.540 million pieces. The after-rates volume is projected to equal 2,476.656 million pieces.

c. Total Workshared Cards

The before-rates Test Year volume of workshared private cards is projected to equal 2,551.683 million pieces. The after-rates volume is projected to equal 2,463.385 million pieces.

d. Presorted and Automated Private Cards

Within workshared cards, the before-rates volume of presorted nonautomated cards is projected to be 643.732 million pieces in the Test Year, with an after-rates volume equal to 667.024 million pieces. The total volume of automated cards is projected to equal 1,907.951 million pieces, before-rates, in the Test Year. At rates proposed by the Postal

Service, the Test Year total volume of automated cards is projected to decrease to 1,796.361 million pieces.

III. MAILGRAMS

A. Characteristics

Mailgrams are offered pursuant to an agreement between Western Union and the Postal Service, and provides for delivery by the Postal Service of messages generated and printed by Western Union. Western Union reimburses the Postal Service for each message.

B. Volume History

As shown in Figure 6, Mailgram volume has declined nearly every year since 1982. In 1996, Mailgram volume per adult was 0.02 pieces, over ninety percent less than its peak volume of 0.28 pieces per adult in 1981.

C. Factors Affecting Volume

The steadily declining volume pattern for Mailgrams has not permitted econometric estimation of responses for this subclass. Mailgram has been largely overtaken by advances in electronic messaging mentioned in the First-Class letters section above. Table 6 shows that beyond a proportionate population growth factor, other factors were responsible for a 42.17 percent decline in Mailgram volume over the past five years.

D. Volume Forecast

The decline Mailgram volume is expected to continue. The five-year downward in volume is equal to an annual net trend projection factor of 0.896242 which is included with adult population in the volume forecast of Mailgrams. Accordingly, the before-rates volume in the Test Year is projected to be 4.757 million pieces. As there is no proposed change in rates, the after-rates projection is the same.

Figure 6

Mailgram Volume

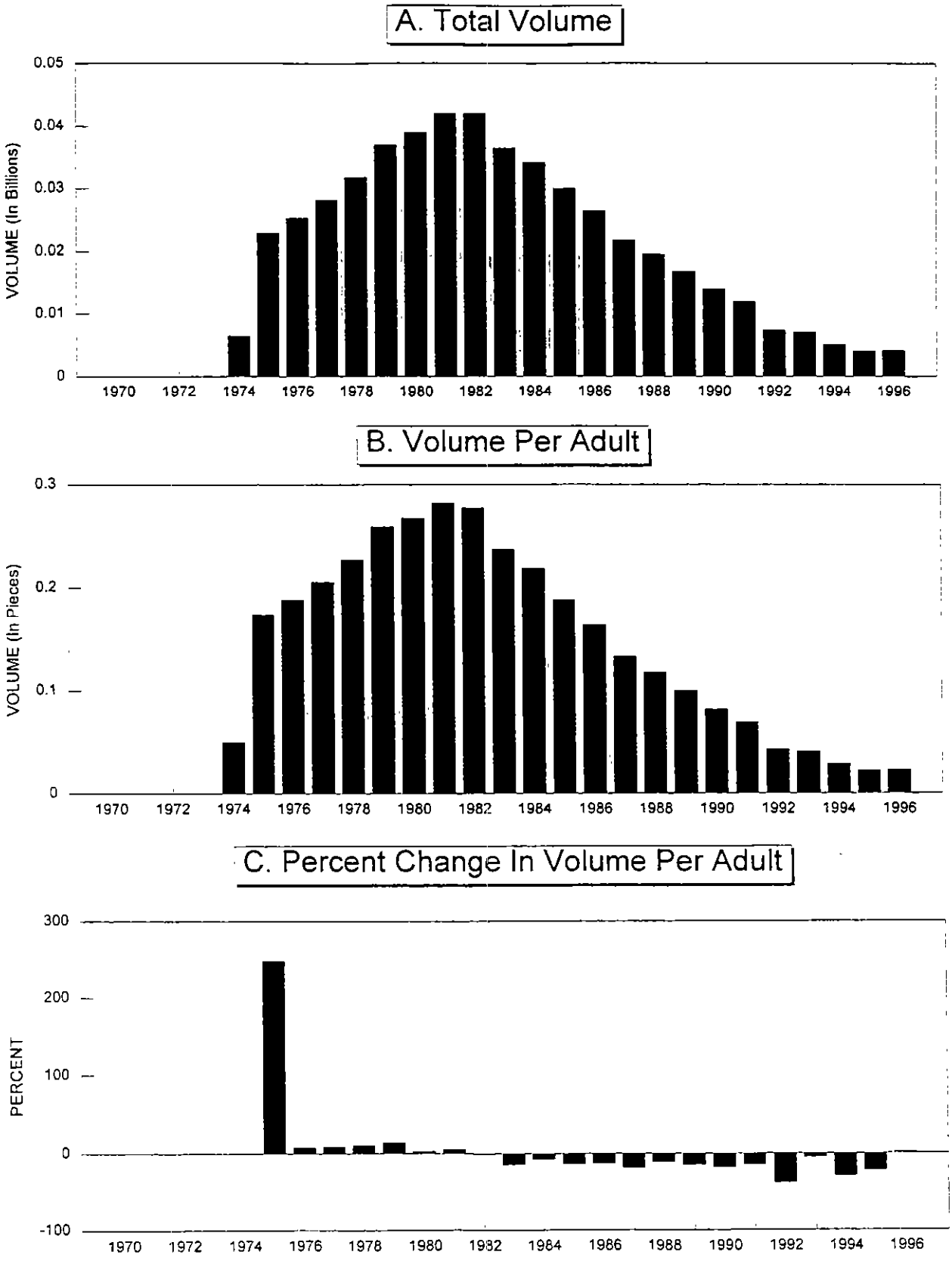


TABLE 6

CONTRIBUTIONS TO CHANGE IN
MAILGRAM VOLUME FROM 1992 TO 1997

Variable	Estimated Effect of Variable on Volume
Adult Population	5.64%
Other Factors (5 year Net Trend)	-42.17%
Total Change in Volume	-39.04%

IV. PERIODICALS

A. General Characteristics

1. Periodicals as Source of Information

Periodicals consists of newspapers, magazines, and other periodicals. Nearly all Periodicals originate in the nonhousehold sector. The Household Diary Study results for 1991 indicates that 77.8 percent of all Periodicals are sent to households. This value was a slight increase over the 1988 percent of 75.6, departing from a downward shift between 1977 and 1987 that had decreased the share received by households by 15 percentage points [Household Diary Study, 1991, p. V-1].

Periodicals are used solely by the publishers and registered agents of newspapers, magazines, and other periodical publications which meet the qualifications of the Domestic Mail Manual. To qualify for Periodicals rates the material to be mailed must be printed and issued regularly (at least four times per year). Periodicals material is published for the purpose of disseminating information of a public character, such as news, or are devoted to literature, the sciences, arts, or some special industry. Also to qualify for Periodicals, there must be a list of subscribers paying for or requesting the periodical, though exemptions are given for some organizations if there is no advertising other than that of the publisher. Publications consisting of over 75 percent advertising in more than half of the issues published in 12 months are not eligible for Periodicals. Periodicals are given expeditious distribution, dispatch, transit handling and delivery, preceded only by First-Class, Priority Mail and Express Mail.

Prior to the effective date of R84-1 rates on February 17, 1985, the general public could send single copies of Periodicals material at a special transient rate. This rate represented an exception to bulk mail and was at the time less expensive than third- or fourth-class rates. However when the R84-1 third- and fourth-class rates became effective,

the Periodicals transient rate became redundant given lower price postal alternatives and was eliminated. Thus, all current Periodicals are bulk and must be presorted to at least the ZIP-Code level.

2. Importance of Periodicals

In Postal Year 1996, the total volume of Periodicals was just over 10 billion pieces, accounting for about 5.5 percent of total mail volume handled. The largest subclass of Periodicals is regular rate mail, which had a 1996 volume of 6,950 million pieces, following by nonprofit mail (2,211 million pieces), in-county mail (874 million pieces) and classroom mail (59 million pieces).

3. Rate Structure of Periodicals

a. In-County vs. Outside-County Rates

In-county rates are available for qualified Periodicals pieces which are addressed for delivery within the county where published. All Periodicals volume mailed in-county is charged rates which are lower than rates for similar mail traveling outside the county. As a result, the rates charged to mail traveling outside the county are referred to collectively as outside the county rates.

b. Further Pricing Classifications

The charge for Periodicals consists of a per piece rate charged for each piece plus a pound rate charged for the weight of that piece. The pound rate is further separated into a flat (not zoned) rate for editorial (non-advertising) portions of the publication and a zoned rate for advertising portions. The piece rate has several levels depending on the degree of presortation and destination characteristics. The rate structure is further affected by the fact that the preferred rate elements are subject to congressionally mandated phase-ins to higher rates, and that each component has sometimes followed a different phasing schedule. The routine phasing schedule was frequently altered in response to

congressional appropriations. As a result, preferred rates experienced frequent rate changes.

B. In-County Mail

1. Definition

The first requirement for mail to be eligible for in-county rates is that it must qualify under the general rules regarding Periodicals. The second requirement is that the piece must be addressed to a location within the county where the mailer has a known office of publication. In 1985, Congress moved to tighten the requirements for in-county mail. The Consolidated Omnibus Budget Reconciliation Act of 1985 [Pub. Law 99-0272, April 7, 1986] denies in-county rates to publishers with more than half of their circulation outside of the county, but it specifically exempts publications with circulation of less than 10,000.

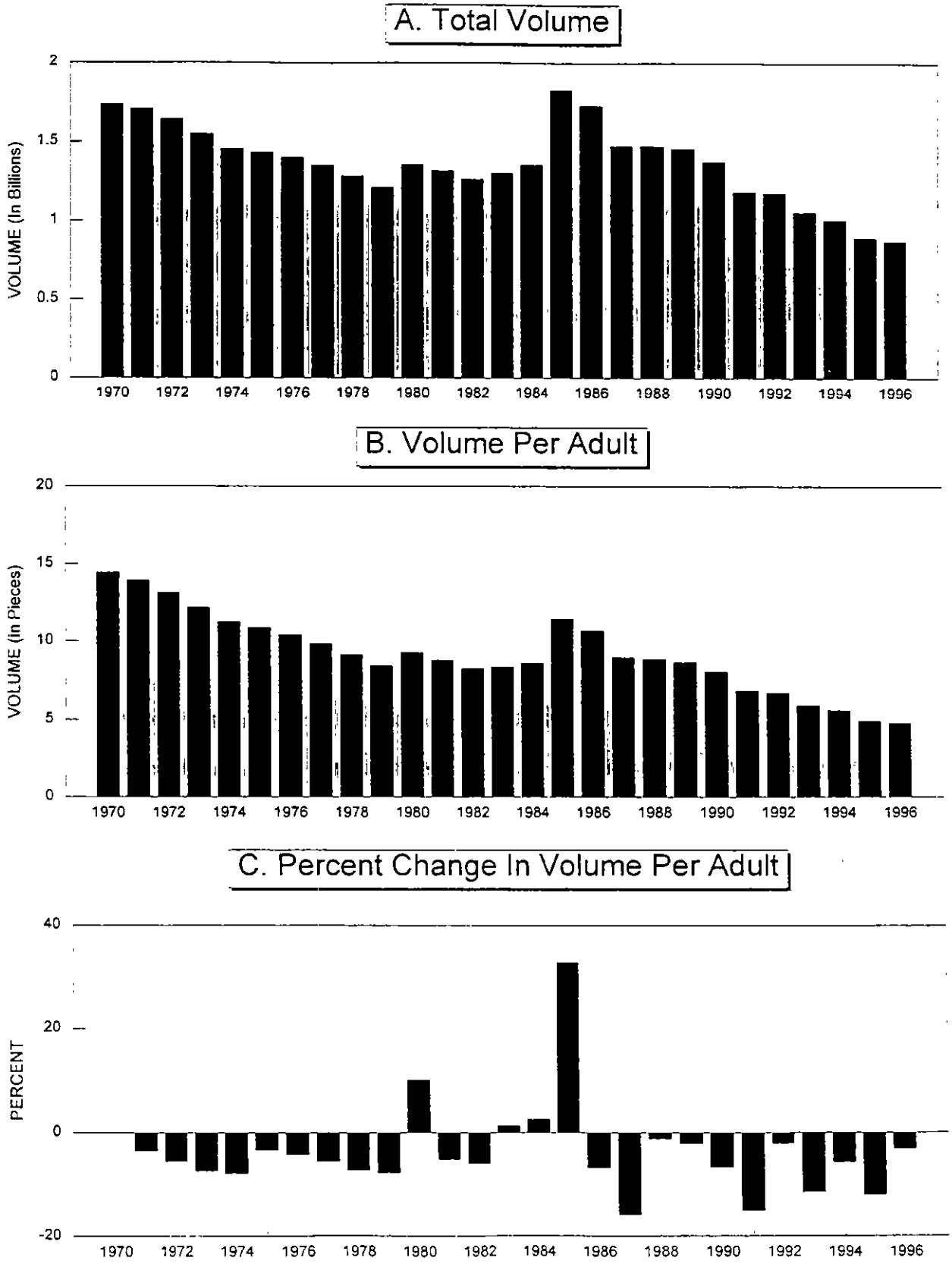
2. Volume History

The top panel in Figure 7 shows that total in-county mail volume fluctuated considerably throughout the 1970's and 1980's. For the two decades as a whole volume growth lagged population growth with a resulting general decrease in volume per adult. As shown in the middle panel, volume per adult was 14.5 pieces in 1970, declining to 9.3 pieces in 1980, after which it rose to 11.5 pieces in 1985. Since then, volume per adult has declined every year, falling to 4.3 pieces per adult for 1996. The bottom panel shows yearly percentage changes in volume per adult.

The increase in reported volume per adult of over 30 percent in 1985 is connected with new reporting procedures introduced to reconcile volume estimates for the subclasses of what was then second-class mail. Prior to 1985 within-county mail was underreported relative to the other subclasses. The effect of the reporting procedure change was to

Figure 7

Periodical Within County Mail



increase estimated in-county volume, while decreasing the estimated nonprofit and regular rate volumes.

The rather large percentage declines in 1986 and 1987 was the intended result of large price increases and restrictions on eligibility to send in-county mail. Another reason for the decrease was restrictions on eligibility to send "plus" publications, consisting of advertising materials from newspapers, as Periodicals. Newspaper publishers had earlier interpreted Postal Service rules to mean that advertising supplements could be included in-county mailings, and sent to non-subscribers as special editions. When the rules regarding this practice were amended in 1986, there was a negative effect on volume.

3. Factors Affecting Volume

The volume of in-county mail declined 18.89 percent over the past five years. Factors responsible for this volume change are discussed below.

a. Own Price

Over the last five years, the real price of in-county mail declined 5.0 percent. The econometrically estimated long-run own price elasticity of in-county mail is -0.530. Applying this elasticity to the change in real price yields a 2.77 percent increase in the volume of in-county mail due to this factor.

b. Income

Periodical in-county mail volume has been found to respond positively to long run income. It is estimated that a one percent increase in long run income increases volume by 0.531 percent. The observed gain in income per adult of 4.7 percent from 1992 to 1997 is estimated to have contributed a 2.49 percent increase in Periodical in-county mail volume, as shown in Table 7.

c. Cable Television

The growth of cable television has brought with it increased specialization in the types of programming available to viewers. In particular, cable television provides viewers with a substitute means of obtaining news and other information that had traditionally been provided by newspapers and magazines. To reflect this substitution between cable television and in-county mail, real expenditures on cable television was included as an explanatory variable in the equation. A one percent increase in this variable is estimated to decrease within-county mail volume by 0.062 percent. Given that cable television expenditures increased by 11.3 percent, after allowing for inflation, from 1992 to 1997, the implication is that this variable was responsible for a 0.66 percent decline in in-county volume.

d. Change in Volume Sampling

Beginning in the second postal quarter of 1993, the Postal Service changed its method of sampling in-county volume. Under the new sampling method, in-county volume was found to be substantially lower than previously estimated. To account for this effect, a dummy variable was included in the econometric regression. It is estimated that the change in the sampling system was responsible for a 28.58 percent reduction in the reported volume of in-county mail.

e. Adult Population

Growth in adult population contributed 5.64 percent to the volume of in-county mail, as shown in Table 7.

f. Other Factors

i. 1992 - 1997 Net Trend

Table 7 shows the impact on the volume of within-county mail of changes in the variables included in the econometric analysis. Non-econometric factors are responsible

for a 2.75 percent increase in the volume of in-county mail over the last five years. Expressed as an annual net trend, these other factors contributed an average of 0.54 percent per year to in-county volume.

TABLE 7

CONTRIBUTIONS TO CHANGE IN
WITHIN COUNTY VOLUME FROM 1992 TO 1997

Variable	Percent Change In Variable	Elasticity	Estimated Effect of Variable on Volume
Own price	-5.0%	-0.530	2.77%
Permanent Income	4.7%	0.531	2.49%
Cable Television	11.3%	-0.062	-0.66%
Sampling Change			-28.58%
Adult Population			5.64%
Other Factors			2.75%
Total Change in Volume			-18.89%

ii. Reasons for Net Trend

According to The Household Diary Study, newspapers comprised 17.5 percent of second-class mail in 1995 [Table 5-2]. This percentage has steadily decreased since 1987, when newspapers accounted for 26.8 percent of second-class mail. In 1995, newspapers accounted for 0.35 pieces of second-class mail per household per week. Given an estimated 98.3 million households, newspapers accounted for 1.8 billion pieces of second-class mail in 1995. This represents about a 22 percent and a 33 percent decline from 1991 and 1987 levels, respectively.

a) Declining Newspaper Circulation

Periodical in-county mail volume has been particularly impaired by declines in newspaper circulation. Figures from The Statistical Abstract and Data Resources, Inc. (DRI) indicate that newspaper circulation per adult has declined dramatically from 1980 to 1995. In 1980, newspaper circulation of morning and evening dailies was 62.2 million, and 42 percent of the adult population subscribed to them. By 1990, newspaper circulation was virtually unchanged, but only 37 percent of the adult population subscribed. In 1995, newspaper circulation had fallen to 58.2 million papers, with subscribership limited to only 32 percent of the adult population. [U.S. Statistical Abstract, 1996. (Table 876 and Table 898)].

Figures released by the Newspaper Association of America, the industry trade group, show a continued slow erosion of newspapers' circulation and advertising franchise. The percentage of adults who read a daily paper dropped to 59 percent in 1996, down from 64 percent in 1995. Sunday readership dropped as well, to 68.5 percent from 72.6 percent. Combined morning and evening daily circulation reached its lowest point since the 1950s, at just under 57 million. Overall, newspaper advertising revenue increased nearly six percent in 1996, but this represented the smallest year-to-year ad gain registered by any medium, including broadcast and cable television, radio, magazines, and direct mail.

b) Shift from Daily to Weekly Newspapers

Another change in the newspaper industry affecting Periodical in-county mail is the growth of weekly newspapers relative to daily newspapers. Gale Research, Inc., in their 1995 Directory of Publications and Broadcast Media, indicate that from 1980 to 1995 the number of weekly newspapers had grown nearly 26 percent. The number of daily newspapers, comparatively, had fallen by almost 2 percent. Because weekly newspapers tend to be local newspapers, they are more likely than daily newspapers to be mailed at

within-county rates. The growth of weekly newspapers, therefore, might be a factor mitigating the downward trend in Periodical in-county volume over the past several years.

Of the daily newspapers that survive, many are being purchased by large chains. More than 300 dailies have changed ownership since 1992, the overwhelming majority passing from one chain to another. The 15 largest groups now control more than half the country's daily newspaper circulation. [Elizabeth Gleick, "The Biggest Story in the Newspaper Indusy These Days," (Time, Oct. 21 1996)]. The increasing concentration of newspaper ownership and incidence of monopoly newspapers are two factors often mentioned in industry literature to explain the decline in newspaper circulation.

c) Electronic Newspaper Services

Larger newspapers can use online services to buttress circulation and create specialized news reports geared to local communities. This can adversely affect the circulation of small newspapers that are more likely to make use of within-county mailing.

Virtually every big paper has made a foray into the online world. Howard Tyner, editor of The Chicago Tribune, has planned a $7 million renovation of the Tribune building that will coordinate the company's print, Internet and cable operations. Nine other companies, including Hearst, the New York Times Co., and the Washington Post Co., are participating in the New Century Network, a project that connects local papers electronically. Martin Niesenholtz, president of The New York Times Electronic Media Company, says that The New York Times Electronic Edition, which was launched in February, 1996, had 500,000 subscribers six months later. [Elizabeth Gleick, (Time, Oct. 21, 1996)]. ClariNews is the Internet's first and largest electronic newspaper, with circulation of 1.5 million paid subscribers. More than 200 Internet service providers worldwide carry ClariNews, in addition to government agencies, educational institutions, and large corporations. ["Tomorrow's High Tech I.P.O.'s," (S & P's Emerging and Special Situation. March, 1997)].

iii. Net Trend for the Forecast

The five-year mechanical net trend for in-county mail is 1.005442, consistent with an annual net trend of about 0.54 percent. However, the forecast error analysis period begins prior to the 1993 change in the Postal Service sampling method for in-county mail volume. Consequently, the mechanical net trend was recalculated over the most recent four year period. The mechanical net trend calculated over the past four years is 0.975107 and appears to be more reflective of recent volume movements in in-county mail. The non-econometric review detailed a number of factors that would be expected to continue to exert a downward pressure on Periodicals volumes. Consequently, the four-year mechanical net trend factor of 0.975107, equal to an annual net trend of -2.49 percent per year, is used in the Test Year forecast of Periodical in-county mail.

4. Volume Forecast

Projection of the econometric factors and net trend into the future gives a before-rates forecast for the Test Year of 911.204 million pieces and an after-rates forecast of 901.870 million pieces.

C. Nonprofit Mail

1. Definition

Periodicals sent by qualified nonprofit organizations and certain other organizations may be mailed as Periodical nonprofit mail. The eight types of eligible nonprofit organizations are religious, educational, scientific, philanthropic (charitable), agricultural, labor, veterans, and fraternal. In addition to these organizations, certain other organizations may send publications at the Periodical nonprofit rate if their publication falls into one of the following categories: (1) publications issued by and in the interest of associations of rural electric cooperatives, (2) one publication of the official highway or

development agency of the state containing no advertising, (3) program announcements or guides published by an educational radio or television agency of a state or local government, or by a nonprofit educational radio or television station, or (4) one conservation publication published by a state agency which is responsible for management and conservation of the fish or wildlife resources of that state.

The Preferred Rate Study conducted by the Postal Rate Commission in 1986 found that 23 percent of second-class nonprofit mail consisted of newspapers and 77 percent consists of magazines. Chart E, taken from the Preferred Rate Study, shows the distribution of second-class nonprofit mailings by categories of mailers. Nearly 38 percent of publications mailed as nonprofit mail were sent by religious organizations, while over 25 percent were sent by educational organizations.

2. Volume History

As shown by the top panel of Figure 8, total nonprofit volume stayed relatively constant during the 1970s, maintaining a volume between 2.2 and 2.3 billion pieces of mail. However, as the middle and bottom panels show, because of population growth, this constant total volume was associated with a decreases in volume per adult throughout from 17.7 pieces in 1970 to 15.7 pieces in 1979. After a large gain in 1980 to 19.9 pieces per adult, followed by a large fall in total volume and volume per adult in the next three years, total nonprofit began a steady pattern of growth that was sustained through 1989.

From 1989 to 1996, volume growth has been mixed and generally sluggish. By 1996, volume and volume per adult had fallen to 2.2 billion pieces and 12.2 pieces per adult, respectively.

CHART E

DISTRIBUTION OF PUBLICATIONS AND TOTAL ANNUAL VOLUME
OF PERIODICAL NONPROFIT MAIL
ACROSS MAILING CATEGORIES

Nonprofit Category	Percent of Publications	Percent of Total Volume
Religious	37.6	30.5
Educational	25.4	22.4
Scientific	12.0	8.3
Philanthropic	0.7	0.6
Agricultural	1.5	1.3
Labor	12.9	19.5
Veterans	0.5	0.3
Fraternal	4.2	2.8
Other & Unknown	5.2	14.3
All Nonprofit	100.0	100.0

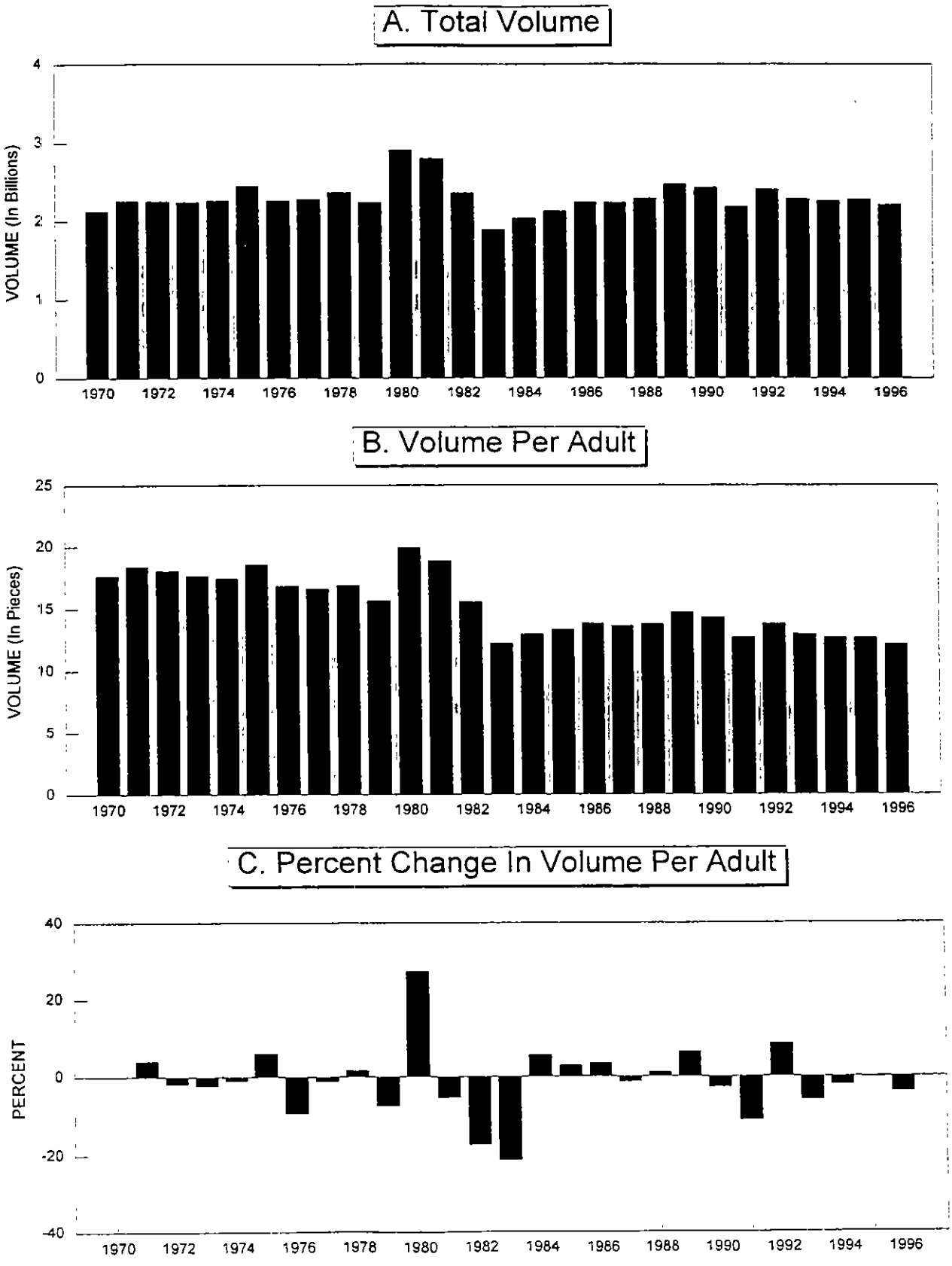
3. Factors Affecting Volume

a. Own Price

Table 8 shows that over the last five years, the inflation-adjusted price for Periodical nonprofit mail increased 15.3 percent. It is estimated that a one percent increase in real own price leads to a 0.228 percent decline in the volume of nonprofit mail. Applying this estimated elasticity to the percentage change in price yields a decline in nonprofit volume of 3.18 percent.

Figure 8

Periodical Nonprofit Mail



b. Income

It is estimated that a one percent increase in permanent income per adult leads to an increase in Periodical nonprofit mail volume of 0.535 percent. The observed gain in permanent income per adult of 4.8 percent over the past five years is therefore estimated to have contributed a 2.52 percent increase in volume.

Transitory changes in income, measured by the Federal Reserve Board Index of Capacity Utilization, also affects Periodical nonprofit mail volume. The response to transitory income is, however, less immediate than with other mail classes. Prepaid subscriptions and memberships (in the case of nonprofit) predominantly generate Periodicals, resulting in a lagged response of approximately three quarters. This three quarter lag results from allowing subscriptions and memberships to lapse during economic downturns, with actual cessation of delivery not occurring until the subscription contracts have run out. Table 8 shows that this lagged index increased by 3.7 percent over the past five years. A one percent increase in transitory income is estimated to cause a 0.458 percent increase in nonprofit mail volume. Applying the estimated elasticity to the percentage change in transitory income results in a 1.69 percent increase in the volume of in-county mail.

c. Cable Television

A one percent increase in cable TV expenditures is estimated to lead to a 0.101 percent decrease in Periodical nonprofit mail. The estimated elasticity of volume with respect to cable expenditures is -0.101. Therefore, growth in cable TV expenditures are estimated to have been responsible for a 1.07 percent decline in nonprofit mail volume over the last five years.

d. Adult Population

Table 8 shows that growth in adult population contributed 5.64 percent to the volume of Periodical nonprofit mail during the most recent five year period.

e. Other Factors

i. 1992 - 1997 Net Trend

Table 8 shows the impact of the econometrically estimated variables on the volume of second nonprofit mail over the past five years. In addition, other factors were responsible for a 10.10 percent decline in nonprofit mail volume from 1992 to 1997. On an annual basis, the net trend is -2.11 percent.

TABLE 8

CONTRIBUTIONS TO CHANGE IN
PERIODICAL NONPROFIT VOLUME FROM 1992 TO 1997

Variable	Percent Change In Variable	Elasticity	Estimated Effect of Variable on Volume
Own price	15.3%	-0.228	-3.18%
Income			
Permanent	4.8%	0.535	2.52%
Transitory	3.7%	0.458	1.69%
Cable Television	11.4%	-0.101	-1.07%
Adult Population			5.64%
Other Factors			-10.10%
Total Change in Volume			-5.31%

ii. Reasons for Net Trend

The influence of other factors over the past five years is equivalent to a five-year mechanical net trend of 0.978934. Periodical nonprofit mail has been adversely affected by declines in newspaper and magazine circulation and other factors affecting periodicals, discussed in the sections on in-county mail above and regular rate below.

iii. Net Trend for the Forecast

The forecast error analysis for this subclass shows that in the last 18 quarters, actual volume has fallen short of forecasted volume confirming the persistence of the negative influence of non-econometric factors. Therefore, the net trend factor used in the forecast is the five-year mechanical net trend of 0.978934.

4. Volume Forecast

Projection of the econometric factors and net trend into the future gives a before-rates forecast for the Test Year of 2,186.677 million pieces and an after-rates forecast of 2,161.007 million pieces.

D. Classroom Mail

1. Definition

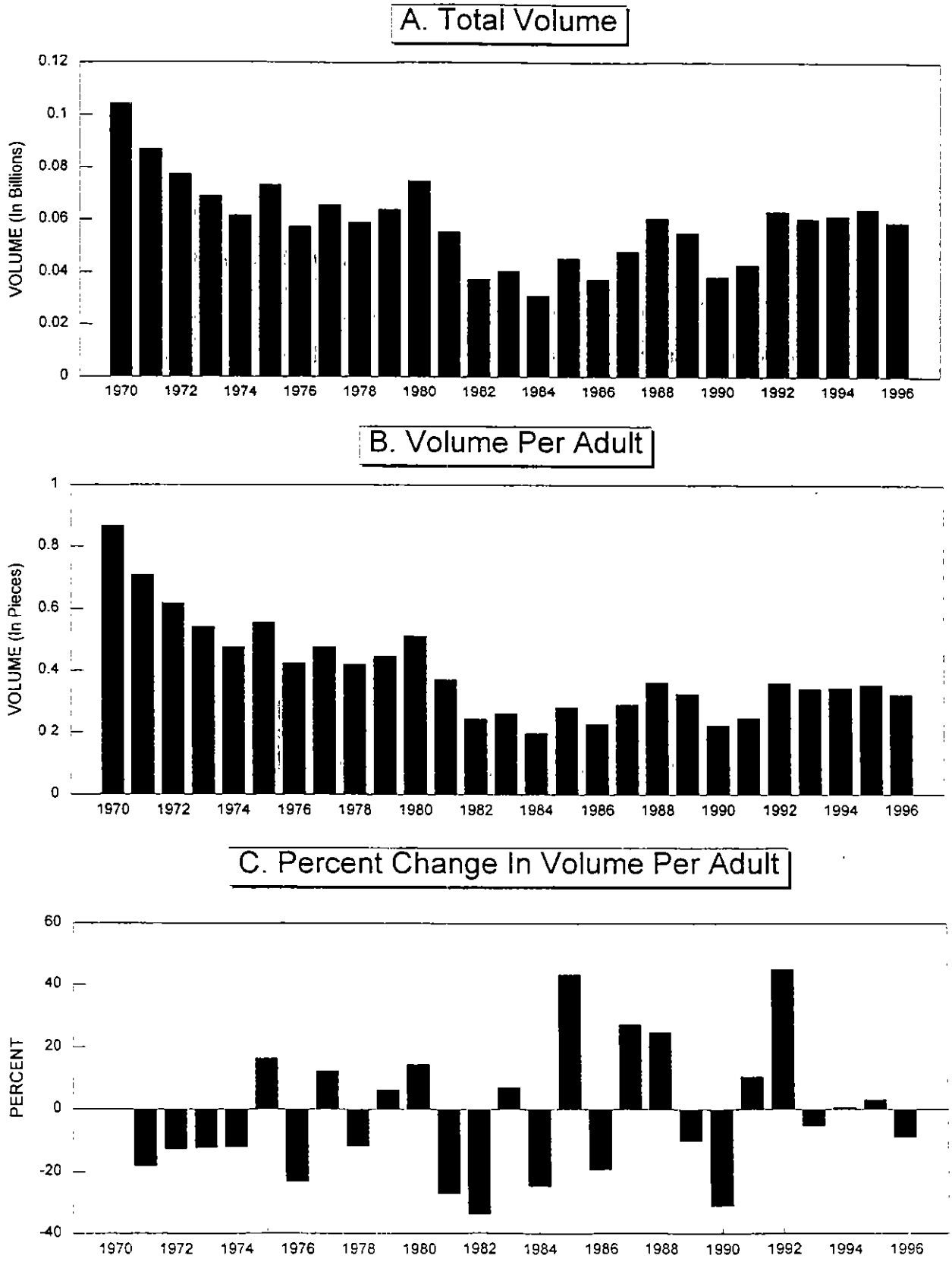
Classroom mail consists of religious, educational or scientific publications intended for use in school classrooms. This mail is often sent to schools in large bundles during the school year, but mailed to individual students during the summer recess.

2. Volume History

The first panel in Figure 9 shows that total classroom volume generally fell from 1970 to 1984. Since 1984, volume has generally risen, but with ups and downs. The second panel shows that volume per adult fell quite drastically in the 1970s and early 1980s, from 0.87 pieces per adult in 1970 to a low of 0.20 pieces in 1984. Per adult volume generally

Figure 9

Periodical Classroom Mail



trended upward reaching 0.36 pieces per adult in 1992 and has stayed relatively stable since then. Per adult volume was 0.32 in 1996. As the bottom panel shows, second classroom volume per adult exhibits no constant pattern of growth. Annual percentage increases or decreases in excess of 20 percent have been common since 1981.

3. Factors Affecting Volume

a. Own Price

Between 1992 and 1997, the real postal price of classroom mail decreased 6.6 percent. The estimated own price elasticity of classroom mail is -1.178. Applying this estimated elasticity to the 6.6 percent decrease in real price results in an 8.41 percent increase in the volume of classroom mail.

b. Income

It is estimated that a one percent increase in permanent income per adult leads to a 0.533 percent increase in classroom mail volume. The observed gain in permanent income per adult of 4.8 percent from 1992 to 1997 is estimated to have contributed a 2.51 percent increase in classroom mail volume.

A one percent increase in transitory income is estimated to cause a 0.762 percent increase in classroom mail volume. Applying this estimated elasticity to the 3.7 percent increase in transitory income over the 1992 to 1997 period yields an increase in classroom mail volume of 2.84 percent, as shown in Table 9.

c. Adult Population

Growth in adult population was responsible for a 5.64 percent increase in the volume of classroom mail over the past five years.

d. Other Factors

i. 1992 - 1997 Net Trend

In addition to the econometric influences on classroom mail, Table 9 shows that other factors were responsible for a 9.80 percent increase in volume over the past five years. Expressed as a net trend, other factors were responsible for an annual increase in volume of 1.89 percent.

TABLE 9

CONTRIBUTIONS TO CHANGE IN
PERIODICAL CLASSROOM VOLUME FROM 1992 TO 1997

Variable	Percent Change In Variable	Elasticity	Estimated Effect of Variable on Volume
Own price	-6.6%	-1.178	8.41%
Income			
Permanent	4.8%	0.533	2.51%
Transitory	3.7%	0.762	2.84%
Adult Population			5.64%
Other Factors			9.80%
Total Change in Volume			34.70%

ii. Reasons for Net Trend

a) School Enrollment

It is likely that increases in school enrollment would spur growth in Periodical classroom mail volumes. According to data from the U.S. National Center for Education Statistics, enrollment in public and private elementary schools was projected to grow from 60.3 million in 1990 to 65.0 million in 1995, a growth rate of nearly 8 percent. Total school

enrollment is projected to grow to 69.2 million by year 2000, a 6.5 percent increase from 1995 estimated levels.

b) Electronic and Computer Alternatives

Periodical classroom mail volume has been impaired to some extent by electronic alternatives. Electronic encyclopedias, for example, already outsell their printed counterparts in school libraries. The 1996 U.S. Statistical Abstract reports highly significant growth of electronics in schools. From 1992 to 1995 the percent of total schools with interactive videodisk players rose, for example, from 8 percent to 27 percent. The total percent of schools with CD-ROMs rose from 9 percent to 34 percent over the same period. The total percent of schools with satellite dishes rose from 1 percent to 17 percent. While the precise impact of the electronic revolution in schools on mail volume is unclear, it seems likely that Periodical classroom mail would be curtailed by the increased presence of such electronic information gathering devices.

iii. Net Trend Used in the Forecast

Classroom mail volume is so volatile that it is difficult to determine if the positive influence of other factors over the past five years is reflective of a trend or simply a manifestation of recent fluctuations. The forecast error analysis shows mainly positive forecast errors (meaning actual volume exceeds forecasted volume) but mainly negative SPLY differences of forecast errors (meaning that the positive influences on volume are waning). As a result, no net trend is included in the volume forecast of classroom mail.

4. Volume Forecast

Projecting the influences of price, income and population gives a projection of 51.194 million pieces of Periodical classroom mail for the Test Year, given existing postal rates and increases already scheduled between the Base Year and the Test Year. If the rates recommended by the Postal Service are adopted, the forecast is for 47.452 million pieces.

E. Regular Rate

1. Definition

Periodical regular rate mail, the largest subclass in Periodicals, consists primarily of weekly and monthly magazines as well as daily and less frequent newspapers not eligible for preferred rates.

2. Volume History

Figure 10 shows volumes for regular rate mail from 1970 to 1996. The top panel indicates that total volume declined slightly from 1970 through 1980, falling 3.9 percent. Volume generally increased through the 1980's reaching a peak its peak in 1991. The second and third panels of Figure 10 shows that volume per adult of regular rate mail declined steadily throughout the 1970's. Since 1982, volume per adult has remained relatively constant indicating that the growth of second regular mail volume in the 1980's was at the same rate as the growth of adult population. In 1996, volume per adult was 38.2 pieces, about the same as it was in 1981, and 23.0 percent less than its 1970 value of 49.6 pieces per adult.

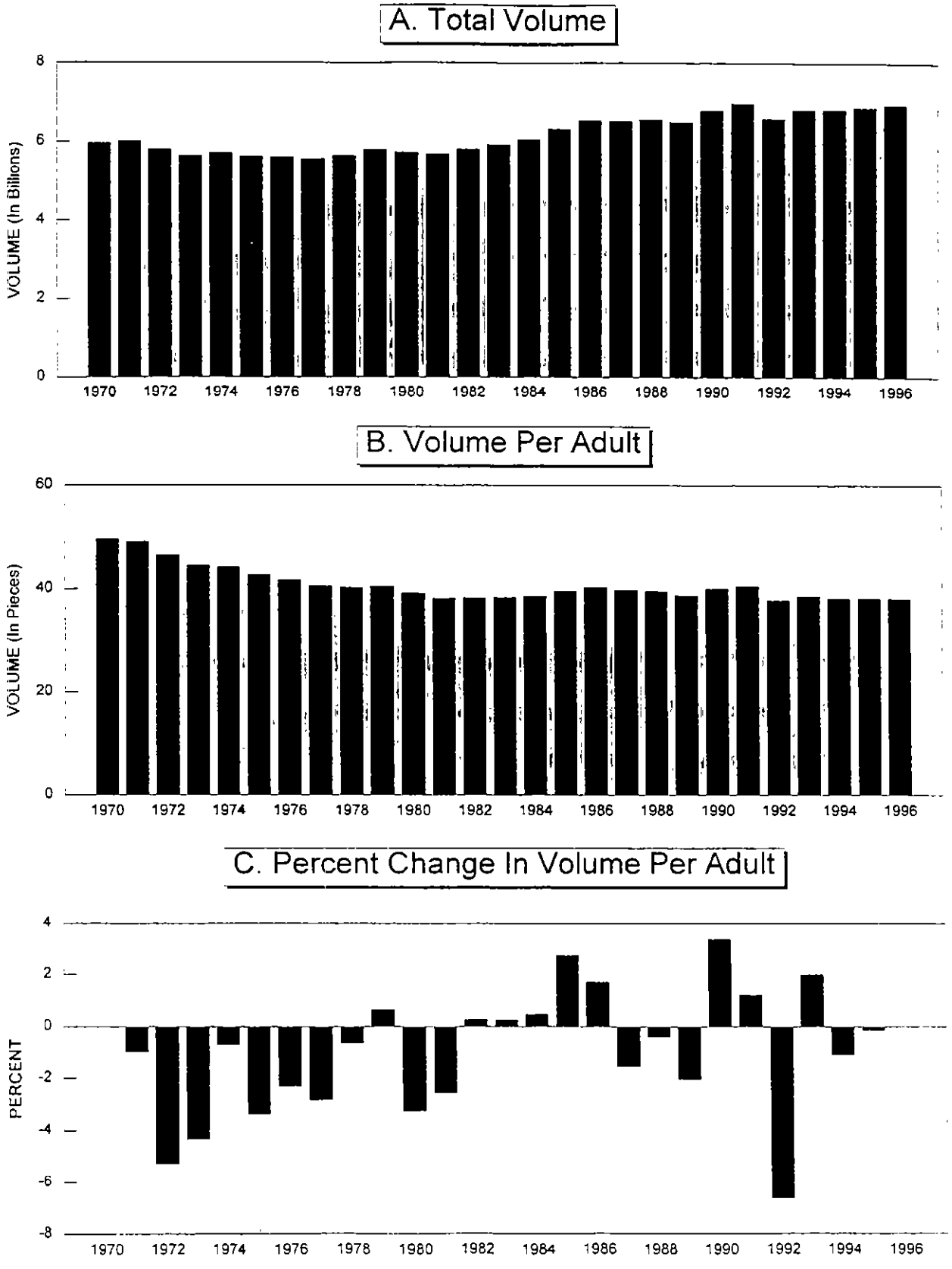
3. Factors Affecting Volume

a. Own price

Table 10 shows that the real price of Periodical regular rate mail, after allowing for inflation, increased 3.6 percent over the five-year period 1992 to 1997. The estimated own price elasticity of -0.143 applied to the 3.6 percent increase in real own price gives an estimated decrease in volume due to price changes of 0.50 percent over the period from 1992 to 1997.

Figure 10

Periodical Regular Rate Mail



b. Income

Applying the estimated long-run income elasticity of 0.527, the observed gain in permanent income per adult of 4.8 percent from 1992 to 1997 is estimated to have contributed a 2.48 percent increase in regular rate volume.

A one percent change in transitory income is estimated to cause a 0.034 percent change in regular rate mail volume. Therefore, as shown in Table 10, transitory income growth is estimated to have contributed 0.12 percent to the volume of Periodical regular rate mail.

c. Wholesale Price of Pulp and Paper

As paper is an important input to newspapers and magazine production, it is not surprising that regular mail volume should be affected by changes in paper prices. It is estimated that a one percent increase in the wholesale price of pulp and paper index leads to a 0.164 percent decline in the volume of regular rate mail. Table 10 shows that from 1992 to 1997, the index of pulp and paper prices increased 3.4 percent, producing a 0.66 percent decline in the volume of regular rate mail.

d. Cable Television

A one percent increase in real cable television expenditures per adult is estimated to cause a 0.062 percent decline in the volume of regular rate mail. Over the past five years, the cable expenditure variable increased by 11.3 percent, leading to a 0.66 percent decline in the volume of regular rate mail.

e. Adult Population

Growth in adult population contributed 5.64 percent to the volume of regular rate mail over the past five years.

f. Other Factors

i. 1992 - 1997 Net Trend

Table 10 shows that in addition to the impact of own price, income, the price of paper, cable TV expenditures, and adult population, other factors were responsible for a 4.27 percent decline in the volume of regular rate mail. This decline is equal to an annual net trend of -0.87 percent.

TABLE 10

CONTRIBUTIONS TO CHANGE IN
PERIODICAL REGULAR RATE VOLUME FROM 1992 TO 1997

Variable	Percent Change In Variable	Elasticity	Estimated Effect of Variable on Volume
Own price	3.6%	-0.143	-0.50%
Income			
Permanent	4.8%	0.527	2.48%
Transitory	3.7%	0.034	0.12%
Price of Paper	3.4%	-0.164	-0.54%
Cable Television	11.3%	-0.062	-0.66%
Adult Population			5.64%
Other Factors			-4.27%
Total Change in Volume			1.98%

ii. Reasons For Net Trend

Several of the reasons for net trend discussed in the section on in-county mail are also applicable to regular rate mail. In addition, the following non-econometric factors have also had an influence on the volume of regular rate mail.

a) Effects of Specialty Magazine Market

Despite large declines in magazine circulation, growth has occurred in the number of specialty magazines, periodicals that appeal to a limited, but well defined, segment of the population. Paradoxically, the decline in magazine circulation has had a disproportionate impact on smaller magazines despite their growth in number. Data available from the Audit Bureau of Circulations covering the mid-1970s to 1991, demonstrate that growth in number of publications does not necessarily imply growth in total circulation. The fifty largest magazine publications represented about one-third of total circulation, and were gaining market share. Meanwhile, the growing number of other publications were left to compete for the remaining, but shrinking, two-thirds.

Because specialty magazines are often delivered via mail, regular rate mail volume will increase if smaller magazines expanded their share of total circulation. Yet there is no evidence that this is occurring. Instead, events in the magazine distribution industry suggest another catalyst that could cramp growth of specialized magazines, driving down this class of mail volume.

In the past, magazine distribution was generally a fragmented business. Relatively small operations controlled narrow geographic areas, often serving all the supermarkets, drugstores, and other chains in their area for specific publications. Since 1995, however, 85 magazine distributors have gone out of business or merged, leaving about 100, notes John Harrington, president of the Council for Periodical Distributors Associations. Harrington adds that by the end of 1996, 10 or 20 of those wholesalers would control about 90 percent of the business of supplying magazines to supermarkets and other retail chains. [James Sterngold, "Changing Face of Supermarket Magazine Sales," (The New York Times. May 6, 1996)].

These fundamental changes are significant, Harrington claims, because chain stores are the single largest source of retail magazine sales. Total magazine sales revenue in 1995 was $4.1 billion, 41.2 percent of which derived from supermarkets and big chain stores. Harrington is concerned that consolidation will ultimately reduce the number of specialty magazines reaching consumers, reversing a decade of growth in which the number of magazines had doubled to about 4,000. The threat is that large wholesalers will not want to handle the small publications, says Donald Kummerfeld, president of the Magazine Publishers of America. [Sterngold, The New York Times, May 6, 1996].

Frank Herrera, president of ICD/Hearst which brings major magazines to market for the Hearst Corporation and other companies, agrees that large national distributors are cautious about distributing untested magazines. Yet Herrera believes small circulation titles enjoy some positive trends. "There will still be niches," he says, "but there will be fewer titles in each niche." [Sterngold, The New York Times, May 6, 1996]. With readers' interests becoming increasingly narrow, distributors concentrating in specialty magazines are competing for exposure to smaller titles both in the traditional newsstand setting and in alternative retail outlets.

Trends in the wholesale magazine distribution industry together with increasing demand for specialty titles could bolster regular rate volume. As Harrington sees it, one outcome is that the number of specialty magazines available will decline. An offsetting effect, however, is that of those titles that do survive, more are likely to be delivered through the mail. Assuming newsstands and distributors find it less profitable to stock specialty magazines, these magazines are more likely to be mailed than general interest publications. This means that Postal Service volume of Periodical regular rate mail may rise by servicing the growing demand for specialty titles that may go ignored by wholesale distributors.

b) Effects of the Internet

With the advent of the Internet, individuals have another source available to them for news and information on specific topics. Veronis, Suhler & Associates estimate that the Internet and online services account for increasing amounts of people's time, and predict that time using them will increase from 7 hours per person per year in 1996 to 28 hours in 2000. [Kelly and Ross, "Bright Prospects Seen For Cable TV, New Media," (Advertising Age. May 19, 1996)]. Like cable television, the Internet permits a degree of customization. It is possible, for instance, to design one's own newsletter or magazine which is updated automatically and delivered electronically. Subscribers inform the online system of their news interests and the system supplies them articles on those topics exclusively.

Alex Brown Research and the McCann-Erickson advertising agency, for instance, estimate that advertising revenues on the Internet in 1996 were approximately $150 million, or 7.5 percent of total U.S. domestic advertising expenditures. [Kantor and Newbarth, "State of the Net," (Internet World. December, 1996)]. Veronis, Suhler & Associates predict that advertising spending on the Internet and commercial online services will $2.1 billion by 2000, representing a compound annual growth rate from 1996 levels of almost 100 percent.

c) Alternative Delivery of Magazines

A number of publishers use alternative delivery services for magazine subscriptions to save on postage costs. Yet compared to the Postal Service, the alternate delivery industry is very small, with revenues of $20 million or about one percent of Postal Service revenues for Periodicals, not all of which is earned from the delivery of magazines. [Tim Bogardus, "Private Mailers Offer United Front Against USPS," (Folio: The Magazine for Magazine Management. June 15, 1995)]. Focusing only on the delivery of magazines, The Household Diary Study reveals that four times more magazines were distributed by mail

than by other distribution methods in 1995. The study estimates that 0.73 magazines were delivered by non-Postal Service distribution methods per households in 1995 [Table 5-5]. Given 98.3 million households, this means that 71.8 million magazines were delivered to households by alternate means, a 14 percent decline from 83.4 million in 1991.

Alternate deliverers face some drawbacks. Rich Rousseau, director of customer relations for now defunct Publishers Express, concedes that alternate delivery "is not yet a viable option for titles with circulation under 200,000, or for those publications with a high percentage of delivery in urban areas." [Lisa Yorgey, "Alternative Delivery Vs. USPS: It's Not a Question of Either/Or," (Target Marketing. November, 1996)]. According to Richard Funck, distribution director at Meredith Corporation, alternate delivery is witnessing the smallest growth in periodicals. Funck explains that "the postal rates that came out of Reclassification made it attractive to transfer the distribution of two of [Meredith Corporation's] larger volume magazines, that had been delivered via alternate delivery, to the USPS." (Lisa Yorgey, Target Marketing. November, 1996) The Iowa-based publisher has decreased its use of alternate delivery in the past year, with 1 percent of its circulation distributed outside the Postal Service.

According to 1996 report in Target Marketing, alternate delivery providers have had to rethink their strategy since postal Reclassification, realizing that they cannot compete head-to-head with the Postal Service in all aspects of mail delivery, "The rate changes have caused us to focus primarily on heavy mail where our single-address capability is an advantage," explains Time Quinn, senior vice president of Alternate Postal Delivery.

d) Declining Newspaper Circulation

The decline in newspaper circulation, previously discussed as a reason for net trend in Periodical in-county mail, has had some effect on the volume of Periodical regular rate mail. Postal Service volume data, which reported magazine and other periodicals as a

separate category until 1985, indicate that this category consistently accounted for 75 percent of total second regular volume. This weight suggests that the decline in newspaper circulation has had a negative, but modest, impact on the Periodical regular rate volume over the past five years.

iii. Net Trend in the Forecast

A reasonable projection is that non-econometric influences will continue to operate in the near future as they have in the past five years. The annual net trend over the past five years is equivalent to a net trend projection factor 0.991306 which is used in the Test Year forecast of Periodical regular rate mail.

4. Volume Forecast

Projecting the influence of price, income and population factors combined with the net trend gives a projection of 7,172.571 million pieces of Periodical regular rate mail for the Test Year, given present postal rates (before-rates forecast). If the rates recommended by the Postal Service are adopted, the forecast is 7,147.574 million pieces (after-rates forecast).

V. STANDARD A MAIL

A. General Characteristics

1. Description of Standard A Mail

Standard A (formally third-class) Mail is mostly printed advertising, solicitation, and promotional materials and also small parcels. Standard A includes matter not required to be mailed First-Class, and is subject to postal inspection. All Standard A must weigh less than 16 ounces, as opposed to Standard B Mail which can weigh in excess of one pound.

Printed advertisements sent as Standard A mail come in a wide variety of forms, from single page advertising circulars to multi-page color catalogs. Businesses, running from the very small to the extremely large, are the primary senders of Standard A mail. The scope of mailings also covers a wide range. High volume mailers may advertise a product in a Standard A mailing to every known household in the country while a local business may use this same service to reach selected business prospects within a single ZIP Code area.

Standard A mail may be deferred at postal facilities in order to expedite the delivery of classes such as Periodicals and First-Class mail. To minimize the effect of deferred status, some large volume Standard A mailers go to extra lengths to reduce the amount of handling needed before their mail is delivered to its final destination.

2. Importance of Standard A Mail

Standard A (formerly third-class) mail is the second largest class of mail, behind First-Class. In Postal Year 1996, total volume of what is now Standard A mail was 71.4 billion pieces, accounting for almost 40 percent of all domestic mail. The two largest subclasses of Standard A mail are regular and enhanced carrier route (ECR). with regular mail volume in 1996 (30.0 billion pieces) being slightly larger than ECR volume (29.1 billion pieces). There is a nonprofit subclass corresponding to each of the regular subclass. The 1996

volume of the Standard A nonprofit subclass was 12.2 billion pieces and the volume of the nonprofit ECR was 2.9 billion pieces. The smallest subclass of Standard A mail is single-piece, which had a 1996 volume of 145 million pieces.

B. Single-Piece

1. Definition

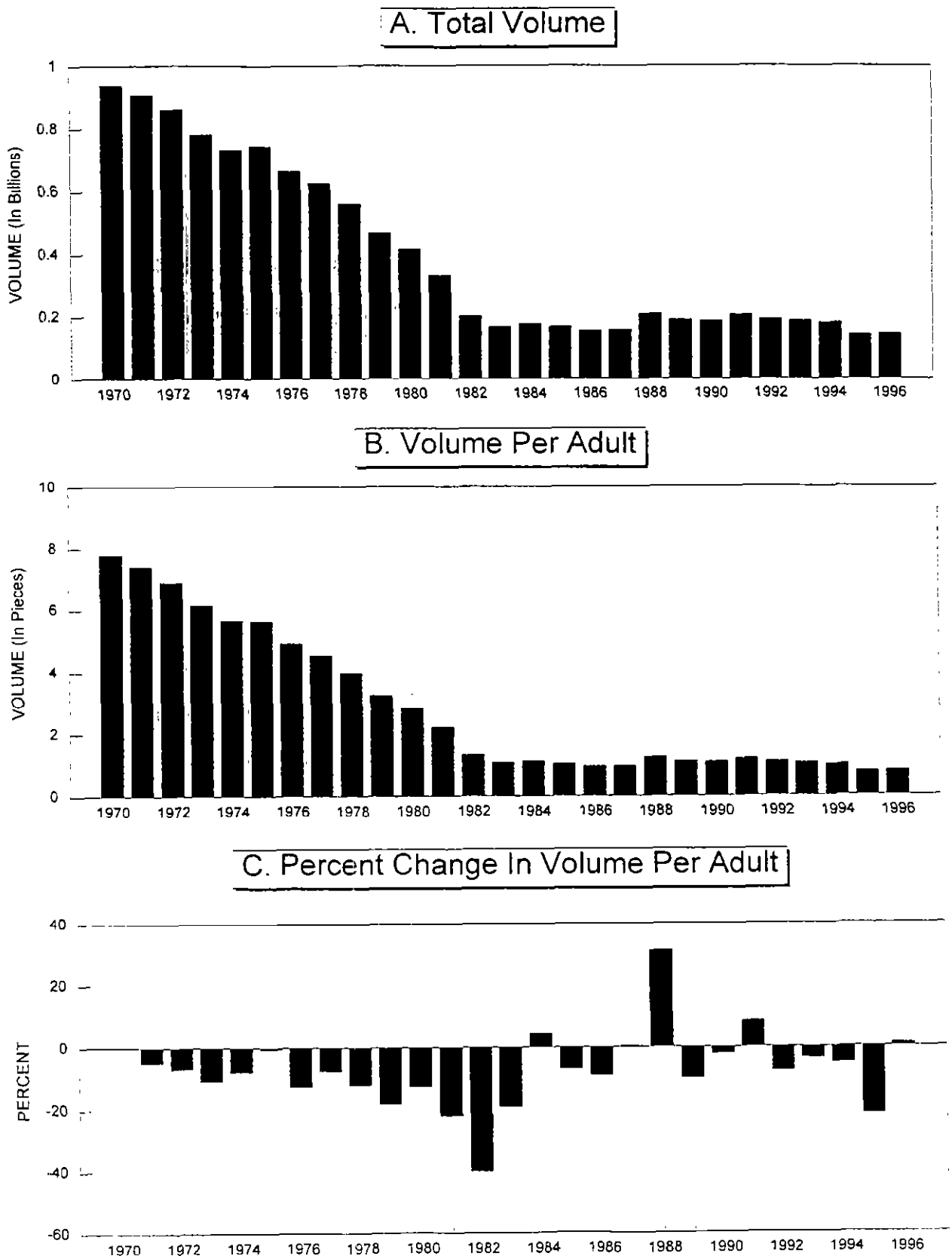
Standard A single-piece mail is Standard A mail not eligible for bulk regular or nonprofit rates. It is mostly made up of low-volume mailings of catalogs, other printed material, and small parcels. The Standard A single-piece rate for mail weighing 11 ounces or less is the same as for First-Class Mail, effectively eliminating any incentive to use Standard A for most lighter weight individual pieces. However, other pieces weighing up to 16 ounces may be sent, including keys and identification devices, which are returnable, postage due, through the mails.

2. Volume History

As shown in Figure 11, single-piece volume decreased by slightly over half between 1970 and 1980, from 939 million pieces to 418 million pieces, during which time pieces per adult decreased 63 percent, from 7.8 pieces per adult to slightly under 2.9 pieces per adult. Between 1980 and 1996 total volume declined to 145.0 million pieces; a decline in per-adult volume by over 70 percent to 0.80 pieces per year in 1996.

Figure 11

Standard Single-Piece Mail



3. Factors Affecting Volume

a. Price

The bottom row of Table 11 shows that single-piece volume declined 21.49 percent over the past five years. One factor contributing to this decline is the 20.8 percent increase in real price. It is estimated that the long-run own price elasticity of single-piece mail is -0.654. Applying this elasticity to the 20.8 percent increase in price yields an 11.65 percent decline in volume.

b. Income

A one percent increase in permanent income per adult is estimated to increase the volume of Standard A single-piece mail by 0.099 percent. Since permanent income per adult rose 4.7 percent between 1992 and 1997, a 0.46 percent increase in single-piece volume is attributed to the effect of this factor.

A one percent increase in transitory income, as measured by the Federal Reserve Board Index of Capacity Utilization, is estimated to increase volume of single-piece mail by 0.220 percent. Transitory income increase 5.1 percent over the past five years, contributing 1.10 percent to the volume of Standard A single-piece mail over that period.

c. Adult Population

Increases in adult population contributed 5.64 percent to the volume of Standard single-piece mail over the past five years.

d. Other Factors

i. 1992 - 1997 Net Trend

Table 11 summarizes the effects of the econometrically estimated factors on the volume of Standard A single-piece mail over the last five years. Other factors were responsible for a 17.20 percent decline in the volume from 1992 to 1997, which is equivalent to an annual net trend of -3.7%.

TABLE 11

CONTRIBUTIONS TO CHANGE IN
STANDARD Single-piece VOLUME FROM 1992 TO 1997

Variable	Percent Change In Variable	Elasticity	Estimated Effect of Variable on Volume
Own price	20.8%	-0.654	-11.65%
Income			
Permanent	4.7%	0.099	0.46%
Transitory	5.1%	0.220	1.10%
Adult Population			5.64%
Other Factors			-17.20%
Total Change in Volume			-21.49%

ii. Reasons For Net Trend

As a result of the R94-1 decision, third-class single-piece uses a rate structure identical to First-Class single-piece mail ($0.32 for the first ounce and $0.23 for additional ounces). Prior to the R94-1 case, third-class single-pieces weighing between 5 and 16 ounces received a considerable discount from the First-Class rate. The incentive to enter heavier third-class single-piece mail as First-Class mail to receive expeditious handling at no extra charge helps explain the decline in the mail volumes for this class. In 1996, Standard A single-piece represented only 0.25 percent of Standard A regular mail volume.

iii. Net Trend for the Forecast Period

As shown in the Technical Appendix, the Forecast Error Analysis of single-piece volume indicates that the negative trend in single-piece mail volume, though somewhat erratic, has been occurring throughout the last five years. Seventeen of the twenty in-

sample quarterly forecast errors are negative, including seven of the last eight quarters. Reasons for the cessation of the decline in Standard A single-piece mail volume are not apparent. Consequently, a continuation of the negative net trend of -2.91% per year is used. The net trend is equivalent to an annual projection factor of 0.9709

4. Volume Forecast

Projecting the factors affecting volume of Standard A single-piece mail into the future with no change in postal rates gives a before-rates volume forecast for the Test Year of 165.695 million pieces. In view of the response to price, volume will be lower if the rates recommended by the Postal Service are adopted. The after-rates forecast for the Test Year is 161.574 million pieces, which includes the effect on volume of the proposed restructuring of Standard A single-piece mail.

C. Standard A Regular

1. Definition

The Standard A regular subclass was created as part of the MC95-1 classification reform. Standard A regular mail essentially consists of what was previously known as noncarrier-route third-class bulk regular mail. To qualify for the Standard A regular subclass, mailings must be at least 200 pieces (or 50 pounds) presorted to at least the 3-digit ZIP Code. To be sent Standard A, each piece must weigh less than one pound. Pieces in excess of one pound can be sent as Standard B mail.

Within Standard regular, there is a distinction between letter and nonletter mail, where nonletters consist of flats, parcels, and irregularly shaped pieces. There are five letter and four nonletter categories of regular mail. The five letter categories are: basic, presort, basic automation, 3-digit automation, and 5-digit automation. The four nonletter categories are:

basic, presort, basic automation, and 3/5-digit automation. To qualify for the automation discounts, mail must be automation compatible and 100 percent delivery point barcoded.

2. Volume History

a. Total Volume

The MC95-1 classification reform established the regular and enhanced carrier route subclasses of Standard A mail. Prior to those reforms, what is now the regular subclass of Standard A mail was known as third-class noncarrier-route mail. Figure 12 shows the total volume of noncarrier-route third-class bulk regular mail from 1970 through 1996. Volume increased from just under 15 billion pieces in 1970 to 18.6 billion pieces in 1978. In 1979, the carrier-route presort discount was introduced in third-class, and the volume of noncarrier-route mail fell to under 14 billion pieces in 1982.

Since 1982, the volume of noncarrier-route third-class mail has grown in every year except 1989 and 1991. Total volume was just below 30 billion pieces in 1996, more than double the volume in 1982.

Figure 12 shows that on a per adult basis, the volume of what is now Standard A regular mail reached 164.6 pieces in 1996, 2.6 percent higher than in 1995.

b. Nonautomated and Automated Volumes

Chart F presents the breakdown of total noncarrier-route mail volume into nonautomated and automated volumes since the introduction of the ZIP + 4 discount in 1988. Automation volume has grown in every year, with particularly large increases in the automation occurring after the implementation of the R90-1 and R94-1 rates. The MC95-1 classification reform also served to increase automation. In 1996, 57.9 percent of noncarrier-route bulk mail volume was automated.

Figure 12

Standard Regular Mail

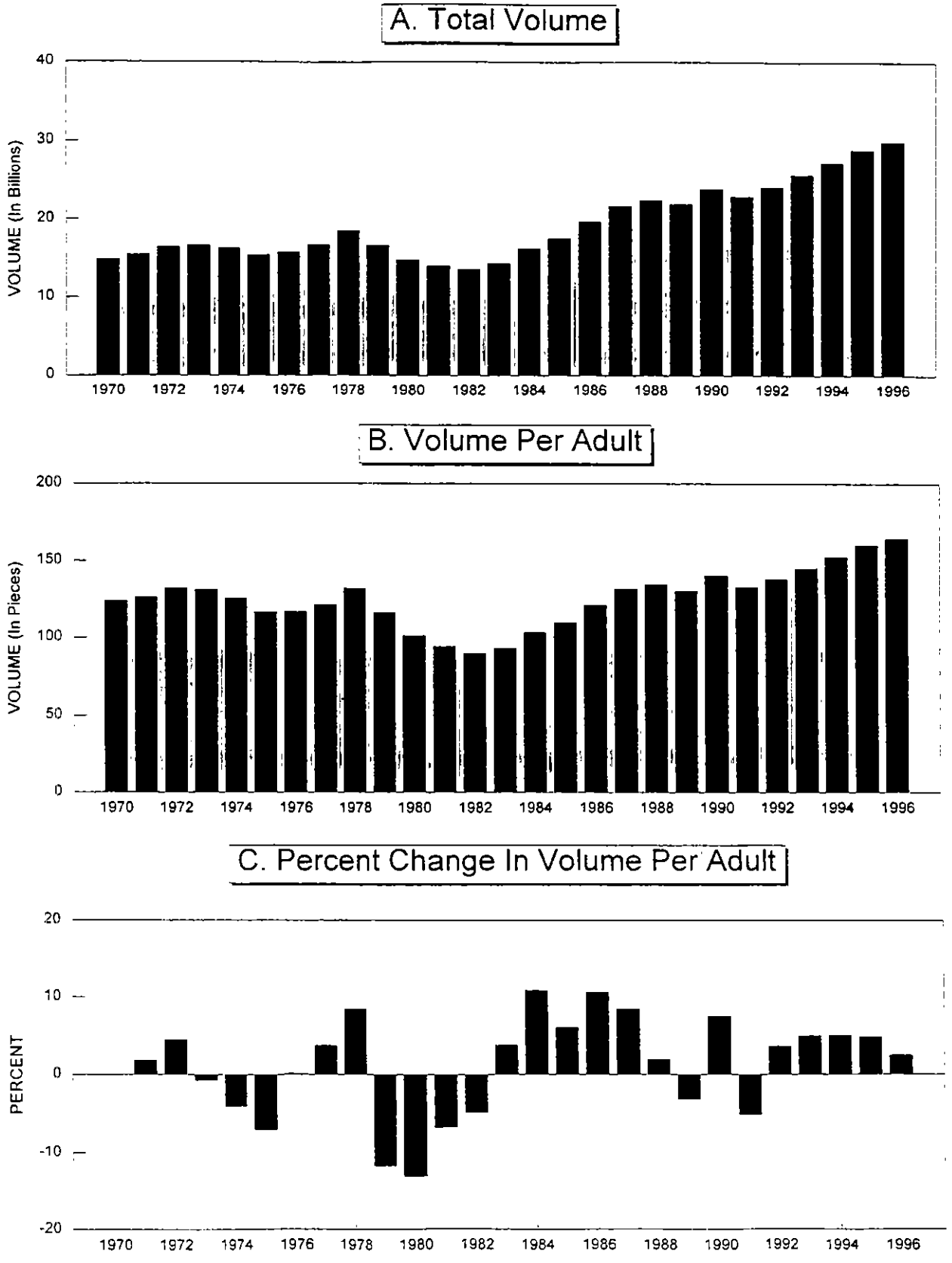


CHART F
Nonautomated and Automated Volumes of Noncarrier-Route Bulk Mail
(in millions of pieces)

	Nonautomated		Automated	
	Volume	Percentage	Volume	Percentage
1988	22,350.531	99.7%	75.405	0.3%
1989	21,472.331	97.8%	481.694	2.2%
1990	22,964.742	96.2%	913.343	3.8%
1991	20,215.138	88.2%	2,705.554	11.8%
1992	18,700.202	77.6%	5,404.346	22.4%
1993	13,826.391	53.9%	11,841.224	46.1%
1994	14,499.183	53.1%	12,802.756	46.9%
1995	14,285.942	49.4%	14,635.362	50.6%
1996	12,605.298	42.1%	17,345.282	57.9%

3. Factors Affecting Volume

Table 12 shows that Standard A regular, previously known as third-class noncarrier-route, mail volume increased 34.33 percent over the past five years. The following discussion details the contribution of different factors toward this volume growth.

a. Own Price

The long-run own price elasticity of Standard regular mail is estimated to be -0.382, meaning that a one percent increase in real own price is estimated to elicit a 0.382 percent decrease in mail volume. Table 12 shows that the real price of regular mail increased 6.3 percent over the past five years. Applying the estimated elasticity to this price increase yields a volume decline of 2.28 percent due to the increase in real price.

b. Cross Price

The volume of Standard regular mail is influenced by the price of First-Class letters because advertisers can send their mailings either Standard or First-Class. It is estimated that the cross-price elasticity between the volume of Standard regular mail and the price of First-Class letters is 0.130. The real price of First-Class letters decreased 1.6 percent

over the past five years which, after applying the cross-elasticity, caused the volume of Standard regular mail to decline by 0.21 percent.

c. Consumption

Since direct mail is sent to encourage households to make purchases, advertisers often base their mailing decisions on expected levels of personal consumption. Therefore, real consumption expenditures per adult are included in the econometric analysis of Standard mail volumes. It is estimated that consumption exerts a strong influence on Standard regular mail with the estimated elasticity of 1.618. Therefore, the 8.1 percent increase in real consumption expenditures per adult over the past five years is estimated to have contributed 13.45 percent to the volume of Standard regular mail.

d. CPM -- Newspapers

The decision to use direct mail as an advertising medium is based partly on the costs of alternative advertising options. Newspaper advertising is one of the more important alternatives to direct mail. A measure of the cost of newspaper advertising is the cost per thousand (CPM) recipients as published by McCann-Erickson, Inc., a leading analyst of the advertising industry. Based on their price series, it is estimated that a one percent increase in the CPM of newspaper advertising leads to a 0.793 percent increase in the volume of Standard regular mail. Over the last five years, the CPM of newspaper advertising increased by 4.6 percent leading to a 3.64 percent increase in the volume of Standard A regular mail as shown in Table 12.

e. CPM -- Television

Television advertising is also a substitute for Standard regular mail as both share a certain degree of targeting to a specific audience. The econometric analysis finds that the elasticity of regular mail volume with respect to the real price of television advertising, expressed as a cost per thousand by McCann-Erickson, is 0.151. Over the past five years,

the CPM of television advertising increased 14.1 percent. Applying the estimated elasticity to this percentage increase results in an increase in Standard regular mail volume of 2.01 percent due to this factor.

f. Price of Paper

Since paper is an input into direct mail advertising, it is to be expected that Standard regular mail volume would be adversely affected by rising paper prices. The econometric analysis confirms this result and further reveals that paper prices affect volume with a lag of one and four postal quarters. This suggests that mailer's response to an increase in paper prices is composed of a short-run response occurring the quarter following the price increase and a long-run response that takes a year to have its full impact. It is estimated that a one percent increase in the price of paper leads to a 0.328 percent decline in regular mail volume in the quarter following the price increase and to an additional decline in volume of 0.273 percent after four quarters.

Table 12 shows that measuring the price of paper with a one quarter lag, it is found that the real price of paper increased 3.8 percent over the past five years. Applying the lag one elasticity of -0.328 to this price increase results in a decline in Standard regular mail volume of 1.20 percent. Table 12 also shows that the price of paper measured with a four quarter lag -- from 1991 to 1996 as opposed to 1992 to 1997 -- increased 6.7 percent in real terms. Applying the lag 4 elasticity of -0.273 to this price increase results in a decline in regular mail volume of 1.75 percent.

Taken together, rising paper prices were responsible for about a three percent decline in Standard regular mail volume.

g. Price of Computers

Because of its lower presort requirements than enhanced carrier route mail, Standard regular mail tends to consist of targeted mailings. Mail targeting relies on detailed analysis

of large mailing list data bases and other sources of information about the buying habits of households. The cost of analyzing and managing these data bases is directly related to the price of computer equipment. Over the past five years, the real price of computers has declined by 75.9 percent, where the real price takes into consideration advancements in computer performance and increases in the general price level. The econometric analysis reveals that the estimated elasticity of Standard regular mail volume with respect to real computer prices is -0.077. Applying this elasticity to the decline in computer prices over the past five years yields an increase in regular mail volume of 11.63 percent.

h. Price of Printing

Another input into direct mail advertising is the price of advertising printing. It is estimated that a one percent increase in the price of advertising printing leads to a 0.121 percent decline in Standard regular mail volume. Over the past five years, the price of advertising printing has increased 2.6 percent leading to a 0.31 percent decline in Standard regular volume as shown in Table 12.

i. 1994 Rule Change

In 1994, eligibility requirements were tightened for what was then known as third-class bulk nonprofit mail. This caused some mail to shift from nonprofit to regular mail. Table 12 shows that the this 1994 rule change lead to a 0.67 percent increase in the volume of Standard regular mail.

j. Adult Population

Increases in adult population contributed 5.64 percent to the volume of Standard A regular mail.

TABLE 12

CONTRIBUTIONS TO CHANGE IN
STANDARD A REGULAR VOLUME FROM 1992 TO 1997

Variable	Percent Change In Variable	Elasticity	Estimated Effect of Variable on Volume
Own price	6.3%	-0.382	-2.28%
Cross Price First-Class Letters	-1.6%	0.130	-0.21%
Consumption	8.1%	1.618	13.45%
CPM -- Newspapers	4.6%	0.793	3.64%
CPM -- Television	14.1%	0.151	2.01%
Price of Paper (lag 1)	3.8%	-0.328	-1.20%
Price of Paper (lag 4)	6.7%	-0.273	-1.75%
Computer Prices	-75.9%	-0.077	11.63%
Price of Printing	2.6%	-0.121	-0.31%
1994 Rule Change			0.67%
Adult Population			5.64%
Other Factors			-0.12%
Total Change in Volume			34.33%

k. Other Factors

i. 1992 - 1997 Net Trend

Table 12 shows that the econometrically estimated factors explain virtually all of the 34.33 percent increase in Standard A regular mail volume over the past five years. Other factors are found to have only a small effect, reducing volume by 0.12 percent over the five

year period. Expressed as an annual net trend, the effect of these other factors is equal to about -0.02 percent per year.

ii. Reasons for Net Trend

Although the net trend for Standard regular mail is quite small, a number of largely offsetting non-econometric factors have been affecting regular mail volume. Many of these factors have also affected the other bulk subclasses of Standard A mail: enhanced carrier route, nonprofit, and nonprofit enhanced carrier route. The following discussion addresses the important non-econometric influences on Standard A mail, concluding with a discussion of how these factors have affected Standard A regular mail volume. Note that during much of the past five years, Standard A mail was known as third-class bulk regular mail, although the following discussion uses the current nomenclature.

a) Improved Market Targeting of Direct Mail

The development and widespread use of automation technologies for mail piece preparation and mail list targeting have bolstered Standard A mail volumes for many years. Its impact was noticeable in the early 1980s when a substantial increase in Standard A mail volumes. More recently, there is evidence that a new wave of penetration is occurring.

According to David Urban, professor of marketing at Virginia Commonwealth University School of Business, paper costs have increased 50 percent, and postage costs 14 percent, since 1993. [Gail Dutton, "Rise of Electronic Malls & Paperless Catalogs," (American Management Association Management Review, Sept. 1996)]. As a result, companies are using more sophisticated marketing techniques to identify better-than-average consumer prospects. Seeking better margins and more effective promotional spending, retailers are transforming their marketing programs from a mass perspective to a niche market focus. Traditional options for cost-cutting, such as hedging paper costs and

trimming catalog size, have been exhausted according to Gail Dutton of *Management Review*. Dutton claims that further cuts to prospecting or mailing frequency will risk future business. The next logical step is market segmentation, or tailoring the product list to the needs of specific customer groups. [Gail Dutton, (American Management Association Management Review, Sept., 1996)].

Viking Office Products, for example, purchases and rents finely honed lists. These lists include customers that typically order office or computer products by mail, making them good potential sales targets. Personalized catalogs account for about half of the 140 million catalogs Viking ships each year. [Gail Dutton, (American Management Association Management Review, Sept., 1996)]. Market segmentation has allowed Sears Roebuck to replace its catalog in January, 1993 with about two dozen specialty catalogs that rely on the company's extensive database. Targeting by ZIP Code has been a popular method to supplement other sources of information about household buying habits. ZIP Code databases give Standard A regular mail a competitive edge over other forms of less targeted advertising.

Sophisticated direct mail campaigns were once largely out of reach for most small and medium-sized companies. That is no longer the case. Declines in computer software prices have made these campaigns more accessible. "Mail Merge," a common application in word-processing software, for example, allows users to merge names and address data from a file to a standardized letter. Controls for printing mailing labels, including pre-barcoding, are also included with software packages. Desktop publishing software has empowered small businesses to create mail advertisements of a quality that was restricted to professional print mediums. Larger mailers now have access to improved mailing list management software that allows them to update their mailing lists as markets change.

b) Fax Advertising

As fax machines have become pervasive, advertising by fax has emerged. Supposedly, fax advertising has an advantage over direct mail because it gives the impression of urgency. This alone may result in a higher customer response rate. Nevertheless fax advertising has some important disadvantages to direct mail. For instance, the print quality of faxes is inferior to direct mailings. There has also been consumer backlash against fax advertising. A number of complaints to the Idaho State Legislature's Consumer Protection Unit by businesses, who report being inundated with unsolicited faxed ads, has led to House Bill 152, which would prohibit unsolicited fax advertising if passed. [(Brad Carlson, "Legislature Considers Law to Prohibit Sending Unsolicited Advertising by Fax," (Idaho Business Review, March 3, 1997)].

To the extent that fax advertising has impacted mail volume, the effect would be expected to be stronger for regular as opposed to enhanced carrier route mail. Fax advertising would not likely serve as a strong substitute for saturation-type mailings.

c) Home Shopping and Advertising through Cable T.V. and the Internet

Cable television is well suited as an alternative to some types of direct mail. This is because cable television allows marketers to target particular audiences and air their advertisements on specific programs accordingly. Marketing success with this medium has not gone unnoticed. Expenditures for cable television advertising have risen greatly. According to McCann-Erickson, estimated cable network and non-network advertising grew from $1,789 million in 1990 to $3,500 million in 1995, a compound average annual growth rate of 14.7 percent. Meanwhile, total U.S. advertising expenditures grew at a more modest 5.0 percent compound average annual rate of growth over the same period. [McCann Erickson Insider's Report, December 4, 1995].

The advent of electronic catalogs allows point-and-click shopping for those who wish to access detailed information about products. This serves as an alternative to shopping by catalogs that would normally be mailed third class. Gail Dutton from *Management Review* finds catalogers cutting costs and expanding their reach by putting a portion of their catalogs on the Internet or online services. "I think in the long term, we won't have catalogs in the mail," states Mike Muoio, president of novelties cataloger Miles Kimball. "We'll have to spend our money driving people into our 'store' which will be some kind of interactive video network site. Our future will have to be on TV, radio and Internet advertising." [Gail Dutton, (American Management Association Management Review, Sept., 1996)].

The simplest Web sites consist of a product and price list with a toll-free number to order or to request a catalog. The more sophisticated sites are mini-catalogs, complete with photos, descriptions and online ordering capabilities. Business to business sites are extending these capabilities to allow product and brand comparisons, and specifications-based ordering and shipping. Electronic malls are also appearing on the Internet. They offer one-stop shopping for a variety of products.

Interactive Marketing Interface (iMi), is an example of an online marketing service that provides advertisers with detailed profiles submitted anonymously by customers. These include personal details such as age, sex and occupation, as well as categories of interest, including sports and avocations. In return, the customers receive product announcements, advertisements, and marketing surveys by E-mail from the advertiser based on their profile information. [Julian Bright, "Electronic Commerce: The New Global Marketplace," (Telecommunication Magazine. January, 1997)].

A recent study released by CommerceNet and Neilsen Media Research reveals a marked increase in Internet users actively shopping on the Internet. The 1997 study

shows that 39 percent of all Internet users have searched for product information online prior to making a purchase, compared to 19 percent in Fall, 1995. According to the survey, however, Internet shoppers still outnumber online purchasers. Of all Internet users, 15 percent have purchased a product or service online. The study points to a lack of trust in the security of electronic payments as the leading inhibitor preventing people from actually purchasing goods and services online. [CommerceNet/ Nielsen Media Research Survey, March 12, 1997].

d) Telemarketing

Telemarketing, or phone solicitation provides an immediate indication of household response, unlike direct mail which may be discarded immediately or held for an extended time before generating a response. The effective cost of telemarketing may have also declined in recent years as auto-dialed computer recorded messages have developed, allowing telemarketing firms to reduce labor costs.

Telemarketing supplants some direct mail, but recent developments suggest that telemarketing and direct mail are being used in tandem through an approach known as integrated direct marketing. Integrated direct marketing is the use of many forms of direct marketing to reinforce advertising messages. Typically, a direct piece of mail is sent so that a hard copy advertisement can be reviewed at leisure. This initial step is followed by a phone call. In this way, telemarketing has become a complement to direct mail, rather than a substitute, leading possibly to growth of both media in the future. At the same time, telemarketing has some disadvantages compared to direct mail because many people resent being interrupted by unwanted calls.

e) Mail Order and Specialty Catalogs

Contributing to the volume of Standard A mail has been growth in the mail order industry. A number of mail-order companies have shifted their marketing focus to specialty catalogs that present a list of products geared to particular consumers. Because the specialty catalogs are smaller, they can be sent as Standard A material rather than Standard B bound printed matter. As evidence of this trend, The Household Diary Study reports that catalogs represented 16.8 percent of third-class bulk mail received by households in 1995, up from 14.2 percent and 14.8 percent in 1987 and 1991, respectively [Table 6-7]. According to Precision Marketing, 80 percent of all mail-order sales in the U.S. now stem from specialty publications. ["Special Report: Home Shopping/Catalog Production" (Precision Marketing. April 7, 1997)]. Sears, for example, surprised industry observers several years ago when it decided to cease sending its general catalog, the "Sears Bible," as it was called, in 1993. Sears came back with a series of specialty catalogs a year later.

Business-to-business catalogs have proliferated even more rapidly than consumer catalogs. The Direct Marketing Association reported an increase of 6.5 percent each year from 1990 to 1995 in the number of business-to-business catalogs. The Association expects a growth rate of 7.1 percent per year between 1995 and 2000. In contrast, consumer catalog sales grew by 5.5 percent each year between 1990 and 1995, and are expected to grow at a rate of 6.1 percent per year between 1995 and 2000. [Jack Schmid, "State of the Union for Catalogs" (Target Marketing, April, 1996)].

In recent years, the mail order pharmaceutical industry has grown to supply 6 percent of all prescriptions filled in the United States. According to the American Managed Care Pharmacy Association (AMCPA), the mail-order pharmacy industry was netting $100 million annually by 1981. That figure grew to $8 billion in 1996, and is projected to exceed

$20 billion by the year 2000. [Suz Redfearn, "Mail Order Pharmacies", (Greater Baton Rouge Business Report. April 16, 1996)].

f) Alternative Postal Delivery

According to an April, 1996 article in Catalog Age, alternative delivery has lost much of its prominence since the late 1980s and early 1990s, when catalogers reacted to increasing postal rates in 1988 and 1991. At their zenith in 1993 and 1994, according to the article, Publishers Express (PE) and Alternate Postal Delivery (APD) served a total of 85 markets. Their growth ended, however, after a 1994 test, sanctioned by the Direct Marketing Association, showed that for most catalog participants, the Postal Service was superior from both a delivery and response perspective. [Catalog Age, April, 1996].

Continuing with the article, PE announced in February, 1996 it would close its business by early June last year. Shortly thereafter, APD acquired 12 of PE's licensees, the delivery firms handling the actual catalog deliveries. Meanwhile, APD, which had sought to deliver volumes of catalogs, appears to have refocused its attention on marketing and delivering other products.

According to Tim Quinn, senior vice president of Alternate Postal Delivery, there is more demand for APD's services for delivery of catalogs weighing over 3 ounces, since heavier mailings may give APD a competitive edge over Postal Service rates. Mr. Quinn states that an address-specific piece weighing in excess of 3.3 ounces costs 15 percent to 20 percent less to send via Alternate Postal Delivery than the Postal Service. "For certain customers, alternate delivery will always be a good alternative," asserts Jim Moore, managing director of national accounts for Southwestern Bell Yellow Pages. "The economies makes sense for mailers who do not mail enough to meet postal discounts or it would be too expensive through the USPS." [Lisa Yorgey, "Alternative Delivery Vs. USPS: It's Not a Question of Either/Or," (Target Marketing. November, 1996)]. Moore

mentions an important caveat, however. "With direct marketers going toward more targeting it is going to be difficult for alternate delivery companies to compete with the USPS which goes to every address and individual." All in all, it appears that alternative delivery has had a small negative effect on the volume of Standard regular mail.

iii. Net Trend for the Forecast Period

The above discussion of non-econometric information has noted both positive and negative influenced on Standard A regular mail volume. Table 12 shows that the positive and negative influences have been roughly offsetting over the past five years, with other factors being responsible for a 0.12 percent decline in Standard regular mail volume. This is equivalent to an annual decline of only 0.02 percent per year.

The small mechanical net trend does not appear to be reflective of a persistent decline in Standard regular mail volume. The forecast error analysis shows both positive and negative forecast errors and the SPLY differences in forecast errors offer no obvious indication of a downward trend in Standard regular mail volume. As a result, no net trend factor is included in the volume forecasts of this subclass.

4. Volume Forecast

a. Total Volume

Projecting the influence of the factors that have been discussed gives a forecast of 34,359.008 million pieces of noncarrier-route third bulk regular mail in the Test Year, at present postal rates. At the rates proposed by the Postal Service in this proceeding, the projection is 37,627.554 million pieces. The after-rates forecast, at rates proposed by the Postal Service, is 28,442.638 million pieces. The increase in the after-rates volume is due to the proposed pricing of automation 5-digit regular letters less than ECR basic letters, causing mail to shift from the ECR to the Regular subclass.

b. Forecasts of Nonautomated Mail

Standard regular nonautomated mail consists of the letter and nonletter categories of Basic and Presort regular mail. Assuming no change in current rates, the before-rates forecasted Test Year volume of nonautomated Standard regular mail is 8,904.147 million pieces. At rates proposed by the Postal, the projected volume in the Test Year is 9,184.917 million pieces.

c. Forecasts of Automated Mail

The total forecasted Test Year volume of the automation categories of Standard A regular mail is 25,454.861 million pieces in the before-rates scenario.

D. Enhanced Carrier Route

1. Definition

The Standard A enhanced carrier route subclass was created as part of the MC95-1 classification reform. Standard A enhanced carrier route mail consists of what was previously known as carrier route third-class bulk regular mail. To qualify for the Standard A enhanced carrier route subclass, mailings must contain at least 200 pieces (or 50 pounds) and each piece must be part of a group of 10 or more pieces to one carrier route. To be sent Standard A, each piece must weigh less than one pound.

Within Standard enhanced carrier route, there is a distinction between letter and nonletter mail where nonletters consist of flats, parcels, and irregularly shaped pieces. There are four letter and three nonletter categories of enhanced carrier route mail. The four letter categories are: basic, automation, high density, and saturation. The three nonletter categories are: basic, high density, and saturation. Automation letters must be automation compatible and 100 percent delivery point barcoded.

2. Volume History

Figure 13 shows the total volume of carrier-route third-class bulk regular mail beginning in 1979 when the carrier-route presort discount was introduced. From 1979 to 1984, carrier-route volume grew rapidly. Volume per adult nearly tripled from 47.9 pieces in 1980 to 135.9 in 1984. From 1985 through 1988, volume growth moderated, with total volume rising from 23.3 billion pieces in 1985 to 29 billion pieces in 1988.

Since 1988, the volume of carrier-route mail has been stagnant. On a per adult basis, volume declined in six of the last eight years, rising only in 1993 and 1994. Total volume in 1996 was 29.1 billion pieces, or 159.8 pieces per adult.

3. Factors Affecting Enhanced Carrier Route Volume

a. Own Price

A one percent increase in real own price is of Standard A enhanced carrier route (ECR) mail estimated to elicit a 0.598 percent decrease in mail volume. Table 13 shows that real own price increased 3.1 percent leading to a 1.83 percent decline in volume after consideration of the price elasticity effect.

b. Consumption

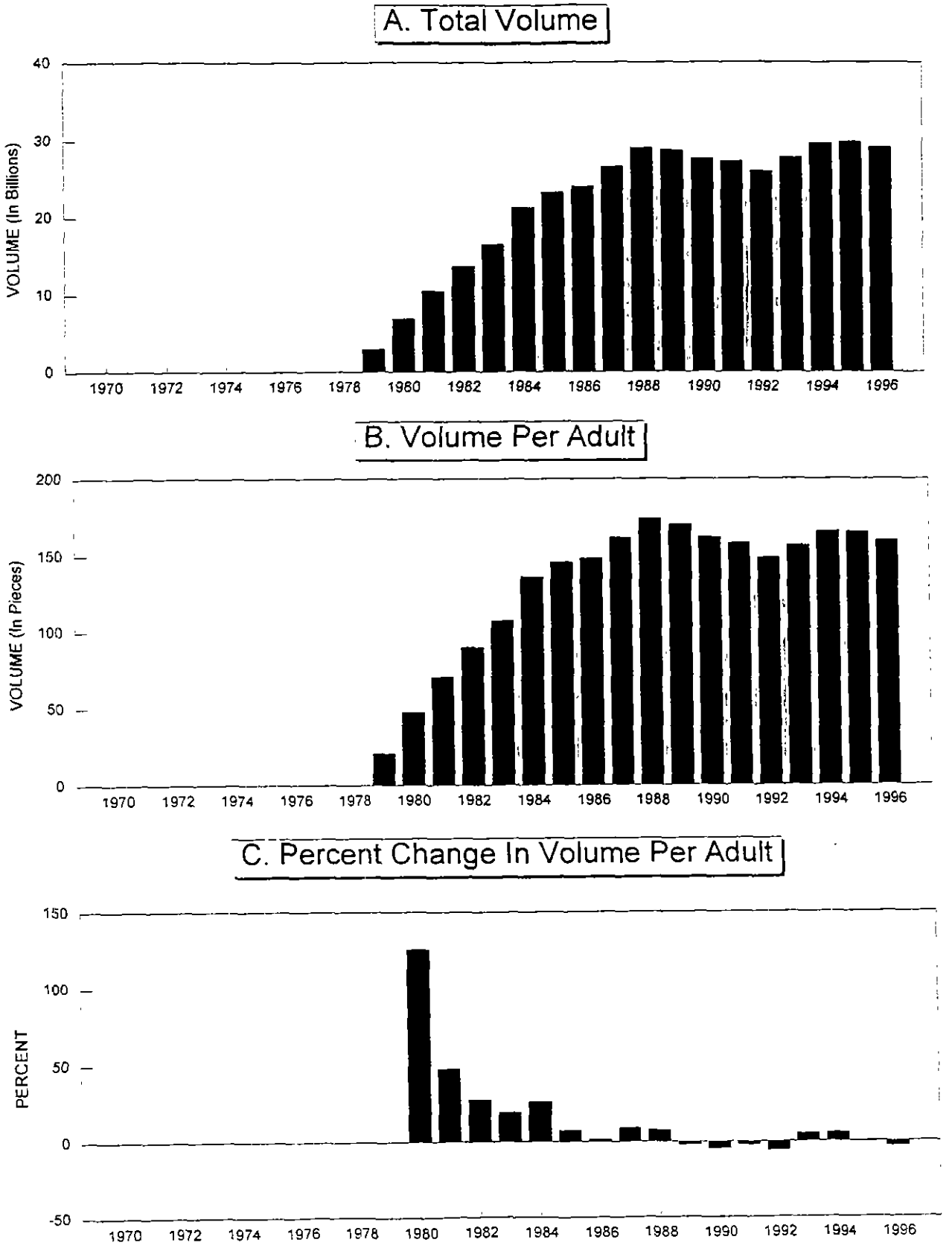
Consumption expenditures strongly influence the volume of ECR mail, though the impact is not as great as for regular mail. It is estimated that the elasticity of ECR mail volume with respect to real consumption expenditures per adult is 0.851. Therefore, the 8.1 percent increase in real consumption per adult is found to contribute 6.87 percent to the volume of Standard ECR mail.

c. CPM -- Newspapers

The estimated elasticity of ECR mail volume with respect to the cost per thousand (CPM) of newspaper advertising is 1.558. Table 13 shows that the CPM for newspaper advertising, as reported by McCann-Erickson, Inc., increased 4.6 percent over the past five

Figure 13

Standard Enhanced Carrier Route



years. This percentage increase combined with the estimated elasticity results in an increase in ECR mail volume of 7.27 percent.

d. CPM -- Radio

Radio advertising is a substitute for enhanced carrier route mail as both tend to saturate a local market. Table 13 shows that the CPM of radio advertising increased 4.8 percent over the past five years. Applying the estimated elasticity of ECR mail volume with respect to the CPM of radio advertising leads to a 1.79 percent increase in volume over the past five years.

e. Price of Paper

The wholesale price of pulp and paper affects ECR mail volume, but the effect is not immediate. Instead, volume responds to changing paper prices with a lag. It is estimated that a one percent increase in the real wholesale price of pulp and paper leads to 0.330 percent decline in ECR volume in the quarter following the price increase. In addition, four postal quarters after the paper price increase, ECR volume falls by a further 0.531 percent.

Table 13 shows that the price of paper, measured with a one quarter lag, rose 3.8 percent over the past five years. This price increase is estimated to have reduced ECR mail volume by 1.20 percent. Table 13 also shows that the price of paper, measured with a four quarter lag, increased 6.7 percent leading to a 3.38 percent decline in ECR mail volume. Overall, rising paper prices are found to have decreased ECR mail volume by about 4.6 percent over the past five years.

f. Price of Printing

Enhanced carrier route mail volume is found to be strongly influenced by the price of advertising printing, which is reasonable since printing is a significant cost input to ECR mailings. The estimated elasticity of ECR mail volume with respect to the real price of

advertising printing is -1.335 meaning that the 2.6 percent increase in advertising printing price over the past five years served to reduced ECR mail volume by 3.38 percent.

g. 1994 Rule Change

As noted in the section on Standard regular mail, tighter eligibility restrictions on bulk nonprofit mail were instituted in 1994. It is estimated that this 1994 rule change caused some nonprofit mail to shift to regular mail and increase the volume of ECR mail by 0.22 percent.

h. Adult Population

Growth in adult population contributed 5.64 percent to the volume of Standard enhanced carrier route mail.

i. Other Factors

i. 1992 - 1997 Net Trend

Table 13 shows that in addition to the impact of the econometrically estimated variables on the volume of ECR mail over the past five years, other factors contributed an additional 1.16 percent. Expressed as an annual net trend, the influence of these other factors is equal to about 0.23 percent per year.

ii. Reasons for Net Trend

The section on Standard A regular mail discussed non-econometric information bearing on Standard A mail volumes. Much of this discussion applies to enhanced carrier route (ECR) mail volume as well, but with differences due to the greater density of ECR mail.

a) Improved Market Targeting of Direct Mail

Improved targeting precision has both positive and negative affects on carrier-route volume. Effective direct mail targeting decreases carrier-route volume by eliminating mail which was previously sent to individuals who are now considered poor candidates for

advertising. With more detailed information about household preferences, however, marketers have the opportunity to increase their response rate. As response rates

TABLE 13

CONTRIBUTIONS TO CHANGE IN
STANDARD A ENHANCED CARRIER ROUTE VOLUME
OVER THE LAST FIVE YEARS

Variable	Percent Change In Variable	Elasticity	Estimated Effect of Variable on Volume
Own price	3.1%	-0.598	-1.83%
Consumption	8.1%	0.851	6.87%
CPM -- Newspapers	4.6%	1.558	7.27%
CPM -- Radio	4.8%	0.378	1.79%
Price of Paper (lag 1)	3.8%	-0.330	-1.20%
Price of Paper (lag 4)	6.7%	-0.531	-3.38%
Price of Printing	2.6%	-1.335	-3.36%
1994 Rule Change			0.22%
Adult Population			5.64%
Other Factors			1.16%
Total Change in Volume			13.54%

increase, the relative cost of direct mail advertising declines. As this happens, advertisers have incentives to shift advertising dollars away from other forms of marketing toward direct mail.

b) Fax Advertising

Because an insufficient number of households within any carrier-route sequence have fax machines, the rise of fax advertising is expected to have only a modest negative impact on carrier-route mail volume.

c) Home Shopping and Advertising through Cable T.V. and the Internet

Home shopping and Cable TV advertising would appear to have a relatively small impact on enhanced carrier route volumes, as they tend to involve a greater degree of targeting.

d) Telemarketing

Telemarketing is to some extent a substitute for enhanced carrier route mail, insofar as telemarketers focus their efforts by telephone prefix which has similarities with direct mailing focused on individual carrier-routes.

e) Mail-Order and Specialty Catalogs

General and specialty catalogs may have less effect on enhanced carrier route volume by less than the volume of regular mail, since at best a minority of catalogs can be sent in sufficient concentration to qualify for the carrier-route discount.

f) Alternative Postal Delivery

Enhanced carrier route mail is to some extent in competition with door-to-door distribution of coupons and flyers. These deliveries are made for local firms -- such as dry cleaners, pizza delivery, construction and home repair -- and are distributed to every household in a given area, much like ECR saturation mailings.

iii. Net Trend for Forecast

The five-year mechanical net trend for Standard ECR mail is equal to about 0.23 percent per year. Over the same period, however, the mean value of the four-quarter

averages of SPLY differences is negative. Therefore, no net trend is included in the forecast of Standard ECR mail.

4. Volume Forecast

a. Total Volume

Projecting the influence of the factors that have been discussed gives a forecast of 32,424.240 million pieces of enhanced carrier-route third bulk regular mail in the Test Year, at present postal rates. At the rates proposed by the Postal Service in this proceeding, the projection is 28,686.181 million pieces.

b. Forecasts of Nonautomated Mail

The forecasted volume of the nonautomated portion of Standard A enhanced carrier route Standard mail, if present rates are continued, is 30,301.017 million pieces in the Test Year. The forecasted volume at rates proposed by the Postal Service is 26,626.519 million pieces.

c. Forecasts of Automated Mail

The forecasted Test Year volume of Standard A enhanced carrier route automated mail, if present rates are continued, is 2,123.223 million pieces. The after-rates volume forecast, assuming implementation of the rates proposed by the Postal Service is 2,059.662 million pieces.

E. Standard A Nonprofit Mail

1. Definition

Standard A nonprofit mail is sent at reduced rates by authorized charitable organizations, educational institutions, and professional associations. According to the Nonhousehold Mailstream Study, 92.7 percent of all solicitations for contributions sent to households were mailed at Standard A nonprofit rates in 1979. This category of mail is

also used for alumni mailings, membership-drive activities and for nonprofit organization newsletters and magazines that have too much advertising to qualify for Periodicals rates or find third nonprofit rates more favorable.

2. Volume History

a. Total Volume

Standard A nonprofit mail essentially consists of what was known as third-class noncarrier-route nonprofit mail. Figure 14 shows that the third-class noncarrier-route nonprofit mail experienced steady growth from 1970 to 1990, rising from 4.2 billion pieces to 9.4 billion pieces. On a per adult basis, volume grew over this time period from 36.0 pieces per adult to 55.1 pieces per adult, an increase of 53 percent.

Since 1990, the volume of third-class noncarrier-route nonprofit mail has been flat, with 1996 volume being slightly less than volume in 1990. On a per adult basis, volume has declined somewhat in five of the last six years, falling to 51.1 pieces per adult in 1996.

b. Nonautomated and Automated Volumes

Chart G presents the breakdown of total noncarrier-route nonprofit mail volume into nonautomated and automated volumes since the introduction of the ZIP + 4 discount in 1988. Automation volume has grown in every year, reaching 37.8 percent of total nonprofit noncarrier-route mail volume in 1996.

Figure 14

Standard Nonprofit Mail

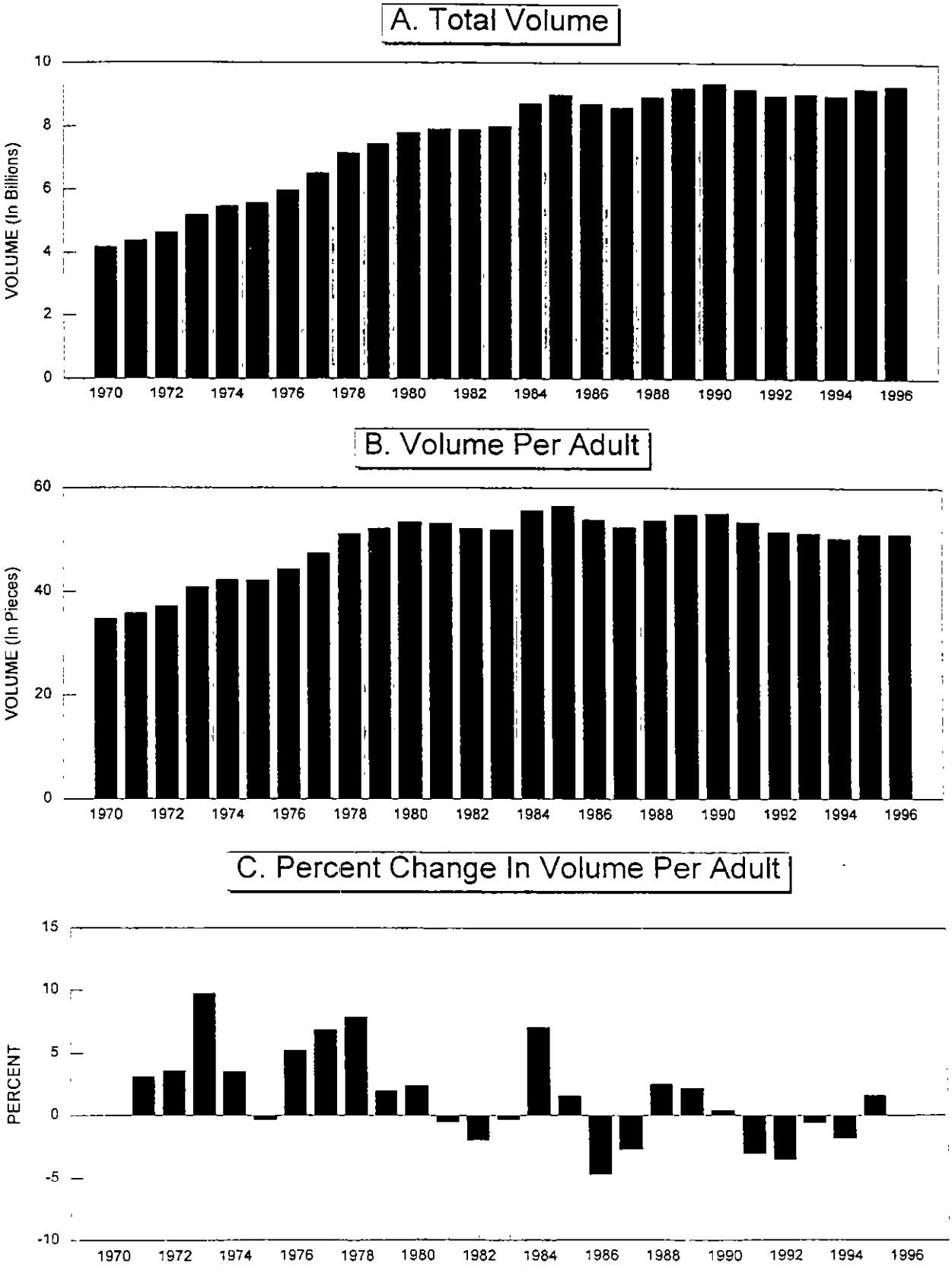


CHART G
Nonautomated and Automated Volumes of Noncarrier-Route Bulk Mail
(in millions of pieces)

Standard Nonprofit				
	Nonautomated		Automated	
	Volume	Percentage	Volume	Percentage
1988	8,852.884	99.2%	66.152	0.7%
1989	8,983.643	97.4%	235.711	2.6%
1990	8,914.252	95.2%	445.462	4.8%
1991	8,120.310	88.4%	1,065.377	11.6%
1992	7,292.763	81.2%	1,690.670	18.8%
1993	6,438.568	71.2%	2,608.495	28.8%
1994	6,283.566	69.9%	2,699.140	30.0%
1995	6,297.350	68.3%	2,917.781	31.7%
1996	5,779.180	62.2%	3,517.730	37.8%

3. Factors Affecting Volume

Table 14 shows that the volume of Standard nonprofit mail increased 7.15 percent over the past five years. A discussion of the factors contributing to this volume increase is presented below.

a. Own Price

Over the past five years, the real price of Standard nonprofit mail decreased by 0.9 percent. The estimated long-run own price elasticity of Standard nonprofit mail is -0.136, meaning that the small increase in real price was responsible for a 0.38 percent increase in volume.

TABLE 14

CONTRIBUTIONS TO CHANGE IN
STANDARD NONPROFIT VOLUME FROM 1992 TO 1997

Variable	Percent Change In Variable	Elasticity	Estimated Effect of Variable on Volume
Own price	-0.9%	-0.136	0.38%
Consumption	8.1%	0.628	5.03%
CPM -- Magazines	8.8%	0.444	3.82%
Price of Printing	2.6%	-0.842	-2.13%
Price of Paper (lag 1)	3.7%	-0.279	-1.02%
1994 Rule Change			-3.81%
Adult Population			5.64%
Other Factors			0.96%
Total Change in Volume			8.43%

b. Consumption

Real consumption expenditures per adult increased 8.1 percent from 1992 to 1997. It is estimated that a one percent increase in this variable leads to a 0.628 percent increase in Standard nonprofit mail volume. Thus, the 8.1 percent increase in real consumption expenditures per adult contributed 5.03 percent to the volume of Standard nonprofit mail.

c. CPM -- Magazines

It is estimated that a one percent increase in the cost per thousand (CPM) of magazine advertising leads to a 0.444 percent increase in Standard nonprofit mail volume. Therefore, as shown in Table 14, the 8.8 percent increase in the real price of magazine advertising contributed 3.82 percent to the volume of nonprofit mail.

d. Price of Printing

A one percent increase in the real price of advertising printing is estimated to lead to a 0.842 percent decline in the volume of Standard nonprofit mail. From 1992 to 1997, advertising printing prices increased 2.6 percent in real terms, leading to a 2.13 percent decline in Standard nonprofit mail volume.

e. Price of Paper

The wholesale price of pulp and paper affects Standard A nonprofit volume because of the large amounts of paper of various types and qualities used by nonprofit customers. A one percent increase in the wholesale price of pulp and paper is estimated to decrease mail volume by 0.279 percent in the quarter following the price increase. Thus, the 3.7 percent increase in this variable is responsible for a 1.02 percent decline in the volume of Standard nonprofit mail.

f. 1994 Rule Change

In 1994, eligibility requirements were tightened for what was then third-class bulk nonprofit mail. It is estimated that this change in eligibility led to a 3.81 percent decline in nonprofit mail volume, as shown in Table 14.

g. Adult Population

Growth in adult population over the past five years contributed 5.64 percent to the volume of Standard nonprofit mail.

h. Other Factors

i. 1992 - 1997 Net Trend

In addition to the econometrically estimated affects described above, other factors contributed 0.96 percent to the volume of Standard nonprofit mail over the past five years. Expressed as an annual net trend, these non-econometric influences added 0.19 percent per year to the volume of Standard nonprofit mail.

ii. Reasons for Net Trend

a) Technological Advancements

As discussed in the section on Standard A regular mail, technological advancements have improved the precision with which direct mail can target households. It is likely that these same enhancements have benefited nonprofit mailers also, but probably to a lesser extent. This is because smaller nonprofit organizations may not have the wherewithal to purchase or manage the required mailing technology. Nonetheless, more effective direct marketing has given nonprofit organizations the incentive to shift marketing expenses toward mail and away from other advertising media.

At the same time, electronic alternatives to the mail may be reducing Standard nonprofit mail volume, given the opportunity for some nonprofit organizations to use E-mail to contact their members, provide information, and solicit contributions.

b) Shifts from Periodical Nonprofit Mail

Another factor that may be positively influencing the volume of Standard nonprofit mail is declining volume of Periodical nonprofit mail. As circulation of nonprofit magazines and newsletters declines, nonprofit organizations may find it more effective to solicit funds through direct mail sent Standard class.

iii. Net Trend for Forecast

Table 14 shows that the net effect of the non-econometric factors has been to increase Standard nonprofit volume very slightly over the past five years. The effect amounts to only 0.2 of one percent per year and is the result of both positive and negative errors during the in-sample forecast period. The analysis does not indicate a systematic tendency over the five year period, therefore no net trend is included in the volume forecast.

4. Volume Forecast

a. Total Volume

Projecting the influence of the factors that have been discussed gives a forecast of 10,123.229 million pieces of bulk nonprofit mail in the Test Year at current rates. At the rates proposed by the Postal Service, the projection is 10,550.968 million pieces. The increase in the after-rates volume is due to the proposed pricing of automation 5-digit nonprofit letters less than ECR nonprofit basic letters.

b. Forecasts of Nonautomated Volume

The before-rates forecast for nonautomated Standard nonprofit mail for the 1998 Test Year is 4,086.150 million pieces. The after-rates Test Year volume forecast is 3,658.517 million pieces.

c. Forecasts of Automated Volume

The forecast for automated nonprofit Standard mail, if present rates are continued, is 6,037.079 million pieces. The forecast if the recommendations of the Postal Service are adopted is 6,892.451 million pieces.

F. Standard A Enhanced Carrier Route Nonprofit Mail

1. Definition

Standard A enhanced carrier route nonprofit mail is sent at reduced rates by authorized charitable organizations, educational institutions, and professional associations. According to the Nonhousehold Mailstream Study, 92.7 percent of all solicitations for contributions sent to households were mailed at Standard A nonprofit rates in 1979. This category of mail is also used for alumni mailings, membership-drive activities and for nonprofit organization newsletters and magazines that have too much advertising to qualify for Periodicals rates or find third nonprofit rates more favorable.

2. Volume History

Figure 15 shows the volume history of the carrier-route portion of third-class nonprofit mail, which is essentially the same as nonprofit enhanced carrier route mail. Following the introduction of the carrier-route discount for nonprofit mail in 1980, volume grew rapidly, rising to 2.34 billion pieces in 1987. After a volume decline in 1988 to 2.23 billion pieces, volume growth rose to 2.93 billion pieces in 1992. Since 1992, volume has been flat, with 1996 total volume equaling 2.91 billion pieces.

Figure 15 also shows volume per adult for carrier-route third-class nonprofit mail. Volume per adult rose from 4.1 pieces in 1980 to 12.1 pieces in 1985 and to 15.7 pieces in 1990. In 1996, volume per adult was 16.0 pieces, indicating that volume growth over the last six years has been approximately equal to growth in adult population.

3. Factors Affecting Volume

The same elasticities are used for enhanced carrier route nonprofit mail as were used for Standard nonprofit mail because Witness Thress's econometric analysis was performed on total bulk nonprofit mail volume.

a. Own Price

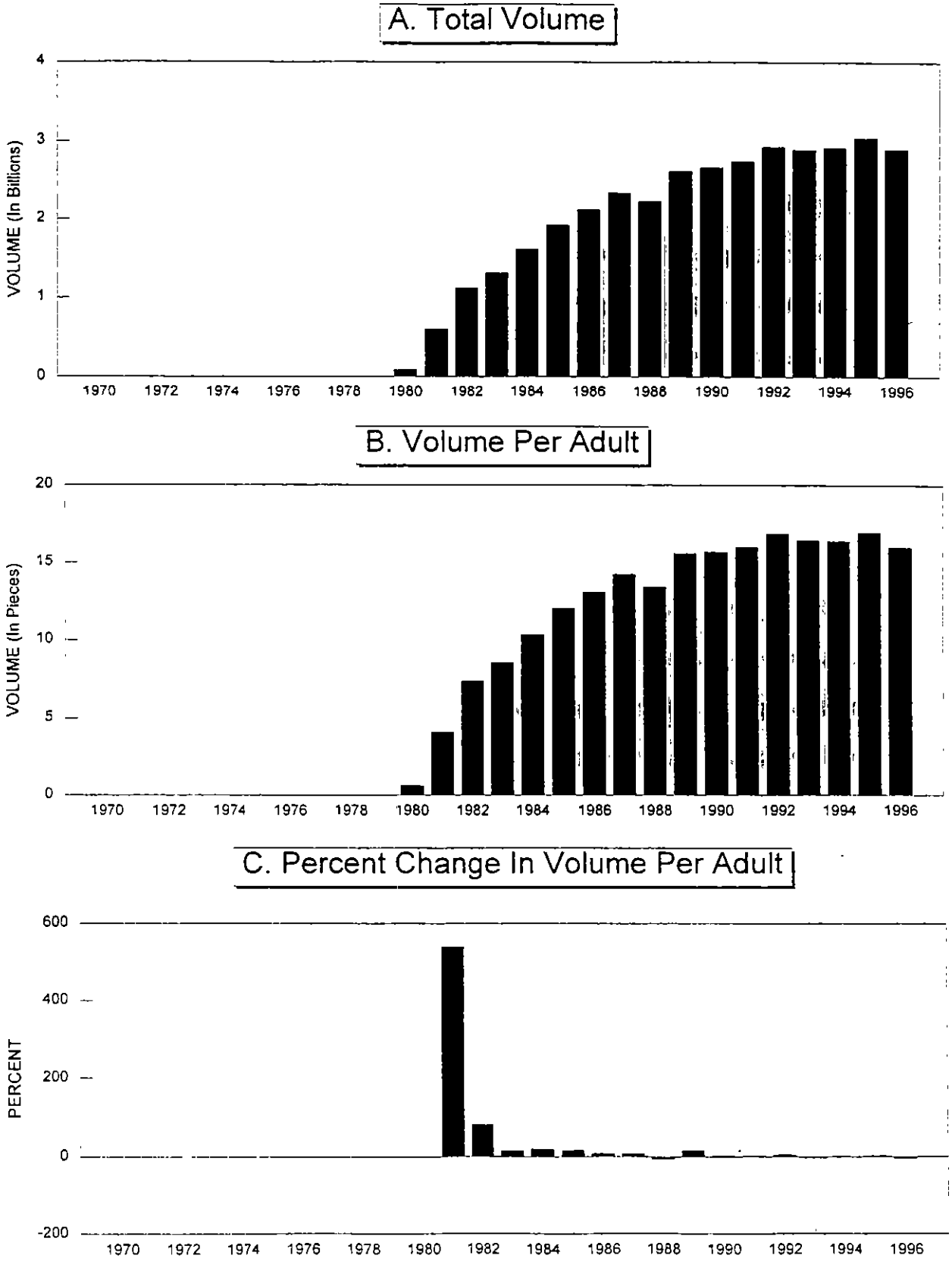
Table 15 shows that the real price of nonprofit ECR mail increased 16.1 percent from 1992 to 1997. Applying the own price elasticity for total Standard nonprofit mail of -0.136 to this price increase yields a decline in volume of 2.00 percent.

b. Consumption

Real consumption expenditures per adult increased 8.1 percent over the past five years. It is estimated that a one percent increase in this variable leads to a 0.628 percent increase in total Standard nonprofit mail volume. Applying this elasticity for the enhanced

Figure 15

Standard Nonprofit ECR Mail



carrier route portion of total nonprofit mail means that the 8.1 percent increase in real consumption expenditures per adult contributed 5.03 percent to the volume of nonprofit ECR mail.

c. CPM -- Magazines

It is found that a one percent increase in the cost per thousand (CPM) of magazine advertising leads to a 0.444 percent increase in total Standard nonprofit mail volume. Therefore, as shown in Table 15, the 8.8 percent increase in the real price of magazine advertising is estimated to have contributed 3.82 percent to the volume of nonprofit ECR mail.

d. Price of Printing

It is found that a one percent increase in the real price of advertising printing leads to a 0.842 percent decline in the volume of total Standard nonprofit mail. Over the past five years, advertising printing prices increased 2.6 percent in real terms, leading to a 2.13 percent decline in nonprofit ECR mail volume.

e. Price of Paper

A one percent increase in the wholesale price of pulp and paper is estimated to decrease the volume of total Standard nonprofit mail by 0.279 percent in the quarter following the price increase. Applying this elasticity to the ECR portion of nonprofit mail means that the 3.7 percent increase in real paper prices is responsible for a 1.02 percent decline in volume.

f. 1994 Rule Change

It is estimated that the tighter eligibility requirements for nonprofit mail instituted in 1994 were responsible for a 3.81 percent decline in nonprofit ECR mail volume, as shown in Table 15.

g. Adult Population

Growth in adult population over the past five years contributed 5.64 percent to the volume of Standard nonprofit ECR mail.

h. Other factors

i. 1992 - 1997 Net Trend

Table 15 shows how the volume of nonprofit ECR mail has been affected from 1992 to 1997. In addition to the econometrically estimated affects, other factors were responsible for a 0.59 percent decline in volume from 1992 to 1997.

TABLE 15

CONTRIBUTIONS TO CHANGE IN
STANDARD A NONPROFIT ENHANCED CARRIER ROUTE
VOLUME FROM 1992 TO 1997

Variable	Percent Change In Variable	Elasticity	Estimated Effect of Variable on Volume
Own price	16.1%	-0.136	-2.00%
Consumption	8.1%	0.628	5.03%
CPM -- Magazines	8.8%	0.444	3.82%
Price of Printing	2.6%	-0.842	-2.13%
Price of Paper (lag 1)	3.7%	-0.279	-1.02%
1994 Rule Change			-3.81%
Adult Population			5.64%
Other Factors			-0.59%
Total Change in Volume			4.29%

ii. Reasons for Net Trend

The non-econometric information bearing on the volume of nonprofit mail, discussed in the previous section, appear for the most part to have had less effect on nonprofit ECR mail. Technological developments that improve targeting are less important to denser ECR mailings. E-mail solicitations appears less likely to displaced ECR mail, as well. Any shift from Periodical nonprofit mailings to Standard nonprofit mailings would be more likely to affect the noncarrier nonprofit mail.

iii. Net Trend for Forecast

Table 15 shows that non-econometric factors have been responsible for a 0.59 percent decline in the volume of nonprofit ECR mail, equal to an annual net trend of only about -0.12 percent per year. Review of the Forecast Error Analysis results fails to confirm the existence of a persistent volume trend. Therefore, no net trend is included in the volume forecast of nonprofit ECR mail.

4. Volume Forecast

a. Total Volume

Projecting the influence of the factors that have been discussed gives a forecast of 3,131.995 million pieces of bulk nonprofit mail in the Test Year at current rates. At the rates proposed by the Postal Service, the projection is 2,571.283 million pieces.

b. Forecasts of Nonautomated Volume

The forecast for nonautomated nonprofit enhanced carrier route Standard mail, if present rates are continued, is 2,775.082 million pieces. The forecast if the recommendations of the Postal Service are adopted is 2,216.629 million pieces.

c. Forecasts of Automated Volume

The forecast for automated nonprofit enhanced carrier route Standard mail, if present rates are continued, is 356.913 million pieces. The forecast if the recommendations of the Postal Service are adopted is 354.654 million pieces.

VI. STANDARD B MAIL

A. General Characteristics

1. Standard B Mail as an Inexpensive Alternative

Standard B (formally fourth-class) mail is a less expensive alternative for sending eligible mail pieces weighing between one and 70 pounds that are not sent as Priority Mail and are not accepted under Periodicals restrictions. Standard B can also be used as a less expensive means of sending educational, cultural, and recreational material such as books, manuscripts, films, and records without regard to minimum weight restrictions. Standard B mail is subject to deferred service, with no guaranteed delivery schedule. Return and forwarding are made at an additional charge only upon request of the sender or addressee.

2. Standard B Rates and Volume

In general, Standard B mail rates are lower than First-Class, Priority and Express Mail, due primarily to the fact that Standard B mail is not handled as expeditiously.

The four subclasses in Standard B mail are: parcel post, bound printed matter, special rate, and library rate. Rates for the first two subclasses are determined by weight and distance to destination. Rates for the last two subclasses are determined by weight only without regard to distance.

Parcel post has 552 individual rates, based on eight distance zones and charges varying by the pound from two pounds or less to the 70-pound weight limit. In 1981, a 14-cent intra-BMC discount per piece became effective for parcels sent and delivered within the same Bulk Mailing Center service area. A 50-cent surcharge per piece was placed on parcels sent and delivered outside the same Bulk Mailing Center service area, if the parcels are nonmachinable and must be handled manually because of excessive size,

weight density, fragility or packaging. A destination BMC rate structure was introduced in 1991 for bulk mailers.

Bound printed matter is mail which is bound and printed and weighs between one and ten pounds. Prior to 1977, this subclass was called catalogs and consisted entirely of catalogs. In July of 1976, the subclass was changed to bound printed matter and eligibility was expanded to include any mail which contained at least one page of advertising. In R90-1, eligibility was expanded still further by eliminating the minimum one page of advertising requirement. A bulk discount exists for bound printed matter mailings of 300 or more pieces.

Special rate mail consists largely of books, printed matter, and sound recordings. Rates are based on the weight of each addressed piece without regard to zone. Two Presort discounts for special fourth were introduced in 1977.

Library mail currently receives a preferred rate and has been the least expensive of the four subclasses in most cases.

In Postal Year 1996, the four subclasses of what is now Standard B mail had a combined volume of 945 million pieces. Bound printed matter is the largest subclass by volume, (511 million pieces), followed by parcel post (214 million pieces), special rate (190 million pieces), and library rate (30 million pieces) in 1996.

B. Parcel Post Mail

1. Definition

Parcel post mail is Standard B mail not eligible for lower rates under one of the other three Standard B mail categories. Packages weighing between one and 70 pounds and not exceeding 108 inches in length plus girth are currently accepted for parcel post.

2. Volume History

a. Total Parcel Post Volume

As shown in Figure 16, parcel post volume declined from 562 million pieces in 1970 to 207 million pieces in 1980, or by 63 percent. Volume continued to decline in the 1980s, falling to 110 million pieces in 1989. By 1994, however, volume had increased to 226 million pieces, more than double the 1989 volume. Over the last two years, parcel post volume has declined somewhat, falling to 214 million pieces in 1996, but remained higher than it was at any time in the 1980s.

b. Inter-BMC, Intra-BMC, and DBMC Parcel Post Volumes

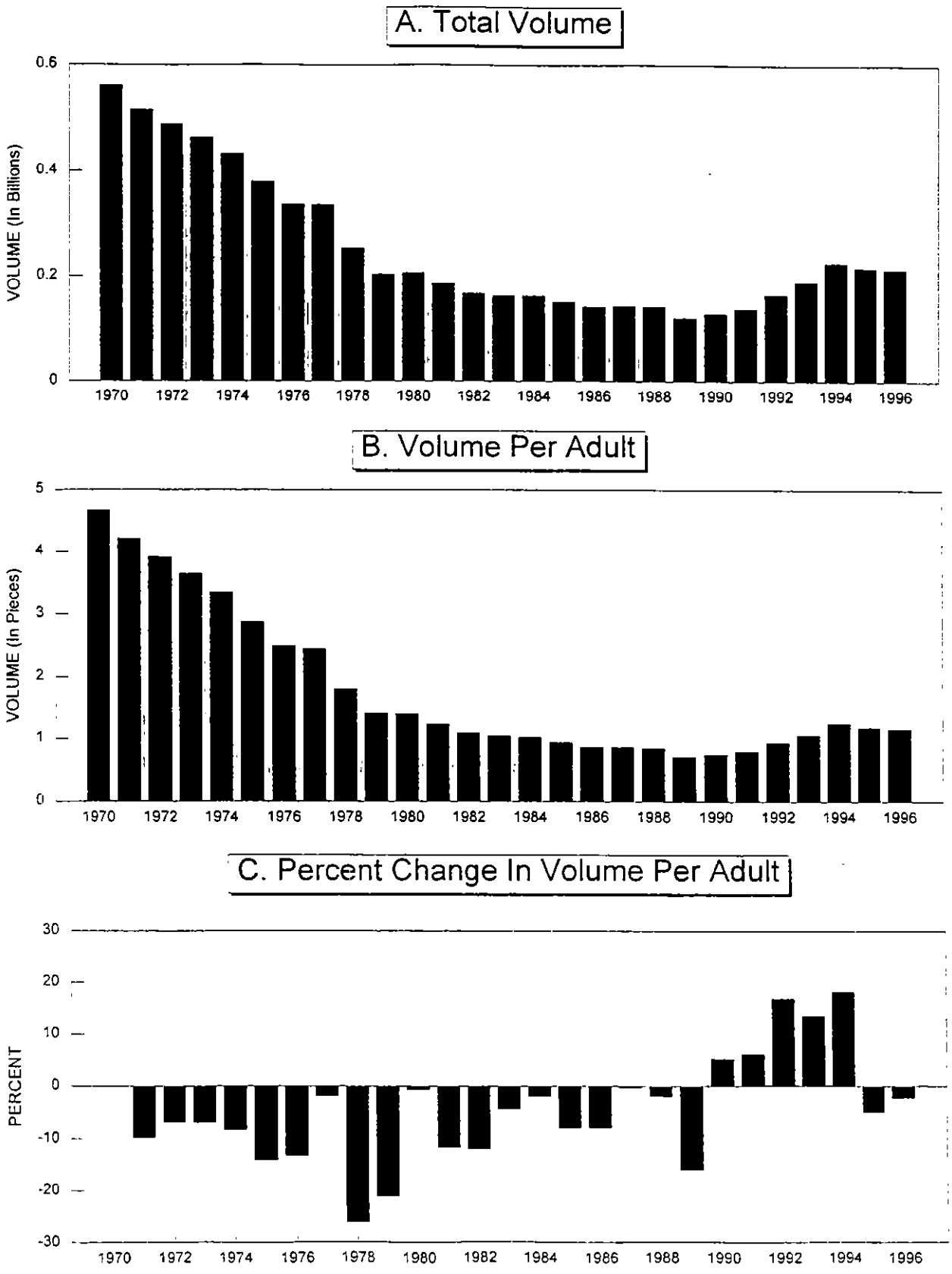
Chart H shows inter-BMC, intra-BMC and DBMC volumes from 1990 through 1996. As the chart shows, inter-BMC volume has declined over this time period, with a particularly noticeable drop in 1995 and 1996, partly as a result of the increase in rates following the R94-1 case. Intra-BMC volume increased from 1990 to 1994, but also declined in the last two years. In contrast, DBMC volumes have grown rapidly since the introduction of the DBMC discount in 1991. After rapid growth in the first few years after its introduction, DBMC volume growth has slowed, but remains impressive.

CHART H
Inter-BMC, Intra-BMC, and DBMC Parcel Post Volumes

Standard B Parcel Post						
	Inter-BMC		Intra-BMC		DBMC	
Year	Volume	Percentage	Volume	Percentage	Volume	Percentage
1990	99.935	77.6%	28.765	22.4%	0	00.0%
1991	99.671	72.0%	33.803	24.4%	4.983	03.6%
1992	93.184	56.7%	48.572	29.6%	22.447	13.7%
1993	89.255	47.2%	45.100	23.9%	54.715	28.9%
1994	92.700	41.0%	51.665	22.8%	81.752	36.2%
1995	82.622	38.1%	50.590	23.3%	83.687	38.6%
1996	68.679	32.1%	47.962	22.4%	97.318	45.5%

Figure 16

Standard Parcel Post



3. Factors Affecting Volume

Table 16 shows that total parcel post volume increased 54.10 percent over the past five years. The present section discusses the influences on parcel post volume during this five-year period.

TABLE 16

CONTRIBUTIONS TO CHANGE IN
PARCEL POST VOLUME FROM 1992 TO 1997

Variable	Percent Change In Variable	Elasticity	Estimated Effect of Variable on Volume
Own price	6.3%	-0.965	-5.68%
Cross Price			
Priority Mail	0.6%	0.447	0.26%
UPS	30.8%	0.546	15.80%
UPS Residential Surcharge	43.1%	0.590	23.57%
Transitory Income	5.1%	0.663	3.37%
Adult Population			5.64%
Other Factors			4.34%
Total Change in Volume			54.10%

a. Own Price

The long-run own price elasticity of parcel post is estimated to be -0.965. The effect of the observed 6.3 percent increase in real price between 1992 and 1997 was to decrease volume by an estimated 5.68 percent.

b. Cross-Prices

An additional factor affecting volume of parcel post is the price of Priority Mail. A one percent increase in the real price of Priority Mail is estimated to increase parcel post volume by 0.447 percent. Applying this estimate to the real increase in the price of Priority Mail over the past five years of 0.6 percent yields an increase in parcel post volume of 0.26 percent.

Since United Parcel Service (UPS) is an important competitor of parcel post, UPS rates affect parcel post volume. The real price of UPS service increased 30.8 percent between 1992 and 1997. Using the estimated cross-price elasticity between parcel post volume and UPS price of 0.546, the UPS price increase is estimated to have contributed a 15.80 percent increase to the volume of parcel post for the period.

In addition to the effect of the real price of the average of all UPS rates, UPS instituted a residential surcharge to packages delivered in residential areas in February of 1991, which had a separate crossover-type effect on parcel post that was pronounced because parcel post is used most by residential customers. The UPS residential surcharge has increased in real terms by 43.1 percent over the past five years. The increase in the residential surcharge is estimated to have led to a 23.57 percent increase in parcel post volume over the past five years.

c. Income

The elasticity of parcel post volume with respect to transitory income is estimated to be 0.663. Therefore, the 5.1 percent increase in transitory income, measured by the Federal Reserve Board's Index of Capacity Utilization, contributed 3.37 percent to the volume of parcel post in the last five years.

d. Adult Population

Increases in adult population were responsible for a 5.64 percent increase in the volume of parcel post mail over the past five years.

e. Other Factors

i. 1992 - 1997 Net Trend

Table 16 shows that in addition to the econometrically estimated effects, other factors contributed 4.34 percent to the volume of parcel post over the past five years. However, as shown in Chart H, the volumes of the individual components of parcel post -- inter, intra, and DBMC -- have been experiencing different growth patterns over the past five years, raising the possibility that the non-econometric factors are exerting a different influence on each component of parcel post volume.

ii. Reasons for Net Trend

a) Competition from Other Package Delivery Firms

In years past, competition from other package delivery firms has been a major reason for declines in parcel post volume. A principle competitor has been United Parcel Service (UPS), but other firms have entered the package delivery market. The impact of competition with UPS on parcel post volume is econometrically measured by including the UPS price and the UPS residential surcharge in the parcel post demand equation. Another consideration explaining parcel post volume is non-price competition with UPS and other package delivery firms. In some instances, private delivery firms make intensive use of computer technology, provide free tracking, and promise multiple attempts of delivery. These service additions are not necessarily reflected in price and, therefore, are not included as an econometric factor to explain parcel post volume.

b) Home Shopping and Electronic Commerce

Increased shopping through cable television and the Internet increases the sending of packages and thus exerts a positive influence on parcel post volume. Computer Intelligence Infocorp's latest study shows 2.7 million people used the Internet for shopping or to obtain commercial services such as banking or travel information. Nielsen Media Research reports that more than 2.5 million people have purchased products and services via the Internet. Reports of merchandise sales on the Internet vary. In a May, 1996 report, Hambrecht & Quest found that revenues generated from all Web sites were $50 million in 1995, while projecting that revenues would hit $10 billion by the year 2001. ActivMedia predicts that sales on the Internet will grow from $436 million this year to nearly $46 billion by 1998, as a result of the Web extending the reach of small and medium-sized marketers. Forester Research reports that total sales of goods on the Internet will reach $518 million in 1996, but will grow to $6.6 billion by the year 2000.

The Weber Group anticipates a $1 billion market for consumer electronic commerce by the year 2000. They expect large increases over the next decade in electronic information and services, but anticipate order placement via the Internet, with product delivery by the Postal Service or private courier, to develop more slowly.

A study by CommerceNet and Nielsen Media Research indicate that a lack of security for electronic payments is among the leading concerns that have negatively influenced efforts to conduct business transactions over the Internet. "While the numbers confirm that the Internet has become an established shopping vehicle, clearly changes in technology, product offerings, and perceptions are needed before most people will want to buy online," according to Randall Whiting, president and CEO of CommerceNet. There are also a number of regulatory and legal issues still to be addressed, including the issues of cross-border sales and export duties for electronic content.

iii. Net Trend for Forecast

Since inter-BMC, intra-BMC, and DBMC parcel post volumes have experienced markedly different growth rates over the past five years, separate net trends are estimated for them, using the subclass elasticities to make a volume forecast of each component off of a base volume for the component volume five years earlier.

a) Net trend for Inter-BMC

The forecast error analysis for inter-BMC parcel post yields a five-year mechanical net trend of 0.862568, equal to an annual decline in volume of about 13.7 percent per year due to non-econometric factors. Analysis of SPLY differences in forecast errors and the four-quarter averages of SPLY differences confirm that a persistent downward trend in inter-BMC volume has been occurring. The mean value of the four-quarter averages of SPLY differences is -0.1337, or -13.37 percent, virtually identical to the annual mechanical net trend. Therefore, the five-year mechanical net trend of 0.862568 is included in the volume forecasts of inter-BMC mail volume.

b) Net Trend for Intra-BMC

The five-year mechanical net trend intra-BMC parcel post volume is 0.975626, or about -2.44 percent per year. The mean value of the four-quarter average of SPLY differences is -0.0296, or -2.96 percent per year. In view of the similarity between the five-year mechanical net trend and the SPLY differences in forecast errors, a net trend of 0.975626 is used in the forecast of intra-BMC parcel post volume.

c) Net Trend for DBMC

The five-year mechanical net trend for DBMC parcel post is 1.388932, equal to a 38.9 percent annual increase in volume due to non-econometric factors. However, review of Chart H shows that volume grew quite rapidly in the years following the introduction of the DBMC discount, which also correspond to the beginning of the period over which the five-

year mechanical net trend was calculated. Therefore, a three-year mechanical net trend was calculated and found to equal 1.124059, equal to a 12.4 percent per year growth due to non-econometric factors. This three-year net trend appears reflective of recent growth in DBMC volume and is expected to persist into the future. Therefore, a net trend factor of 1.124059 is included in the forecast of DBMC parcel post volume.

4. Volume Forecast

a. Total Parcel Post Volume

Projecting the influence of the factors that have been discussed gives a forecast of 241.598 million pieces of parcel post mail for the 1998 postal Test Year. The after-rates parcel post forecast is 231.879 million pieces.

b. Inter-BMC Volume

The before-rates forecast for Inter-BMC volume is 55.256 million pieces, while the after-rates forecast is 50.375 million pieces.

c. Intra-BMC Volume

The before-rates forecast for Intra-BMC volume is 49.406 million pieces, while the after-rates forecast is 43.566 million pieces.

d. DBMC Volume

The before-rates forecast for DBMC volume is 136.937 million pieces, while the after-rates forecast is 137.938 million pieces.

C. Standard B Bound Printed Matter

1. Definition

Bound printed matter is advertising, promotional, directory or editorial material which weighs between one and ten pounds and is permanently bound. The category was formerly called catalogs. As in the case of parcel post, rates are determined by weight and

zone. Bulk mailings have been available since 1964 and accounted for over 90 percent of the volume of bound printed matter volume in 1996. The pieces sent in a bulk mailing must be identical except with special authorization. They must be permit imprinted and/or meter stamped and presorted by ZIP Code and state.

2. Volume History

In contrast to the decline in parcel post, bound printed matter volume increased over the 1970 to 1996 period. As shown in Figure 17, after falling from 109.6 million pieces in 1970 to a low of 75.4 million pieces in 1976, total volume increased to 114.9 million pieces in 1980, for a gain in total volume of 4 percent from 1970 to 1980. This pattern continued through the 1980s, with total volume rising to 311.7 million pieces in 1989. Despite a decline in 1993, total volume of bound printed matter rose to 510.8 million pieces in 1996.

Volume per adult has followed the pattern of total volume. Volume per adult showed an increase of 356 percent from 0.79 pieces per adult in 1980 to 2.81 pieces per adult in 1996.

3. Factors Affecting Volume

a. Own Price

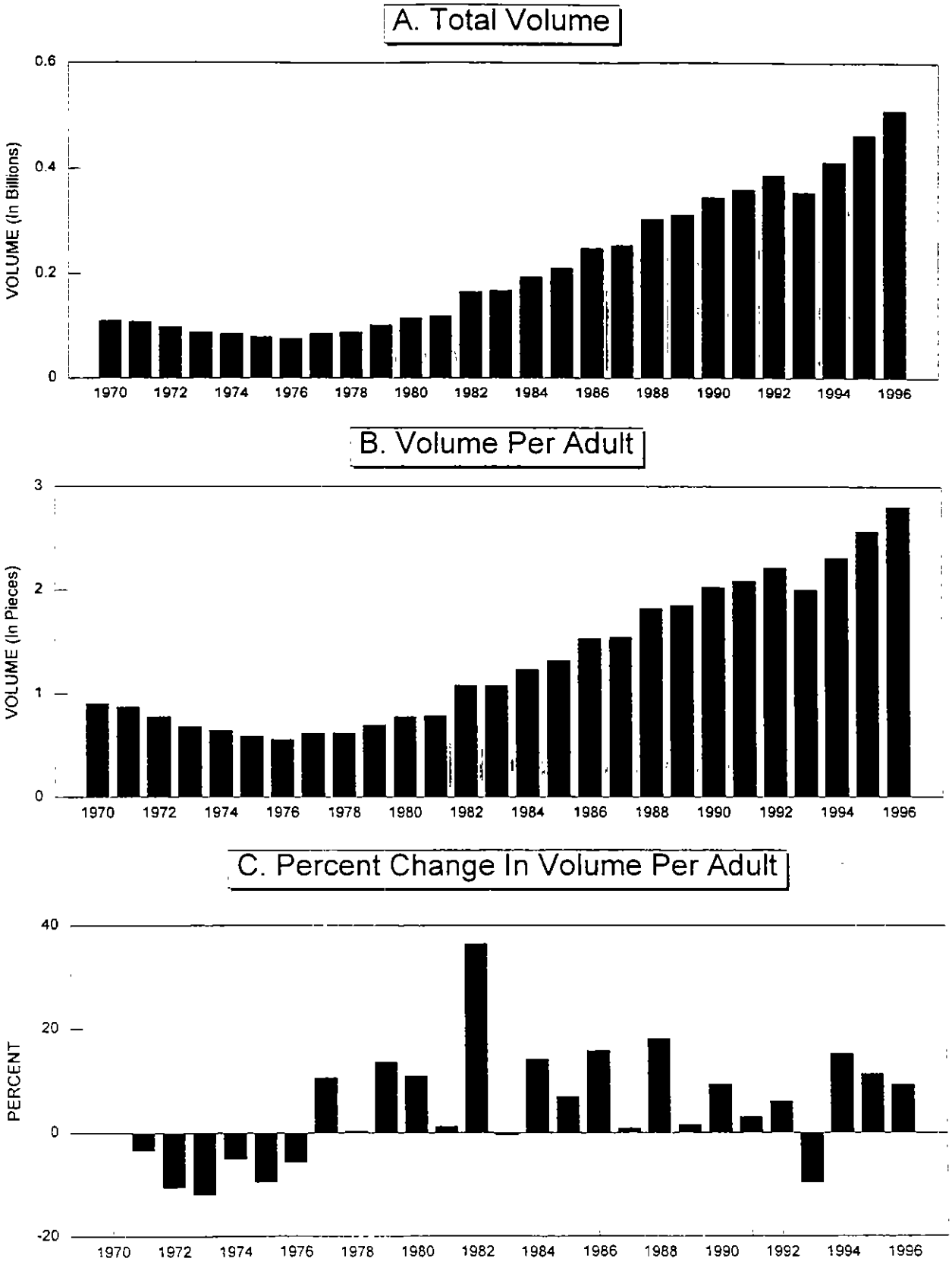
Table 17 shows that the real price of bound printed matter increased 4.8 percent from 1992 to 1997. The econometrically estimated long-run own price elasticity for bound printed matter is -0.335. Applying this elasticity to the 4.8 percent increase in real price yields a volume decline of 1.56 percent over the past five years.

b. Income

Income growth increased bound printed matter volume by an estimated 6.42 percent. This is due to an increase in permanent income per adult of 4.8 percent over the last five years combined with an estimated income elasticity of 1.338, as shown in Table 17.

Figure 17

Bound Printed Matter



c. Adult Population

Growth in adult population contributed 5.64 percent to the volume of bound printed matter over the past five years.

d. Market Penetration

Buoyant factors connected with the mail order boom continue to exert a positive influence on bound printed matter. The growth is modeled with a smooth abatement path characteristic of a market penetration phenomenon. The effect from 1992 to 1997 was to increase volume 19.83%.

e. Other Factors

i. 1992 - 1997 Net Trend

Table 17 shows that over the past five years, the total change in bound printed matter volume was 34.82 percent. (Slightly more than the arithmetic sum of the individual contributions due to the interaction of the contributions when they are multiplied together to obtain total volume.) Factors other than those already discussed were responsible for a 1.66 percent increase in volume. On an annual basis, the impact of these other factors is equivalent to a net trend of 0.33 percent.

ii. Reasons for Net Trend

a) Growth in Mail-Order Shopping

As already noted, a positive influence on Standard B bound printed matter has been growth in mail-order shopping. Increases in mail-order shopping spur growth in the number of catalogs mailed to prospective home-shoppers, many of which would be sent as bound printed matter. In addition to general market penetration, this consideration could contribute to deviations from the modeled abatement path.

b) Shift to Specialty Catalogs

While mail-order has grown, a number of retailers have replaced larger catalogs with smaller specialty catalogs that are geared to particular consumer purchasing habits. The impact of this trend should have a dampening affect on Standard B bound printed matter volume. Because the specialty catalogs are smaller they can be shipped as Standard A mail rather than Standard B bound printed matter. As evidence of this substitution, The Household Diary Study reports that Standard B bound printed matter represented 2.4 percent of Postal Service household package deliveries in 1995, down from 2.9 percent the previous year [Table 7-1].

TABLE 17

CONTRIBUTIONS TO CHANGE IN

BOUND PRINTED MATTER VOLUME FROM 1992 TO 1997

Variable	Percent Change In Variable	Elasticity	Estimated Effect of Variable on Volume
Own price	4.8%	-0.335	-1.56%
Permanent Income	4.8%	1.338	6.42%
Adult Population			5.64%
Market Penetration			19.83%
Other Factors			1.66%
Total Change in Volume			34.82%

iii. Net Trend for Forecast

While the other factors have had the effect of raising bound printed matter by an average of 0.33 percent per year, review of the forecast error analysis, shows that the influence of the non-econometric factors has not been stable over this time period. Particularly revealing is the four-quarter average of SPLY differences of forecast errors presented for this subclass in the Technical Appendix. A constant SPLY difference would be indicative of a trend. Instead, the four-quarter average SPLY differences show a steadily decreasing pattern, suggesting a move from a relatively large positive net trend toward no net trend. Based on the absence of a net trend in recent quarters, no net trend is included in the forecasts of bound printed matter.

4. Volume Forecast

Projecting the influence of the above factors gives a of 567.896 million pieces of Standard Bound printed mail for the Test Year beginning October 1, 1997, if present postal rates are continued (before-rates forecast). If the rates recommended by the Postal Service are adopted, the forecast is 561.718 million pieces (after-rates forecast).

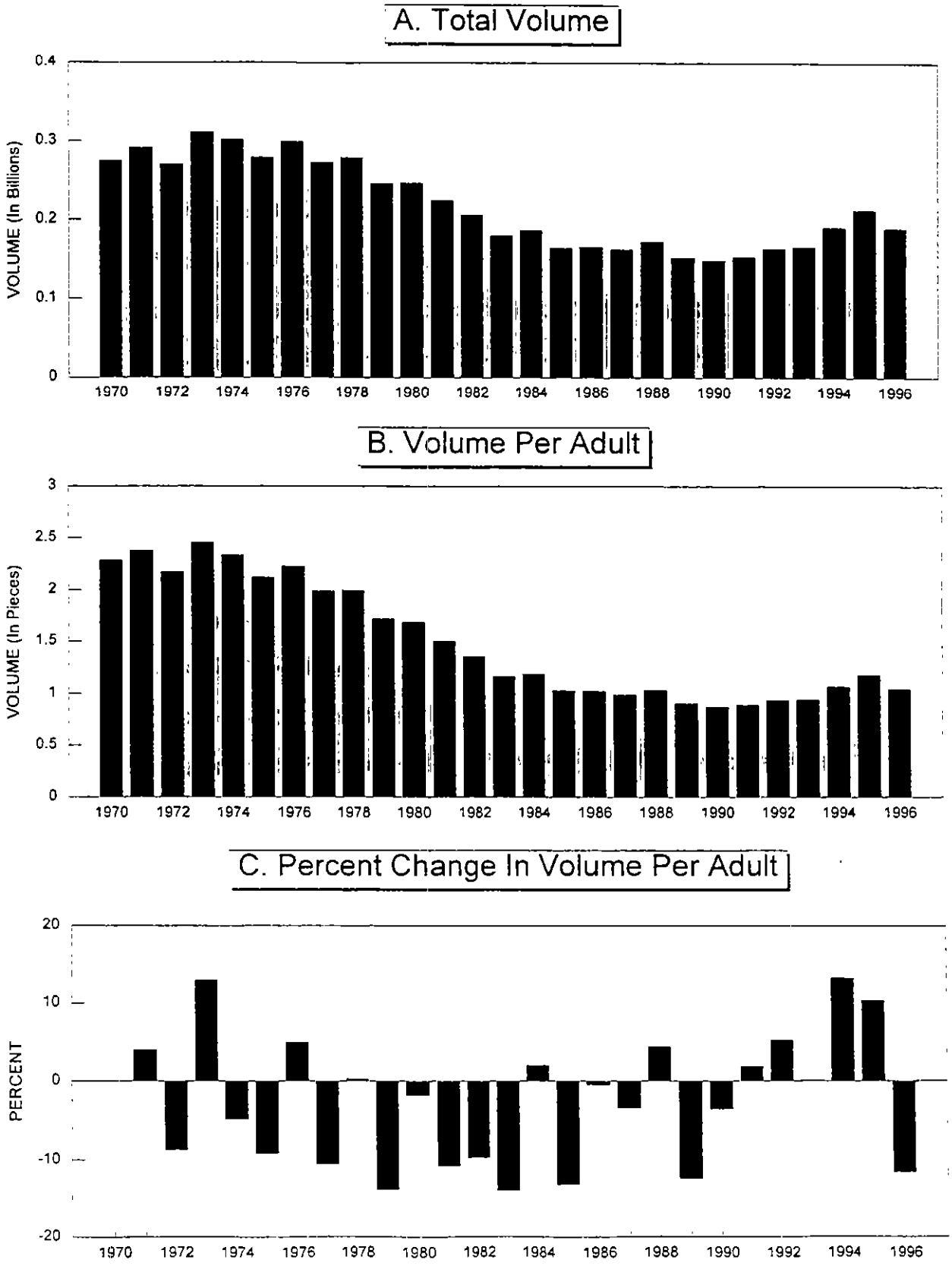
D. Standard B Special Rate Mail

1. Definition

Standard B special rate mail includes books, literary manuscripts, compact discs and cassette tapes, small films, and educational materials such as charts and mathematical tables. Book clubs, music clubs, and book publishers account for 95 percent of the special rate mail volume. Special rate mail is not zoned, but postage varies by weight. Two Presort rates are available.

Figure 18

Standard Special Rate



2. Volume Changes

As shown in Figure 18, the volume of special-rate mail declined between the mid-1970's and the early 1990's, but has recovered slightly in the mid-1990's. In 1996, volume per adult was 1.05 pieces, up from 0.88 pieces in 1990, but 54 percent less than the 2.289 pieces per adult in 1970.

3. Factors Affecting Volume

a. Prices

The real price of special rate mail increased by 5.1 percent between 1992 and 1997. With an estimated long-run own price elasticity of -0.362, the price change increase is estimated to have caused special rate mail volume to decline 1.77 percent over the period.

b. Income

The elasticity of special rate mail volume with respect to permanent income per adult is estimated to be 0.307. Consequently, the 4.8 percent increase in permanent income per adult over the past five years contributed 1.45 percent to special rate volume.

Transitory income, reflecting changes in the business cycle and measured by an index of capacity utilization, increased 5.1 percent over the past five years. It is estimated that a one percent increase in transitory income leads to a 0.700 percent increase in special rate mail volume. Applying this estimated elasticity to the increase in transitory income results in a 3.55 percent increase in volume, as shown in Table 18.

c. 1994 Rule Change

In 1994, eligibility requirements for library rate mail were tightened, causing some mailers to send their mail as special rate instead. Table 18 shows that there was a 15.28 percent increase in the volume of special rate mail associated with the 1994 rule change.

d. Adult Population

Growth in adult population contributed 5.64 percent to the volume of Standard B special rate mail over the past five years.

e. Other Factors

i. 1992 - 1997 Net Trend

Table 18 shows that in addition to the impact of own price, permanent and transitory income, and adult population, other factors were responsible for a 0.98 percent decline in special rate mail volume from 1992 to 1997. The impact of these non-econometric influences over the previous five years can be expressed as an annual net trend of -0.20 percent.

ii. Reasons for Net Trend

a) Compact Disc and Audio Tape Sales

Sales of compact discs and audio tapes, two important contributors to Standard B special rate mail volume, have witnessed strong growth over the past several years. According to the Recording Industry Association of America, combined shipments of compact discs and cassettes have risen from 729 million in 1990 to over 1 billion in 1994, more than a 37 percent increase in four years. Some of these shipments are sent directly to consumers, from music clubs for instance.

b) Book Sales

Total units of books sold increased from 2,005 million in 1990 to 2,127 million in 1994, a little more than a 6 percent increase, according to The Statistical Abstract. Sales directly to consumers, more reflective of the kinds of books sent special rate, rose from 104 million to 110 million over the same four year period.

iii. Net Trend for Forecast

The five-year net trend for special rate mail is a small -0.20 percent. Review of the forecast error analysis indicates that special rate volume has recovered somewhat in the most recent postal year, suggesting that any negative influences on volume are waning. Consequently, no net trend is used in the forecast for Standard B special rate mail.

4. Volume Forecast

The forecast is 200.562 million pieces of special rate mail for the Test Year if present postal rates are continued (before-rates forecast). If the rates recommended by the Postal Service are adopted, the forecast is 200.511 million pieces (after-rates forecast).

E. Standard B Library Rate

1. Definition

Schools, colleges, universities, public libraries, museums, herbariums, and nonprofit organizations are eligible to send Standard B mail at a preferred rate known as Standard B library rate. No permit is required as would be the case for other preferred rate categories such as second- and Standard A nonprofit mail. It is required only that the address or return address be that of an eligible institution and that the label Library Rate appear conspicuously on both sides of the package.

A common use of library rate is the sending of books from publishers and distributors to schools, colleges, universities, and public libraries. This use accounts for 23 percent of library rate mail pieces according to the Preferred Rate Study. Another common use is for inter-library loan materials. Overall, libraries send 21 percent of the total library rate volume. Thirty-two percent of the library rate is by educational organizations.

As in the case of special rate, rates are based on weight but not distance. Phased increases mandated for preferred subclasses have raised rates for library rate mail.

2. Volume History

The top panel of Figure 19 shows annual total volume for Standard B library rate. Total volume increased by 122 percent from 1970, when it was 26.9 million pieces, to 1980, when it was 59.7 million pieces. Since 1980, total volume has generally declined. The overall decrease from 1980 to 1996 was 49 percent. As shown in the middle panel, movements in volume per adult have been similar to total volume movements. Although 1987 saw an increase in per adult volume of 19.9 percent, the 1992 to 1996 period has seen volume per adult fall by 24 percent, to a 1996 level of 0.17 pieces per adult. The movements are also mirrored in the percentage changes in volume per adult in the bottom panel. The large percentage increase in 1977 was associated with a rule change that allowed publishers sending materials to schools and libraries to send them library rate. In 1994, that rule was essentially repealed and access to library rates was limited.

3. Factors Affecting Volume

a. Price

Table 19 shows that the volume of library rate mail declined 38.64 percent from 1992 to 1997. A significant source of that volume decline was the 52.1 percent increase in the real price of library rate mail. Applying the estimated own price elasticity of -0.634 to this percentage price increase yields a decline in volume of 23.36 percent due to price.

b. Income

Growth of permanent income per adult of 4.8 percent over the past five years contributed 1.08 percent to the volume of library rate mail, based on the estimated income elasticity of 0.231.

Figure 19

Standard Library Rate

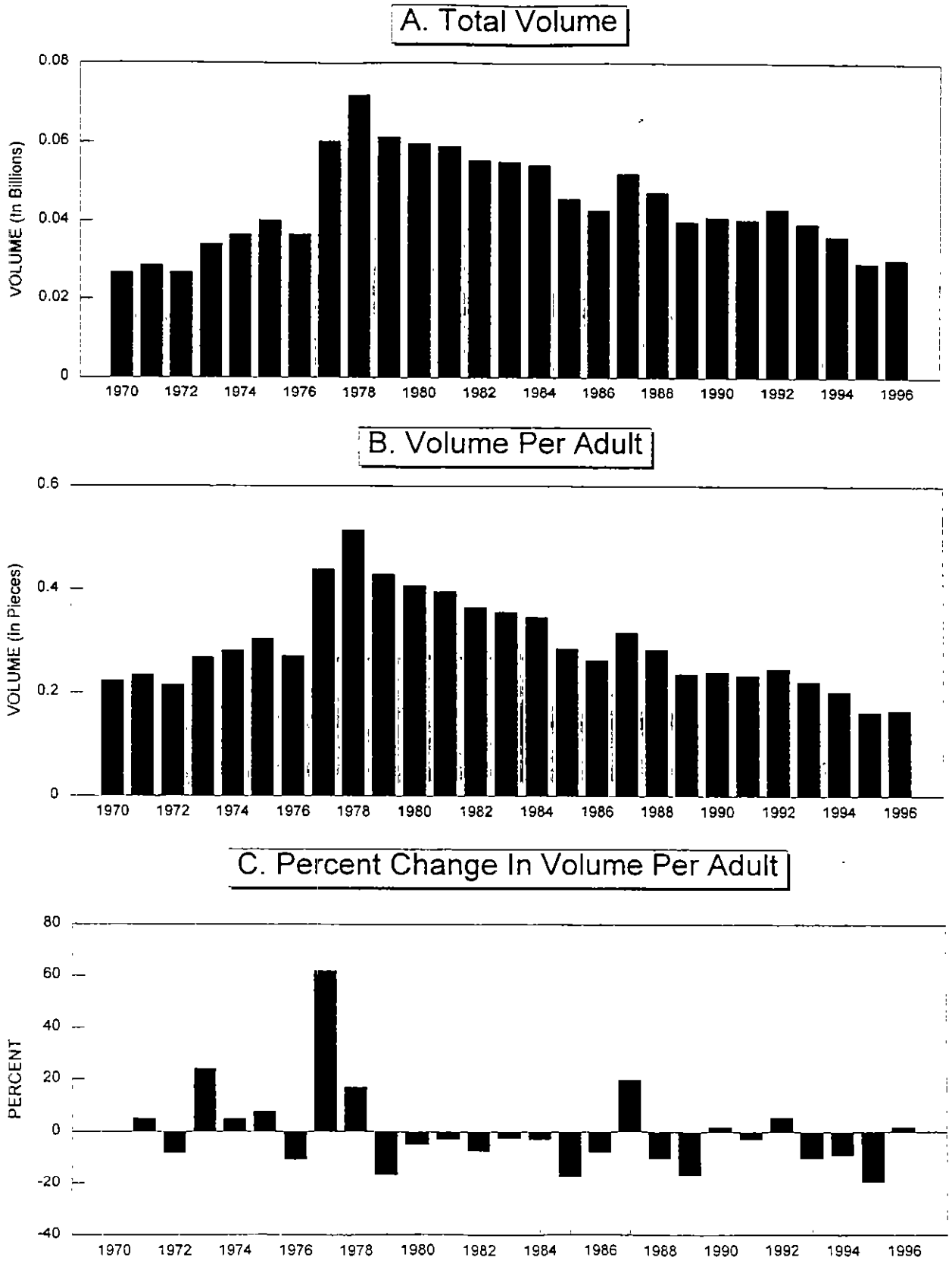


TABLE 19

CONTRIBUTIONS TO CHANGE IN

LIBRARY RATE VOLUME FROM 1992 TO 1997

Variable	Percent Change In Variable	Elasticity	Estimated Effect of Variable on Volume
Own Price	52.1%	-0.634	-23.36%
Permanent Income	4.8%	0.231	1.08%
1994 Rule Change			-24.57%
Adult Population			5.64%
Other Factors			-0.64%
Total Change in Volume			-38.64%

c. 1994 Rule Change

In 1994, eligibility requirements for library rate mail were tightened so that mailings previously sent at the preferred library rate were no longer eligible. It is estimated that this 1994 rule change was responsible for a 24.57 percent decline in library rate mail volume.

d. Adult Population

Table 19 shows that adult population growth added 5.64 percent to the volume of library rate mail over the past five years.

e. Other Factors

i. 1992 - 1997 Net Trend

In addition to the effect of own price, permanent income, the 1994 rule change, and adult population that have been discussed, other factors were responsible for a 0.64

percent decline in library rate mail volume from 1992 to 1997. Expressed as an annual net trend, the impact of these other factors is equivalent to a volume decline of 0.13 percent per year.

ii. Reasons for Net Trend

The number of libraries in the United States is likely to have a direct impact on Standard B library rate mail. This is because libraries are the predominant users of this rate class, although academic institutions, museums and other nonprofit organizations are also eligible to send at library rate. The number of libraries in the U.S. has grown slightly more rapidly than adult population. The *1996 Statistical Abstract* reports that the total number of libraries grew from 34,613 in 1990 to 36,445 in 1993, equivalent to an average annual growth rate of 1.76 percent as compared with an annual growth rate of adult population of about one percent. On the other hand, tightened educational budgets act to restrain library rate mail volume.

iii. Net Trend for Forecast

The annual net trend over the past five years is -0.13 percent, suggesting that during this period the negative influences on library rate mail volume have very slightly outweighed the positive influences. However, examination of quarterly volumes and investigation of the forecast error analysis program indicate that this five-year decline in library rate mail volume is not consistent with a downward trend. Library rate mail volume remains a somewhat volatile subclass, subject to quarterly volume changes of twenty percent or more. It does not appear that persistent net trend is at work for this subclass. Consequently, a net trend projection factor of 1.00000, equivalent to no net trend, is used in the volume forecasts.

4. Volume Forecast

The above considerations lead to a forecast of 30.245 million pieces of Standard B library rate mail for the Test Year, if present postal rates are continued (before-rates forecast). In the after-rates scenario, most library rate mail is expected to be charged rates otherwise applicable to special rate mail. In view of this situation, the after-rates forecast for library rate mail in the Test Year is 28.709 million pieces.

VII. POSTAL PENALTY AND FREE-FOR-THE-BLIND MAIL

A. Postal Penalty

1. Definition

Penalty mail consists of official mail sent by U.S. Government agencies relating solely to the business of the U.S. Government. Penalty mail is allowed to be sent without prepayment of postage. The Postal Service is subsequently reimbursed for penalty mail by the agencies.

2. Volume History

As shown in Figure 20, postal penalty mail volume has declined in every year since 1992, both on an absolute and per-adult basis.

3. Factors Affecting Volume

a. Adult Population

As shown in Table 20, adult population is the only econometric factor estimated to affect the volume of postal penalty mail, contributing 5.64 percent to volume over the past five years.

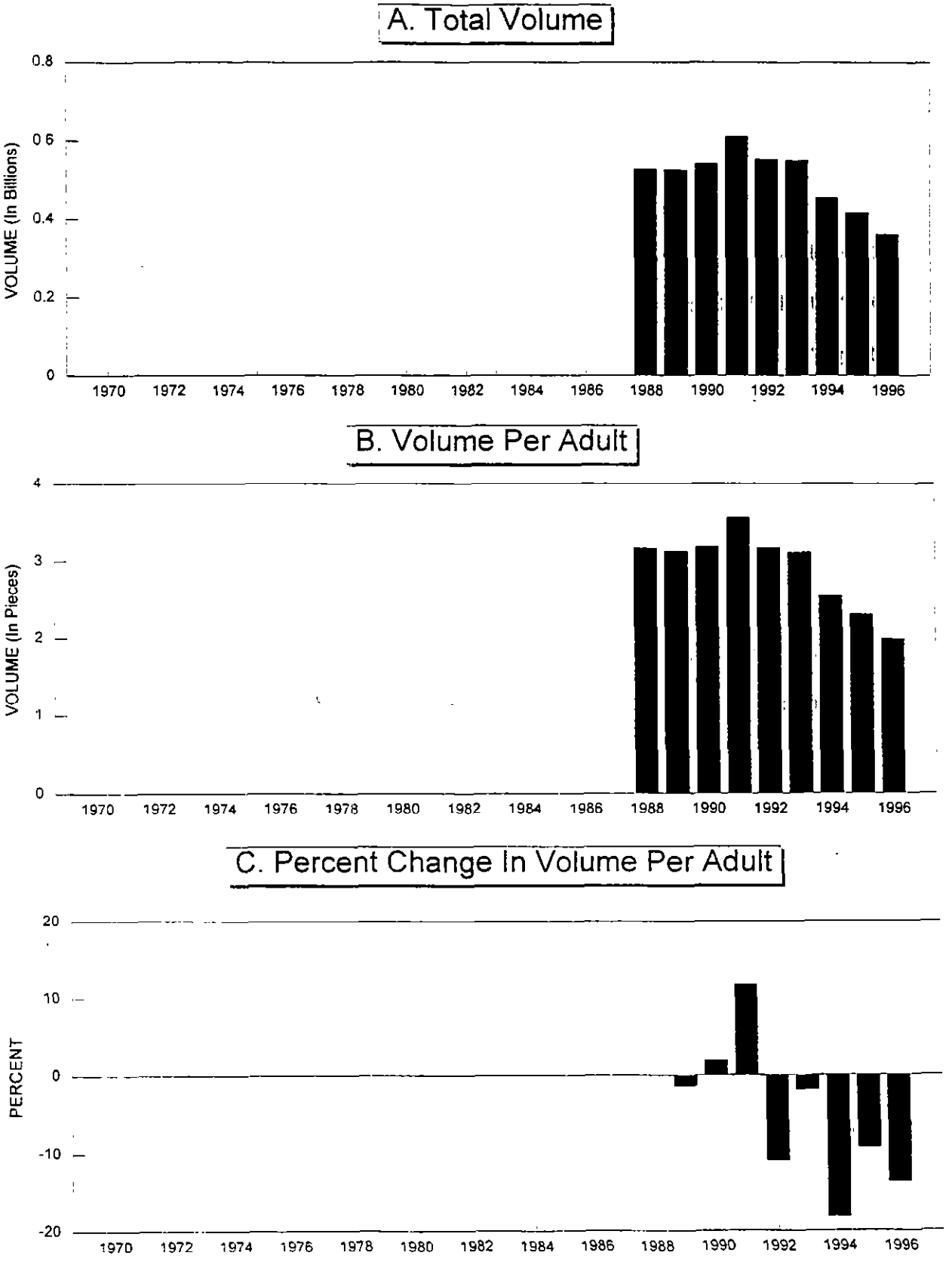
TABLE 20

CONTRIBUTIONS TO CHANGE IN
POSTAL PENALTY VOLUME FROM 1992 TO 1997

Variable	Estimated Effect of Variable on Volume
Adult Population	5.64%
Other Factors (5 year Net Trend)	-42.64%
Total Change in Volume	-39.04%

Figure 20

Postal Penalty



b. Other factors

i. 1992 - 1997 Net Trend

The five year net trend for postal penalty mail, reflecting factors other than population, is -42.64 percent. The trend equals an annual net trend of -10.52 percent.

ii. Reasons for Net Trend

The decline in postal penalty mail is consistent with efforts by the Postal Service to discourage use of this product.

iii. Net Trend for Forecast

It is projected that the non-econometric factors that influenced the volume of postal penalty mail over the past five years will act in the same manner in the future. Therefore, the net trend used in the forecast is the same as observed from 1992 to 1997, yielding a net trend projection factor of 0.894783.

4. Volume Forecast

Since there is no rate to which volume can respond, the before-rates forecast and the after-rates forecast for postal penalty mail are identical. Projecting the influence of population and the net trend from the Base Year to the Test Year gives a forecast for postal penalty mail for both before- and after-rates in the Test Year of 297.820 million pieces.

B. Free-for-the-Blind

1. Definition

Free-for-the-blind mail includes materials and devices for those unable to read conventionally. No postage is charged for authorized mailings of these items. Customers who are eligible to mail this category must be on record at their local post office.

2. Volume History

As shown in Figure 21, volume of free-for-the-blind mail almost doubled from 1970 to 1980. Overall, while reported volume is somewhat erratic, and the volume in 1981 appears to be abnormally high, free-for-the-blind mail volume has displayed a general tendency to grow, rising from the 1970s to 1980s, being more level in the 1980's and then rising again in the 1990s. Volume in 1996 was 50 million pieces, 44 percent higher than in 1990. The long-term trend in volume per adult has been upward. Volume per adult has increased from 0.13 in the mid-1970's to 0.20 in the mid-1980's to 0.27 in 1996.

3. Factors Affecting Volume

a. Adult Population

As shown in Table 21, adult population is the only econometric factor estimated to affect the volume of free-for-the-blind mail contributing 5.64 percent to the volume of free-for-the-blind mail.

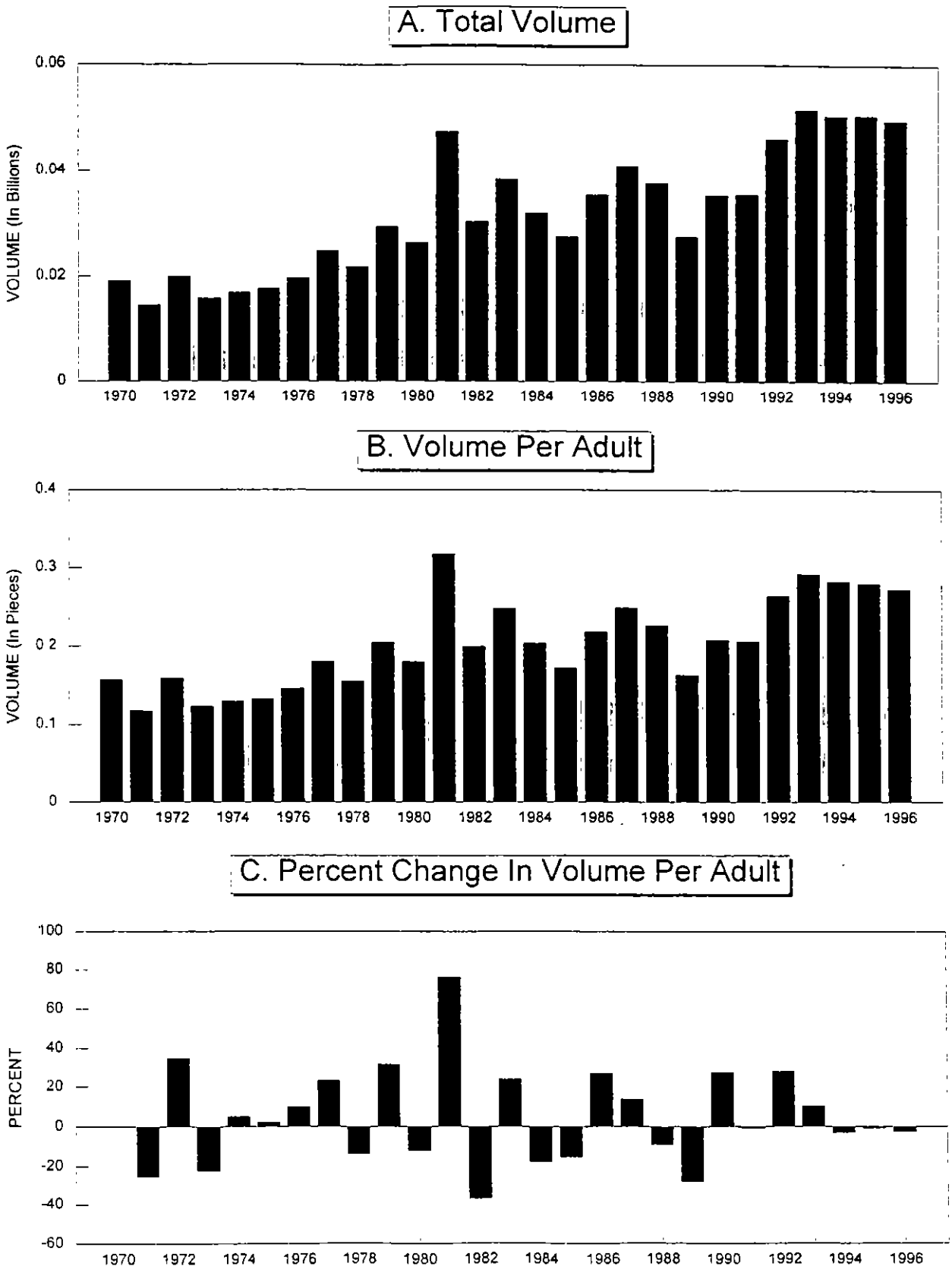
TABLE 21

CONTRIBUTIONS TO CHANGE IN
FREE-FOR-THE-BLIND VOLUME FROM 1992 TO 1997

Variable	Estimated Effect of Variable on Volume
Adult Population	5.64%
Other Factors (5 year Net Trend)	34.00%
Total Change in Volume	41.84%

Figure 21

Free-for-the-Blind



b. Other Factors

i. 1992 - 1997 Net Trend

The five year net trend for free-for-the-blind mail, reflecting factors other than population, is 34.00 percent. The impact of these other factors equals an annual net trend of 6.03 percent.

ii. Reasons for Net Trend

Growth in free-for-the-blind mail is consistent with an increase in resources committed to the disabled. The aging population may also be responsible for an increase in the number of blind and sight-impaired readers, leading to growth in free-for-the-blind mailings.

iii. Net Trend for Forecast

It is projected that the non-econometric factors that influenced the volume of free-for-the-blind mail over the past five years will act in the same manner in the future. Therefore, the net trend used in the forecast is the same as observed from 1992 to 1997, giving an annual projection factor of 1.060285.

4. Volume Forecast

Since there is no rate to which volume can respond, the before-rates forecast and the after-rates forecast for free-for-the-blind mail are identical. Projecting the influence of population and the net trend from the Base Year to the Test Year gives a forecast for free-for-the-blind mail for both before- and after-rates in the Test Year of 56.390 million pieces.

VIII. SPECIAL SERVICES

A. General Characteristics

The five special services are included in this section are registry service, insured mail, certified mail, collect-on-delivery service, and postal money orders. Registry service, insurance, and certified mail service are used to provide added security, to protect the value of the mail, and to verify that the mail piece was sent through the Postal Service. Collect-on-delivery service is used as a method of payment for mail pieces delivered by the Postal Service. Money orders are considered a non-mail service, as money orders can be purchased from any post office for a fee to be used for payment of sums of money or travelers' check as a bank check and need not be used in conjunction with the mail.

In Postal Year 1996, there were 18.4 million registered mail pieces, 28.7 million insured mail pieces, 268.5 million pieces of certified mail, 4.9 million collect-on-delivery pieces and 211.5 million money orders. The total volume of special services, including a very small volume of the to be discontinued special delivery service, was 532.2 million transactions in 1996.

B. Registry

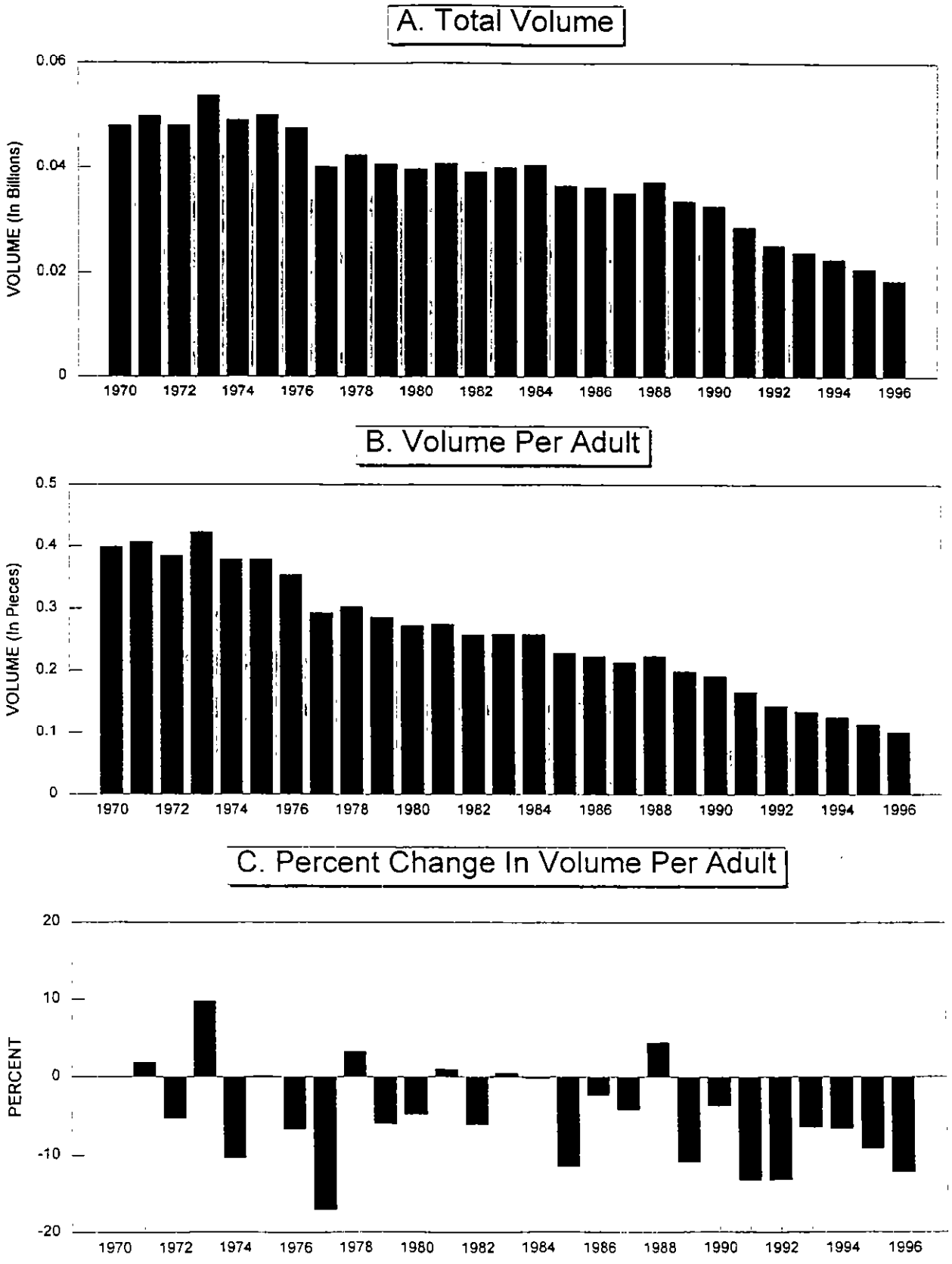
1. Definition

Registry is a special service for First-Class mailers, providing added protection for valuable mail and payment for damaged or lost mail.

2. Volume History

Figure 22 shows the history of the volume of registry transactions. In the decade from 1970 to 1980, total volume declined 17.4 percent from 48 million pieces in 1970 to 39.7 million pieces in 1980. Volume for 1996 declined a further 64.9 percent from 1980 volume, ending at 18.3 million pieces. Volume per adult followed a similar pattern, showing

Figure 22
Registry



decreases almost every year since the early 1970s. Volume per adult was 0.40 transactions in 1970, 0.27 transactions in 1980, and 0.10 transactions in 1996.

3. Factors Affecting Volume

a. Price

The real price of Registry mail decreased 3.5 percent over the past five years. It is estimated that the own price elasticity of Registry mail is 0.413. Applying this elasticity to the 3.5 percent decline in real price produces an increase in volume of 1.47 percent, as shown in Table 22.

b. Income

Both permanent and transitory income positively affect the volume of Registry mail, though the estimated impacts of the two variables differ. A one percent increase in permanent income per adult is estimated to lead to 0.505 percent increase in Registry volume. The estimated elasticity of volume with respect to transitory income is 0.202 percent. Therefore, the 4.7 percent increase in permanent income per adult contributed 2.37 percent to the volume of Registry mail while the 5.1 percent increase in transitory income added an additional 1.01 percent to volume.

c. Adult Population

Adult population growth added 5.64 percent to the volume of Registry mail over the past five years.

d. Other Factors

i. 1992 - 1997 Net Trend

Table 22 summarizes the analysis of the above econometrically estimated effects on volume from 1992 to 1997. After allowing for these effects, it is found that other factors were responsible for a 39.68 percent decline in volume. On an annual basis, this is equal to a net trend of -9.62 percent per year for the most recent five year period.

TABLE 22

CONTRIBUTIONS TO CHANGE IN
REGISTRY MAIL VOLUME FROM 1992 TO 1997

Variable	Percent Change In Variable	Elasticity	Estimated Effect of Variable on Volume
Own price	-3.5%	-0.413	1.47%
Income			
Permanent	4.7%	0.505	2.37%
Transitory	5.1%	0.202	1.01%
Adult Population			5.64%
Other Factors			-39.68%
Total Change in Volume			-33.01%

ii. Reasons for Net Trend

In addition to its security features, registry mail combines the services of certified and insured mail by providing a record of the mailing and insurance up to $600. In general, the use of mail insurance has declined. That decline may be attributable, importantly to the increased provision of insurance by credit card companies. Merchandise is frequently insured at the time of purchase, making registered mail unnecessary.

iii. Net Trend for Forecast

It is estimated that the decline in registered mail will continue into the future due to the continuation of the reasons for the net trend. The forecast error analysis confirms the persistence of the downward trend over the past five years. Therefore, a net trend factor of 0.903845, the same as the five-year mechanical net trend, is used in the volume forecasts.

4. Volume Forecast

The volume projection of registered mail for the Test Year before-rates is 16.195 million pieces, and the after-rates projection is 14.288 million pieces.

C. Insured

1. Definition

Insurance provides reimbursement for loss or damages. Insurance may not be purchased for unusually fragile or ill-prepared articles.

2. Volume History

As reflected in the upper panel of Figure 23, the total number of insured transactions declined by 51 percent in the decade from 1970 to 1980. Total volume declined a further 48.8 percent from 1980 to 1996. Total volume was 112.3 ,million pieces in 1970 compared to only 28.7 million pieces in 1996. Volume per adult, shown in the middle panel, followed this pattern of decline, beginning at 0.94 pieces per adult in 1970, dropping to 0.38 pieces in 1980, and ending up at 0.16 pieces per adult in 1996. As the bottom panel shows, every year except 1983, 1990 and 1994 has shown a relatively strong decline in total transaction volume per adult.

3. Factors Affecting Volume

a. Price

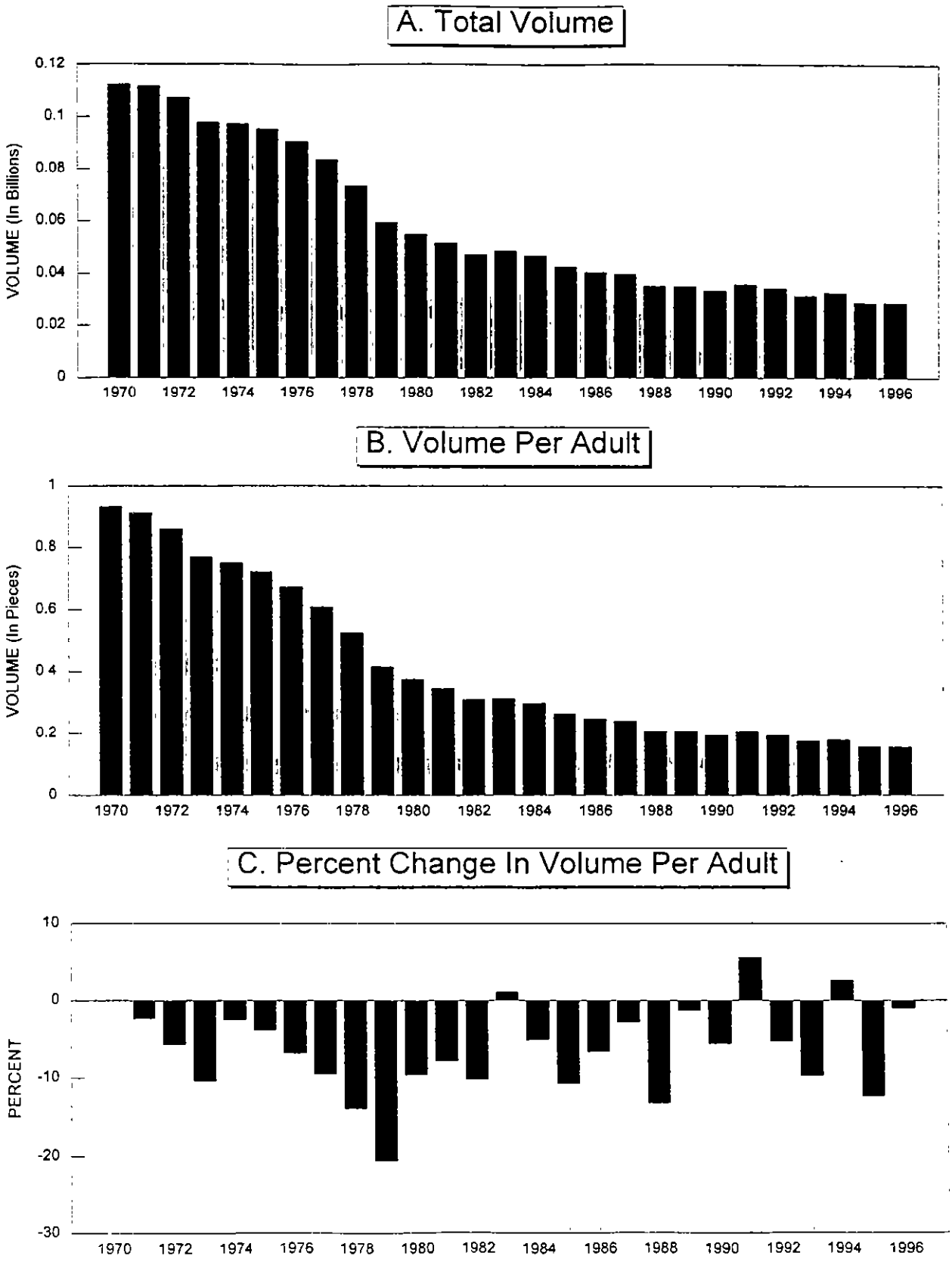
Table 23 shows that the real own price of mail insurance declined 10.1 percent in the past five years. Applying an estimated long-run price elasticity of -0.105 to this price decline yields an increase in volume of 1.12 percent due to this factor.

b. Income

A one percent increase in permanent income per adult is estimated to increase insurance volume by 0.505 percent. Therefore, the 4.8 percent increase in permanent

Figure 23

Insurance



income per adult over the past five years contributed 2.40 percent to the volume of mail insurance.

c. Parcel Post Volume

Insurance is often purchased on parcel post mailings. Therefore, changes in the volume of parcel post can be expected to effect the volume of insurance. It is estimated that the 48.5 percent increase in parcel post volume contributed 16.48 percent to the volume of insured mail, as shown in Table 23.

d. Adult Population

Adult population growth added 5.64 percent to the volume of insured mail over the past five years.

e. Other Factors

i. 1992 - 1997 Net Trend

Table 23 summarizes the reasons for the change in insured mail volume from 1992 - 1997. In addition to the econometrically estimated effects, other factors were responsible for a 29.73 percent decline in the volume of insured mail over the fiver year period decline corresponds to an annual net trend of -6.81 percent.

ii. Reasons for Net Trend

The same factors that explain the negative net trend for registry mail also help explain the negative net trend for insured mail. One of the major factors is the increased frequency with which credit card companies insure materials at the time of purchase, making registered mail unnecessary.

TABLE 23

CONTRIBUTIONS TO CHANGE IN
INSURED MAIL VOLUME FROM 1992 TO 1997

Variable	Percent Change In Variable	Elasticity	Estimated Effect of Variable on Volume
Own price	-10.1%	-0.105	1.12%
Permanent Income	4.8%	0.505	2.40%
Parcel post volume	48.5%	0.392	16.48%
Adult Population			5.64%
Other Factors			-29.73%
Total Change in Volume			-19.90%

iii. Net Trend for Forecast

The Forecast Error Analysis indicates that this negative net trend may be waning to some degree. The four-quarter average of SPLY differences is -0.049323, suggesting that a small negative net trend is appropriate. Accordingly, the net trend factor used in the forecast of insured mail is the four-year mechanical net trend of 0.961958, equivalent to an annual net trend of about -3.8 percent.

4. Volume Forecast

The volume projection for insured mail for the Test Year before-rates is 30.245 million pieces. The after-rates projection is 28.709 million pieces.

D. Certified

1. Definition

Certified mail is a less expensive substitute for "no value" registered First-Class Mail. No insurance coverage is offered with this service, and certification is available only for First-Class Mail. Certified mail provides the mailer with a mailing receipt and a record of delivery is maintained at the delivery office. The service may also be used in conjunction with restricted delivery and return receipt services to provide both enhanced control of delivery and proof of delivery.

2. Volume History

As shown in Figure 24, in the decade from 1970 to 1980, total certified mail volume increased 67 percent, increased 103 percent from 1980 to 1990, and increased another 41 percent between 1990 and 1996. Volume per adult has grown from 0.47 transactions in 1970, to 0.64 transactions in 1980, to 1.12 transactions in 1990, to 1.48 transactions per adult in 1996.

3. Factors Affecting Volume

a. Price

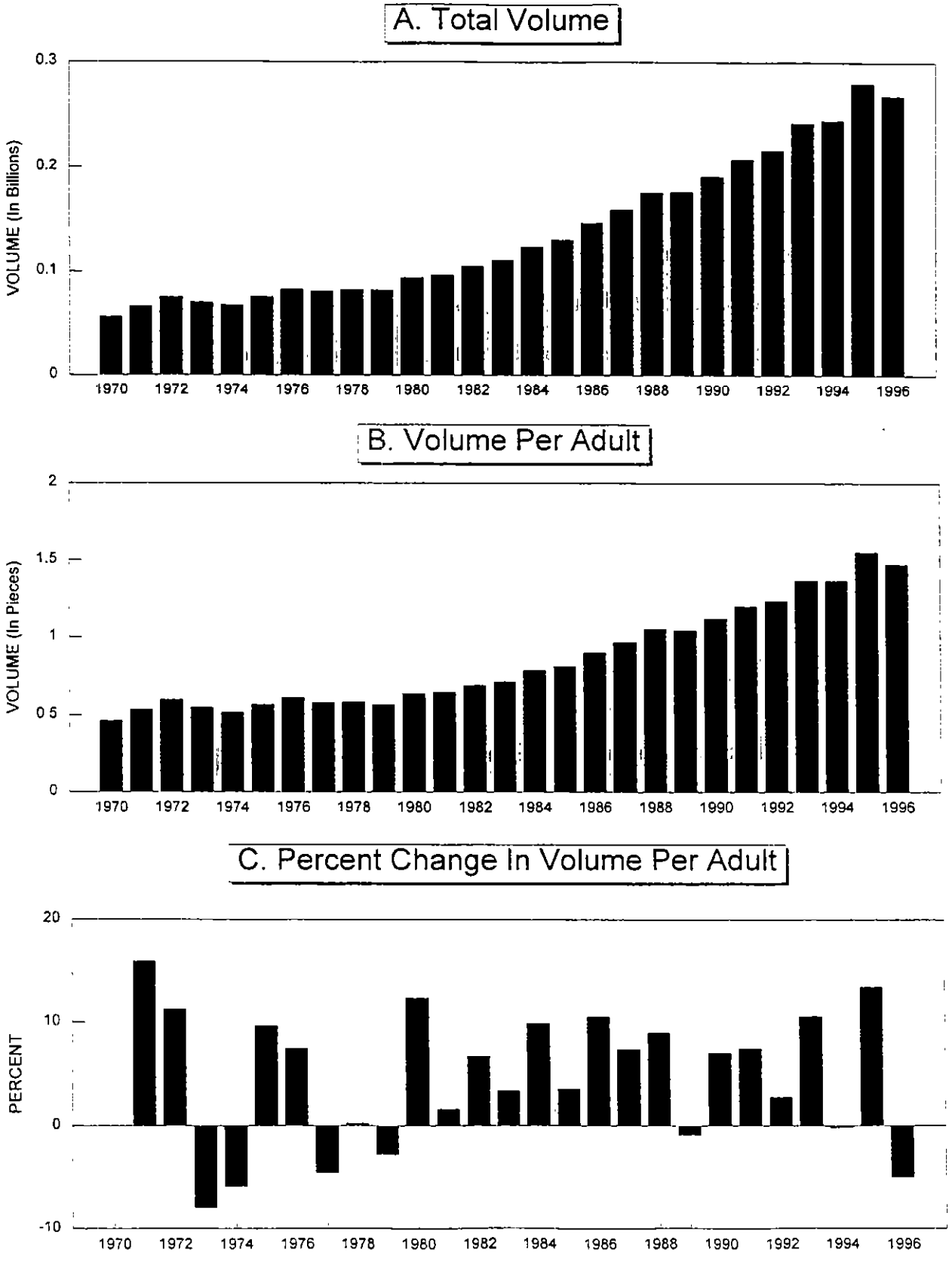
Table 24 shows that the real price of certified mail increase 0.3 percent over the past five years. Applying the estimated long-run own price elasticity of -0.287 to this percentage change in price yields a decline in volume of 0.09 percent.

b. Income

Permanent income per adult increased 4.7 percent over the past five years leading to a 2.37 percent increase in the volume of certified mail, after applying the estimated elasticity of 0.505. Transitory income contributed 1.00 percent to the volume of certified mail, based on applying the estimated elasticity of 0.200 to the 5.1 percent increase in transitory income since 1992.

Figure 24

Certified Mail



c. Adult Population

Growth in adult population was responsible for a 5.64 percent increase in the volume of certified mail.

d. Other Factors

i. 1992 - 1997 Net Trend

Table 26 shows that in addition to the impact of changes in own price, income, and adult population, other factors were responsible for a 24.68 percent increase in certified mail volume from 1992 to 1997. The impact of these other factors is equivalent to an annual net trend of 4.51 percent.

TABLE 24

CONTRIBUTIONS TO CHANGE IN
CERTIFIED MAIL VOLUME FROM 1992 TO 1997

Variable	Percent Change In Variable	Elasticity	Estimated Effect of Variable on Volume
Own price	0.3%	-0.287	-0.09%
Permanent Income	4.7%	0.505	2.37%
Transitory Income	5.1%	0.200	1.00%
Adult Population			5.64%
Other Factors			24.68%
Total Change in Volume			35.70%

ii. Reasons for Net Trend

Increases in financial and legal transactions requiring certification help to explain the growth of certified mail.

iii. Net Trend in Forecast

The forecast error analysis shows a generally consistent pattern of recent growth, supporting the expectation that the net trend will continue. Consequently, the annual net trend used in the forecast period is 4.51 percent, as it was from 1992 to 1997, yielding an annual net trend projection factor of 1.045100.

4. Volume Forecast

The volume projection for the Test Year before-rates is 304.153 million pieces. The after-rates projection is 293.118 million pieces.

E. Collect-on-Delivery

1. Definition

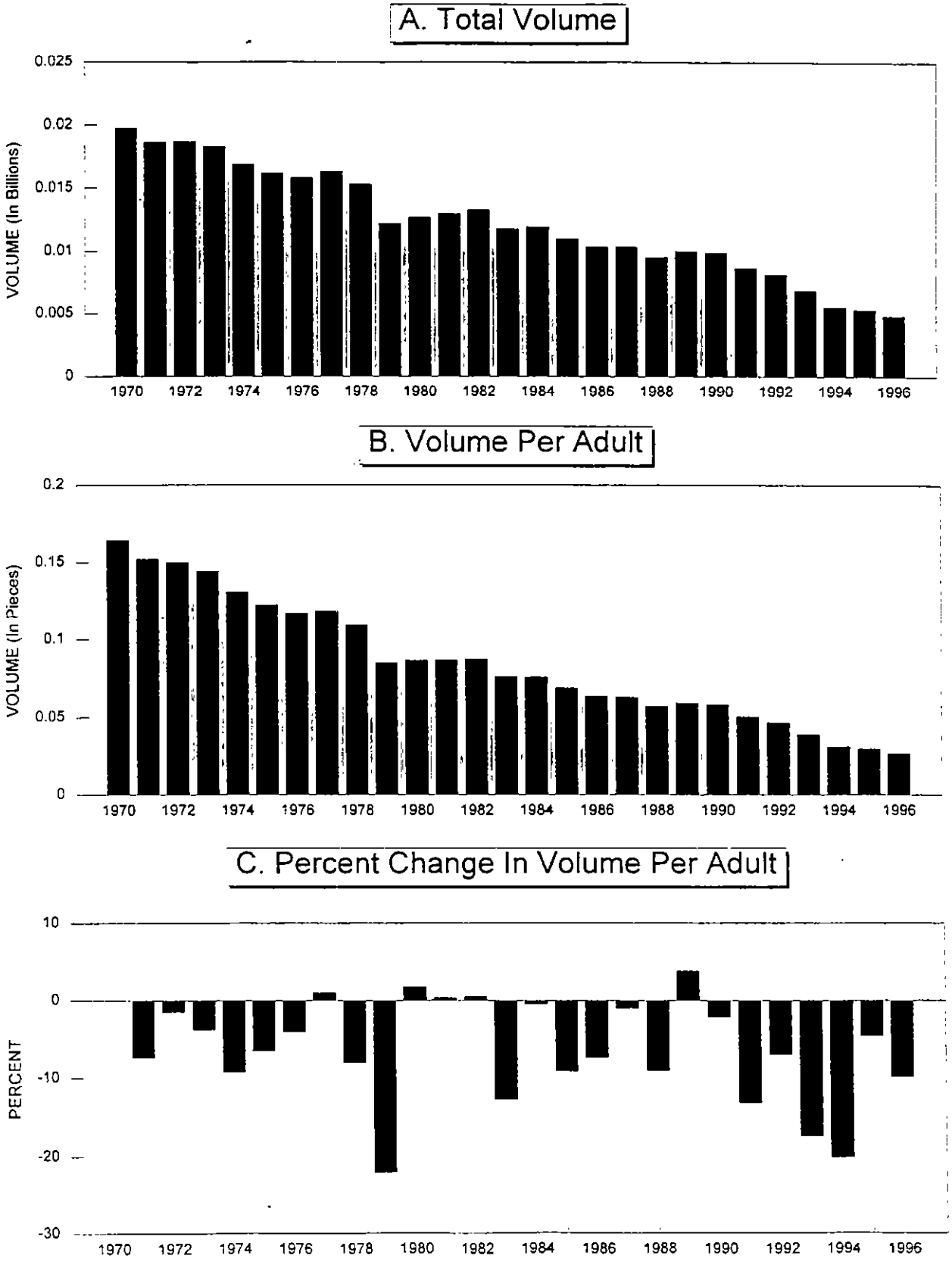
Collect-on-delivery (COD) is used primarily by businesses mailing to individuals. The remainder of any payment due for an article and the cost of postage is paid at the time of delivery, and the amount collected is returned to the mailer by a postal money order or personal check. The current maximum COD payment is $600. This service may be used with First-Class, Standard A and Standard B mail.

2. Volume History

As Figure 25 shows, in the decade from 1970 to 1980, collect-on-delivery volume declined 36 percent. Further decreases in COD volume have occurred since 1980, with transactions falling by 32 percent from 12.7 million transactions in 1980 to 9.9 million transactions in 1990. Total volume has continued to fall in the 1990s to 4.9 million transactions in 1996. Volume per adult has followed the same pattern as total volume: 0.16 pieces per adult in 1970, 0.09 pieces in 1980, 0.06 pieces in 1990, and finally to 0.03 pieces in 1996.

Figure 25

COD



3. Factors Affecting Volume

a. Price

It is estimated that the long-run own price elasticity of COD volume is -0.182. Applying this elasticity to the 25.0 percent increase in the real price of COD transactions over the past five years yields a 3.98 percent decline in volume due to this factor.

b. Income

Permanent income per adult increased 4.8 percent from 1992 to 1997. Table 25 shows that the estimated elasticity of COD volume with respect to permanent income is 0.505. Therefore, the growth in permanent income per adult contributed 2.37 percent to COD volume over the past five years.

c. Adult Population

Increases in adult population added 5.64 percent to the volume of COD transactions over the past five years.

d. Other Factors

i. 1992 - 1997 Net Trend

Table 25 summarizes the impact of the econometrically estimated variables on the volume of COD transactions over the past five years. Other factors were responsible for a 46.51 percent decline in COD volume during this time period. The impact of these other factors is equivalent to an annual net trend of -11.76 percent for the 1992 to 1997 period.

TABLE 25

CONTRIBUTIONS TO CHANGE IN
COD VOLUME FROM 1992 TO 1997

Variable	Percent Change In Variable	Elasticity	Estimated Effect of Variable on Volume
Own price	25.0%	-0.182	-3.98%
Permanent Income	4.8%	0.505	2.37%
Adult Population			5.64%
Other Factors			-46.51%
Total Change in Volume			-44.69%

ii. Reasons for Net Trend

The negative trend of Collect-on-Delivery (COD) mail volume may be due importantly to the increased use of credit cards to pay for mail-order merchandise. Credit card payments are more convenient for mail-order merchants since the payment is secured through the credit card company, not the Postal Service. At the same time, many mail-order purchases are paid for through direct billing of a buyer's telephone number, further reducing the demand for collect-on-delivery services.

iii. Net Trend for Forecast

As Figure 25 shows, COD volume has been declining throughout the past 25 years. There is no evidence of any cessation of this downward trend as the shift toward alternative means of payment is expected to continue. The net trend factor used in the volume forecast is the five-year mechanical net trend of 0.882390, equal to an annual net trend of about -11.8 percent.

4. Volume Forecast

The before-rates projection for COD volume is 3.936 million pieces for the Test Year. The after-rates projection is 3.886 million pieces.

F. Money Orders

1. Definition

Money orders are used as a substitute for cash or checks in making financial transactions. The current maximum amount is $700 for a single money order. There is a limit of $10,000 per individual per day. Money orders also are used to transfer funds received during collect-on-delivery transactions to the firm sending the merchandise.

2. Volume History

Figure 26 shows the recent volume history for money order transactions. In the decade from 1970 to 1980, the total number of transactions declined 36 percent. Transactions per adult decreased from 1.51 transactions in 1970 to 0.79 transactions in 1980. In contrast, the 1980s and 1990's have seen money order volumes continually increase from a low of 109 million transactions in 1982 to 212 million transactions in 1996.

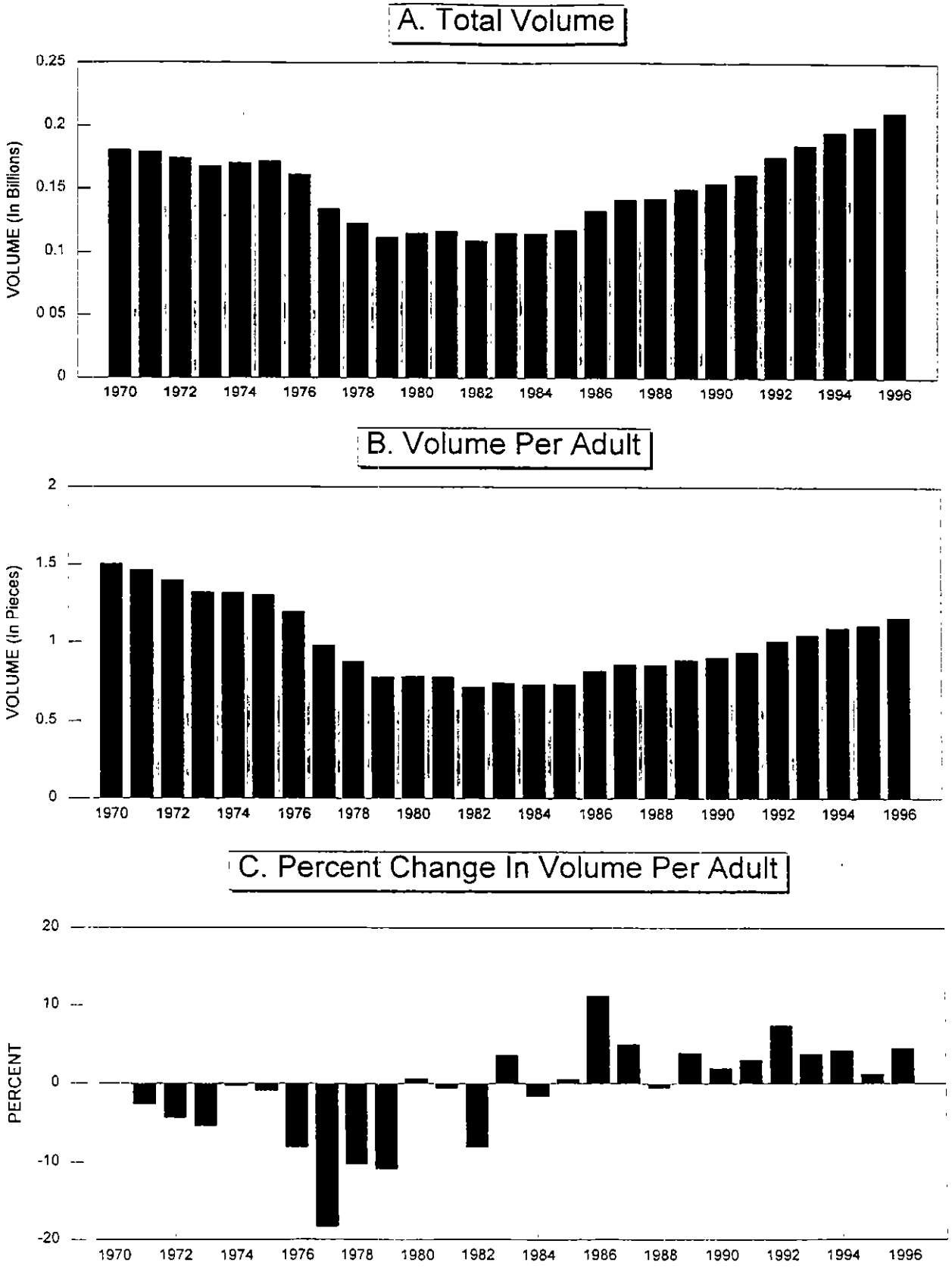
3. Factors Affecting Volume

a. Price

It is estimated that the long-run own price elasticity of money orders is -0.391. Table 26 shows that the real own price of money orders increased 2.7 percent over the past five years. Applying the estimated elasticity to this increase in price yields a decline in money order volume of 1.03 percent.

Figure 26

Money Order



b. Income

The elasticity of money order volume with respect to permanent income per adult is estimated to be 0.505. Permanent income per adult increased 4.7 percent over the past five years. Table 26 shows that this increase in permanent income per adult contributed 2.37 percent to the volume of money orders.

The elasticity of money order volume with respect to transitory income is 0.223. Therefore, the 5.1 percent increase in transitory income over the past five years contributed 1.12 percent to the volume of money orders.

c. Adult Population

Growth in adult population contributed 5.64 percent to the volume of money orders over the past five years.

d. Other Factors

i. 1992 - 1997 Net Trend

Table 26 shows the effect on money order volume of changes in money order price, long-run and transitory income, and adult population. In addition to these econometrically estimated effects, other factors contributed 17.77 percent to the volume of money orders over the past five years. The impact of these non-econometric influences is equivalent to an annual net trend of 3.32 percent which would completely explain the total change in money order volume from 1992 - 1997.

TABLE 26

CONTRIBUTIONS TO CHANGE IN
MONEY ORDER VOLUME FROM 1992 TO 1997

Variable	Percent Change In Variable	Elasticity	Estimated Effect of Variable on Volume
Own price	2.7%	-0.391	-1.03%
Permanent Income	4.7%	0.505	2.37%
Transitory Income	5.1%	0.223	1.12%
Adult Population			5.64%
Other Factors			17.77%
Total Change in Volume			27.43%

ii. Reasons for Net Trend

As financial transactions, money orders may tend to share in the general rise in financial transactions discussed in connection with the net trend for First-Class letters. In particular, money orders provide a means of making payments for individuals who do not have a regular checking account where numbers may have grown. Foreign tourists and immigrants are also less likely to have a regular checking account, and will use money orders instead for domestic and international financial transactions.

Reducing the volume of postal money orders, however, is the wider availability of non-postal money orders at drug stores, convenient stores, currency exchanges, and grocery stores. In many cases, these non-postal money order alternatives have more convenient locations and longer hours of operation than the Postal Service.

iii. Net trend for Forecast

From the forecast error analysis, the net trend is consistently positive with recent values similar to the five year net trend. Thus, the net trend factor used in the forecast is the five-year mechanical net trend of 1.033249.

4. Volume Forecast

The volume projection for money orders in the Test Year before-rates is 236.661 million pieces. The after-rates volume is projected to be 236.570 million pieces.

TECHNICAL APPENDIX

FORECAST MODEL

ACCOMPANYING USPS-T-6, R97-1

TECHNICAL APPENDIX
FORECAST MODEL
ACCOMPANYING USPS-T-6, R97-1

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TECHNICAL APPENDIX: FORECAST MODEL

I. INTRODUCTION

This Technical Appendix describes the forecasting methodology. The approach used to forecast mail volumes is to calculate a prediction of the ratio of mail volume in the prediction period to mail volume in the base period. First, the ratio of an explanatory variable in the projection period to its value in the base period is calculated. This ratio is then raised to the power of the elasticity of mail volume with respect to the variable. The resulting expression, called the projection factor for that variable, is multiplied together with the projection factors for all the other explanatory variables to arrive at the ratio of volume in the prediction period to volume in the base period. Multiplying this ratio by the Base Year volume yields a prediction of mail volume in the prediction period.

Volume projections are made in this manner for each future quarter through the Test Year, and then the quarters of the Test Year are summed and adjusted for timing differences between a Postal and Government Fiscal Year to obtain the projection of Test Year volume.

The organization of this appendix is as follows. The next section, Section II, contains a descriptive overview of the model and the general approach used by the Postal Service to project mail volumes. Section III presents an in-depth description of the model and techniques used in the postal volume forecasts. First, the derivation of a simplified version of the postal forecasting model involving projection factors from a conventional demand

equation is demonstrated, and then the full version of the postal forecasting model is spelled out (Section III.A). This includes definitions and formulas for all components of the final forecast. This is followed by descriptions of the procedures used to compute the Base Year volume and various individual projection factors (Section III.B). Finally, the calculation of projected volumes is summarized in this section (Section III.C).

The last section of this appendix describes the use of the Forecast Error Analysis Program based on a five year in-sample forecast. First, the output of the Forecast Error Analysis Program is defined and described (Section IV.A). Next, the interpretation of the results from the program is considered (Section IV.B) along with a discussion of its use in choice of net trend for the forecast. Then the entire output of the Forecast Error Analysis Program is presented as Appendix Tables 5 through 33 (Section IV.C).

II. FORECAST METHODOLOGY

A. General Approach

The present summary of the postal volume forecasting method is offered as an overview. The full details are presented in Sections III and IV below, and these are further supplemented by step-by-step calculations applying the method to three subclasses in Workpaper 2, "Step-by-Step Calculation of Volume Projections."

My forecasting model projects mail volumes separately for various mail categories. For each mail category, base period volume (consisting in most cases of the most recent four quarters, i.e. 1996Q3 through 1997Q2) is multiplied by the product of various projection factors to arrive at the volume forecast. The specific projection factors for various mail categories are based on parameters estimated using quarterly time series equations for subclasses; net trend projection factors used in some cases to reflect

subclass influences not measured econometrically; share projection factors is applied to First-Class letters, First-Class cards, standard regular, and standard nonprofit mail to separate the projected total volume into projected volumes of the worksharing categories in the subclass; and quarter length, seasonality and in some cases base volume adjustment multipliers which are largely mechanical in nature and will be described below.

B. Explanation of Projection Factors

The projection factor approach used in the mail forecasting model can be derived from a usual demand function of the type $Q_t=aP_t^bY_t^c$, where Q is quarterly mail volume, a is a constant, P is mail price, Y is income, b and c are elasticities of demand with respect to price and income respectively, and t refers to time period. Q_t, the volume for the period is expressed as a function of Q_0, the volume in the base period, in order to derive projection factors. Since $Q_t = aP_t^bY_t^c$ and $Q_0 = aP_0^bY_0^c$, the ratio Q_t/Q_0 can be expressed as $aP_t^bY_t^c/aP_0^bY_0^c$, or $(P_t/P_0)^b(Y_t/Y_0)^c$. Therefore,

(1) $$Q_t = Q_0 (P_t/P_0)^b(Y_t/Y_0)^c.$$

The term $(P_t/P_0)^b$ in Equation (1) is the price projection factor and the term $(Y_t/Y_0)^c$ is the income projection factor. Equation (1) shows that a projection factor is the ratio of the value of a variable in the projection period to its value in the base period, raised to the power of the elasticity of that variable with respect to volume.

In the actual forecast, additional projection factors arise from more extended demand equations. These include four projection factors for current and lagged prices, two projection factors for income, since both permanent and transitory income are used, seasonal projection factors, and projection factors for various other variables that differ from subclass to subclass. Normalization by adult population, quarter length adjustments

and conversions between annual and quarterly volumes are among the other details in the forecasting model.

The net trend projection factor used for some categories to take account of influences not measured econometrically, takes the form e^{gt} where g is the proportionate change in volume per unit of time due to non-econometrically measured influences and t is the number of periods from the middle of the base period for which volume is being projected. As a starting point for estimating whether a net trend term is needed in the forecast, a net trend term is calculated from the forecast error from an in-sample forecast based on the last five years (in this case 1991Q3-1992Q2 to 1996Q3-1997Q2).

Once the in-sample forecast is made, the five year net trend is computed by comparing the actual volumes in the last year with the in-sample forecasts for the same period. To illustrate calculations of the five year net trend, let Q_a be the sum of actual mail volumes for the final year and let Q_p represent the volumes which are predicted by the in-sample forecast for the final year using a Base Year five years earlier. The five year net trend is computed by the equation $(1 + g)^5 Q_p = Q_a$ (where the net trend is denoted by g) or expressed in terms of the net trend g:

(2) $$g = (Q_a / Q_p)^{1/5} - 1$$

Interpretation of the five-year net trend can be illustrated by considering a hypothetical example. Assume that the five-year net trend computed with the formula above is used to compute the net trend projection factor. Further, assume that the in-sample forecast produces a net trend of 0.02 or 2%. Using the net trend of 2% implies that those non-econometric influences which caused mail volumes to grow by an annual compound rate

of 2% above the volumes predicted from the in-sample forecast are expected to continue into the future.

The annual net trend is denoted g and is the proportionate change (or if multiplied by 100, the percentage change) in volume from one year to the next due to influences not measured econometrically. The annual net trend ratio expresses the effect in ratio form and is the ratio of volume in a year to volume in the previous year in the absence of econometrically measured reasons for change. Algebraically, the annual net trend ratio is 1 + g. The annual net trend ratio is sometimes referred to as the annual net trend projection factor with the word "annual" being important in making a distinction between this magnitude and the net trend projection factor or multiplier which allows the net trend to act over the entire forecast period.

The net trend projection factor or multiplier used in forecasting volume for future quarters allows the net trend to operate for the length of time between the Base Year and the future quarter. Algebraically, the net trend projection factor is $(1+g)^{m/4}$ where m is the number of quarters between the midpoint of the Base Year and the future quarter.

C. Forecast Error Analysis Program

The five-year net trend as given by Equation (2) uses the most recent five years of mail volume data to evaluate influences not measured econometrically. The five year net trend calculation only requires data for two years, year one and year five. The Forecast Error Analysis Program, however, examines all of the data in the five-year period to determine whether the in-sample forecast errors exhibit a stable pattern, and whether the

effect of these are systematic patterns within the period. The Forecast Error Analysis Program is described in detail in Section IV of this appendix.

Use of the Forecast Error Analysis Program may be illustrated by considering two examples. A first example is a case where growth rates in actual versus in-sample forecasts are negative in the initial 10 quarters and positive in the latter 10 quarters while the five year net trend is zero. In this case there may have been an unmeasured shift in demand 2½ years ago which increased mail volumes. Further, as corroborated by non-econometric evidence, the change is expected to continue to produce growth in volume. Here, the average growth from the last 2½ years (obtained from the Forecast Error Analysis Program) may be used as the net trend. In a second example the five-year net trend is positive while an analysis of year by year growth is sporadic--positive about half the time and negative the other half. Further, there are no non-econometric changes that would explain the volume movements and no changes are expected in the forecast period. In this case, a zero net trend may be chosen. In the majority of cases, a zero net trend is, in fact, used.

III. FORECAST MODEL STRUCTURE

An overview of the postal forecasting methodology was presented in Section II.B. In this section, the mechanics are described. After reviewing the general framework used to forecast volume and outlining the mechanics of computing base period volume, details of projection factors and calculation of projected volume are described. The projection factors (also referred to as multipliers) include the quarter length multiplier, the rate effect

multiplier, the nonrate effect multiplier, and the composite multiplier which contains the seasonal multiplier, the share multiplier, and the net trend multiplier.

A. General Framework

The theoretical underpinning of the forecasting model is the demand equation which expresses volume (Q_T) as a function of economic factors which influence mail demand. A simple example using price (P_T) and income (Y_T) illustrates the basic principles:

(14) $$Q_T = aP_T^b Y_T^c$$

If T=0 is the Base Year and T=t is the projected period, the forecasting equation is based on dividing the demand function for period t by the demand function for the base period:

(15) $$Q_t/Q_0 = (P_t/P_0)^b (Y_t/Y_0)^c$$

which is equivalent to Equation (1). The term $(P_t/P_0)^b$ is the price projection factor which is also part of the rate effect multiplier (RM_t), and $(Y_t/Y_0)^c$ is the income projection factor which is a component of the nonrate effect multiplier (NRM_t). The projection factor or multiplier is generally expressed as the ratio of the value of a variable in the projected quarter, t, to the value of the variable in the Base Year, 0, raised to the power of the elasticity.

If projected volume, Q_t, is denoted as VOL_t and Base Year volume, Q_0, is denoted as BASEVOL, a highly simplified projection equation is given by:

(16) $$VOL_t = BASEVOL \times RM_t \times NRM_t$$

There are several more projection factors and multipliers beyond those indicated in the above simplified example. Separate projection factors are developed for each of the current and lagged own prices, for permanent and transitory income, and for seasonal

effects. There are also projection factors for the variables pertaining to cross price effects and other quantified influences for the individual mail categories which are discussed in the Direct Testimony of Thomas Thress (USPS-T-7). Finally, for each mail category there is a net trend projection factor capturing the effect of non-econometric influences on mail volume.

A more detailed formulation of the forecasting model can be outlined by using the multiplier concept. Since separate forecasts are made for various different mail classes, a subscript i, referring to mail category, is introduced. The projection of volume for mail category i in quarter t is given by the following equation:

(17) $$VOL_{it} = BASEVOL_i \times CM_{it} \times NRM_{it} \times S_{it} \times RM_{it}$$

where:

VOL_{it}	is the number of projected pieces for the ith mail category in quarter t,
$BASEVOL_i$	is the Base Year volume for mail category i,
CM_{it}	is the composite multiplier measuring the impacts of quarter length(QM_{it}), net trend(TM_{it}), seasonality(SM_{it}), and volume adjustment(VA_i),
QM_t	is the quarter length multiplier,
TM_{it}	is the net trend effect multiplier, and
SM_{it}	is the seasonal effect multiplier measuring the effects on volume of influences that are seasonal in nature, and
VA_i	is the independent volume adjustment factor.

NRM_{it} is the nonrate effect multiplier measuring the combined impact of income, population, cyclical activity and other factors on volume,

S_{it} is the share multiplier

RM_{it} is the rate effect multiplier measuring the effects of postal rates on volume,

VOL_{it} is projected on a before-rates basis in the absence of any postal rate change and on an after-rates basis using prices predicted to prevail if the recommended postal rate changes are adopted. All multipliers other than rate effect multipliers, share multipliers, and cross volume multipliers, which are components of the nonrate effect multiplier, are generally identical in the before-rates and after-rates forecasts.

The mechanics of computing $BASEVOL_i$ and the various multipliers are presented in the next subsection.

B. Description of Base Volume and Individual Projection Factors

1. Base Volume (BASEVOL)

a. General Overview

Base volumes are traditionally set equal to historical volumes over the most recent four quarters. In this case, the most recent four quarters of data are the third and fourth Postal quarters of 1996, and the first two Postal quarters of 1997. This spans the time period from March 2, 1996 through February 28, 1997.

Classification reform, as originally proposed by the Postal Service in MC95-1 was introduced on July 1, 1996. Nonprofit reclassification was introduced on October 6, 1996.

Hence, the base period used in calculating base volumes spans the implementation of both of these reforms. In general, these classification reforms did not affect mail volumes at the level of detail used in calculating base volumes. Exceptions are noted below where appropriate.

b. First-Class Letters

First-Class letters are divided into two categories for the purposes of calculating base volumes: single-piece and workshared First-Class letters. Single-piece First-Class letters are those letters sent as part of a mailing in which all of the pieces paid the full First-Class letters rate. Workshared First-Class letters were letters sent as part of a mailing for which worksharing discounts were received by the mailer.

i. Single-Piece First-Class Letters

The volume of single-piece First-Class letters from 1996Q3 through 1997Q2 is summarized below (volumes in millions of pieces).

1996Q3	11,912.786
1996Q4	15,608.141
1997Q1	12,693.919
1997Q2	13,524.103
Base Volume	**53,738.949**

ii. Workshared First-Class Letters

The volume of workshared First-Class letters from 1996Q3 through 1997Q2 is summarized below (volumes in millions of pieces).

1996Q3	9,379.863
1996Q4	11,308.255
1997Q1	9,034.804
1997Q2	9,437.635
Base Volume	**39,160.557**

c. First-Class Cards

First-Class cards are divided into three categories for the purposes of calculating base volumes: stamped cards, single-piece private cards, and workshared First-Class cards. Stamped cards are cards printed and stamped by the Postal Service. Single-piece private cards are cards sent as part of a mailing in which all of the pieces paid the full First-Class cards (or letters) rate. Workshared First-Class cards were cards sent as part of a mailing for which worksharing discounts were received by the mailer.

i. Stamped Cards

The volume of stamped cards from 1996Q3 through 1997Q2 is summarized below (volumes in millions of pieces).

1996Q3	97.869
1996Q4	137.767
1997Q1	159.569
1997Q2	175.124
Base Volume	**570.329**

ii. Single-Piece First-Class Cards

The volume of single-piece First-Class cards from 1996Q3 through 1997Q2 is summarized below (volumes in millions of pieces).

1996Q3	545.678
1996Q4	743.991
1997Q1	641.260
1997Q2	506.498
Base Volume	**2,437.427**

iii. Workshared First-Class Cards

The volume of workshared First-Class cards from 1996Q3 through 1997Q2 is summarized below (volumes in millions of pieces).

1996Q3	457.191
1996Q4	642.900
1997Q1	548.547
1997Q2	560.870
Base Volume	**2,209.508**

d. Standard Regular Mail

Standard regular mail (formerly noncarrier-route third-class bulk regular mail) is divided into two categories for the purposes of calculating base volumes: letters and nonletters. The letters-nonletters distinction is based upon the rates paid by the mailer.

i. Standard Regular Letters

The volume of Standard regular letters from 1996Q3 through 1997Q2 is summarized below (volumes in millions of pieces).

1996Q3	4,390.008
1996Q4	5,552.455
1997Q1	4,576.553
1997Q2	4,188.687
Base Volume	**18,707.702**

ii. Standard Regular Nonletters

The volume of Standard regular nonletters from 1996Q3 through 1997Q2 is summarized below (volumes in millions of pieces).

1996Q3	2,588.181
1996Q4	3,349.147
1997Q1	3,333.737
1997Q2	2,945.545
Base Volume	**12,216.609**

e. Standard Enhanced Carrier Route Mail

i. Standard ECR Letters

The volume of Standard ECR letters from 1996Q3 through 1997Q2 is summarized below (volumes in millions of pieces).

1996Q3	2,901.941
1996Q4	3,306.270
1997Q1	2,875.443
1997Q2	2,451.624
Base Volume	**11,535.279**

ii. Standard ECR Nonletters

The volume of Standard ECR nonletters from 1996Q3 through 1997Q2 is summarized below (volumes in millions of pieces).

1996Q3	3,899.448
1996Q4	5,040.864
1997Q1	5,204.390
1997Q2	4,319.226
Base Volume	**18,463.927**

f. Standard Bulk Nonprofit Mail

Standard bulk nonprofit mail volume is forecasted in an exactly parallel manner to Standard bulk regular mail volume. Hence, Standard bulk nonprofit mail is divided into four categories for the purpose of calculating base volumes: Standard nonprofit letters, Standard nonprofit nonletters, Standard nonprofit ECR letters, and Standard nonprofit ECR nonletters.

i. Standard Nonprofit Letters

The volume of Standard Nonprofit letters from 1996Q3 through 1997Q2 is summarized below (volumes in millions of pieces).

1996Q3	1,855.014
1996Q4	2,104.269
1997Q1	2,224.292
1997Q2	1,898.335
Base Volume	**8,081.909**

ii. Standard Nonprofit Nonletters

The volume of Standard nonprofit nonletters from 1996Q3 through 1997Q2 is summarized below (volumes in millions of pieces).

1996Q3	365.018
1996Q4	465.460
1997Q1	428.725
1997Q2	370.847
Base Volume	**1,630.050**

iii. Standard Nonprofit Enhanced Carrier Route Letters

The volume of Standard nonprofit ECR letters from 1996Q3 through 1997Q2 is summarized below (volumes in millions of pieces).

1996Q3	471.866
1996Q4	645.706
1997Q1	748.729
1997Q2	423.163
Base Volume	**2,289.464**

iv. Standard Nonprofit Enhanced Carrier Route Nonletters

The volume of Standard Nonprofit ECR nonletters from 1996Q3 through 1997Q2 is summarized below (volumes in millions of pieces).

1996Q3	122.120
1996Q4	216.464
1997Q1	234.723
1997Q2	143.279
Base Volume	**716.586**

2. Quarter Length Multiplier (QM_t)

The quarter length multiplier is needed to convert projections from the Base Year volume to individual future quarters. The quarter length multipliers distribute yearly volume proportionately according to the number of accounting periods which make up each quarter. There are thirteen 4 week accounting periods in the Postal Fiscal Year, distributed into 3 accounting periods in each of the fall, winter and spring quarters and 4 accounting periods in the summer quarter. Therefore, for the fall, winter, and spring quarters (postal quarters 1, 2, and 3), the fraction 3/13 is applied as a multiplier. For summer 4/13 is used. In terms of the postal forecasting equation $QM_1 = QM_2 = QM_3 = 3/13$ and $QM_4 = 4/13$.

3. Net Trend Multiplier (TM_t)

Time trends are included in the regression equations for standard single piece, parcel post, and five of the special services to capture effects of persistent volume change through time occurring for these mail categories that are not explained by other regression variables. The net trend figure used in these cases is the time trend from the regression equation plus the effect of the net trend from forecast errors obtained for other mail categories using the regression equation to forecast the last five years. The following text describes how the net trends are incorporated into the forecasting framework.

As already referred to in Subsection II.B.3.b above, the net trend multiplier for the ith mail category in the tth quarter to be projected, TM_{it}, is calculated according to the following equation:

(18) $$TM_{it} = (1+g_i)^{(m_t/4)}$$

where:

g_i is the annual net trend for the ith mail category expressed as a proportionate change, and

m_t is the number of quarters from the midpoint of the Base Year to the middle of quarter t.

As discussed in subsection II.B.3.b, the term $(1 + g_i)$ is referred to as the annual net trend ratio. It is the ratio of the volume in a year to the volume in the previous year if the only consideration acting to change volume was the net trend. For the forecast, it must be raised to the power of the number of years from the base to the Test Year, which is calculated as the number of quarters between the midpoint of the Base Year divided by four. The four quarters of the Test Year are 1998Q1 through 1998Q4. The values of m_t are respectively, 4½, 5½, 6½, and 7½.

The values of the annual net trend ratios $(1+g_i)$ for various mail categories, are presented at the bottom of Appendix Tables 5 through 33 for each mail category, where they are labeled "Annual Net Trend Projection Factors" to distinguish them from the net trend projection factors or multipliers (TM_t) inserted into the forecast program.

4. Seasonality Multipliers (SM_t)

The general approach to seasonal variation in the regressions is to measure seasonal variation in volume per adult per business day relative to a series of seasonal variables reflecting periods of the Gregorian calender. To obtain seasonal projection factors for the forecast, this seasonal index is converted to seasonals relative to the entire year by solving for the set of seasonal multipliers that will maintain the relation implied by the regression seasonals, but will average to one.

The formula for the seasonal multipliers gives the proportion of annualized volume allocated to quarter t and is:

(19)
$$SM_t = \frac{e^{S_t}}{w_t e^{S_t} + w_{t-1} e^{S_{t-1}} + w_{t-2} e^{S_{t-2}} + w_{t-3} e^{S_{t-3}}}$$

where w_t is the share of total business days within the past year falling within quarter t, and S_t is a seasonal index which combines the effect of the seasonal variables into a single seasonal index, which varies by quarter. A full treatment of seasonality in the regression equations presented with this testimony is presented in the direct testimony of Thomas Thress (USPS-T-7).

5. Volume Adjustment Multiplier (VA_i)

The volume adjustment multiplier is used to account for level shifts which were not included in the sample period yet which are known to affect volumes. There are volume adjustment multipliers for First-Class letters and certified mail.

The time period used in calculating base volumes spans the introduction of new rates and requirements as a result of the implementation of MC95-1 on July 1, 1996. Consequently, the base period combines volumes generated under the old classification structure as well as under the new structure. The changes which took place under classification reform are modeled in the First-Class letters equations through changes in the fixed-weight price index associated with workshared First-Class letters and in changes in the discounts associated with the various worksharing categories of First-Class letters.

In analyzing First-Class letter volumes after classification reform, it appeared that a portion of workshared First-Class letters was shifted into the single-piece category after classification reform. It further appeared that the projected effects of changes in discounts and prices were not adequately modeling this shift. This non-modeled impact of classification reform on single-piece and workshared First-Class letters volumes creates a difficulty in combining pre-MC95 and post-MC95 volumes into a common base period. This difficulty was addressed by adjusting the pre-MC95 single-piece and workshared First-Class letters volumes to be consistent with their post-MC95 counterparts. The mechanism for making this adjustment is to introduce vol-adjustment multipliers to be used in forecasting First-Class letters.

The vol-adjustment multipliers associated with single-piece and workshared First-Class letters are calculated by forecasting 1996Q4, 1997Q1, and 1997Q2 volumes from a base period ending in 1996Q3 and evaluating the observed forecast error for each

quarter. This forecast error is then used to adjust 1996Q3, 1996Q4, and 1997Q1 volumes to be consistent with the actual reported 1997Q2 volume.

The forecast error (expressed as a ratio of actual volume to forecasted volume), calculated in this way, is as follows:

	Single-Piece	Workshared
1996Q4	1.077528	0.948576
1997Q1	1.056493	0.924541
1997Q2	1.076175	0.886105

The vol-adjustment is based on the 1997Q2 forecast error, adjusting 1996Q3 fully to adjust for this, and also adjusting 1996Q4 and 1997Q1 to a lesser extent to reflect the extent to which the 1997Q2 forecast error is different from the 1996Q4 and 1997Q1 forecast errors.

That is, single-piece First-Class letters volume in 1996Q3 is adjusted by multiplying by the forecast error ratio in 1997Q2 (1.076175). Single-piece First-Class letters volume in 1996Q4 is adjusted by the forecast error ratio in 1997Q2 (1.076175) divided by the forecast error ratio in 1996Q4 (1.077528), or by a value of 0.998744. Finally, single-piece First-Class letters volume in 1997Q1 is adjusted by the forecast error ratio in 1997Q2 (1.076175) divided by the forecast error ratio in 1997Q1 (1.056493), or by a value of 1.018630.

Workshared First-Class letters volume in 1996Q3 is adjusted by multiplying by the forecast error ratio in 1997Q2 (0.886105). Workshared First-Class letters volume in

1996Q4 is adjusted by the forecast error ratio in 1997Q2 (0.886105) divided by the forecast error ratio in 1996Q4 (0.948576), or by a value of 0.934142. Finally, workshared First-Class letters volume in 1997Q1 is adjusted by the forecast error ratio in 1997Q2 (0.886105) divided by the forecast error ratio in 1997Q1 (0.924541), or by a value of 0.958427.

The effective vol-adjustment multiplier used in forecasting is then set equal to the sum of the adjusted volumes from 1996Q3 through 1997Q2 divided by the actual volumes over this same time period. Table 3 below presents the relevant data used in calculating the vol-adjustment multipliers for single-piece and workshared First-Class letters used in making the volume forecasts presented in my testimony.

Appendix Table 3
Calculation of Vol-Adjustment Multipliers
for Single-Piece and Workshared First-Class Letters

	Single-Piece Letters			Workshared Letters		
	Actual	Multiplier	Adjusted	Actual	Multiplier	Adjusted
1996Q3	11,912.786	1.076175	12,820.248	9,379.863	0.886105	8,311.541
1996Q4	15,608.141	0.998744	15,588.544	11,308.255	0.934142	10,563.520
1997Q1	12,693.919	1.018630	12,930.408	9,034.804	0.958427	8,659.196
1997Q2	13,524.103	1.000000	13,524.103	9,437.635	1.000000	9,437.635
Base Vol	53,738.949	1.020923	54,863.303	39,160.557	0.944110	36,971.892

The volume adjustment multiplier for certified mail is used to remove merchandise return receipts as was done by the Postal Rate Commission in MC96-3.

6. Nonrate Effect Multiplier (NRM_t)

The nonrate effect multiplier adjusts the volume projections for nonprice and nonseasonal parameters used in the regression equations. In addition, the nonrate effect multiplier adjusts the volume projections for changes in adult population.

The nonrate effect multiplier for category i in Test Year quarter t is:

(20)
$$NRM_{i,t} = \prod_{j=1}^{j=N_i} (W_{j,t}/W_j)^{e_{i,j}}$$

where:

$W_{j,t}$ is the value of the jth nonrate effect variable in the Test Year quarter t,
W_j is the Base Year value of the jth nonrate effect variable,
$e_{i,j}$ is the elasticity of category i with respect to nonrate effect j, and
N_i is the number of nonrate effect variables contained in the ith mail category

The nonrate variables used in constructing the nonrate multipliers for forecasting mail volumes and special services, the $W_{j,t}$s above, include variables for consumption, cable television expenditures, population, transitory income (UCAP), the price of paper (WPIP), competitor prices (CPM_NWS, CPM_MAG, etc.) and permanent income (YD92PERM).

The nonrate multiplier component for population is calculated consistent with the normalization of volume data in the regressions for adult population. This is done by including population in the nonrate effect multiplier with an elasticity of 1.0. The basis for this multiplier is illustrated by the following simple example:

Assume the regression is simply ln(Volume/Population) = a + β*(lnPrice). Then the forecast is given by the formula:

$$Volume_t/Population_t = Base\ Volume / Population_0 * Price\ multiplier.$$

Multiplying through by the current value of population, yields:

(21) $Volume_t = Base\ Volume \cdot (Population_t/Population_0) \cdot Price\ multiplier.$

It is apparent from this example that in volume projections, the population adjustment can be made using the projection factor framework with the elasticity being set to 1.0.

Other complexities in the nonrate effect multiplier involve cross volume projection factors and lagged variables. For example, the First-Class letters equation uses Standard regular volume and Standard nonprofit volume as independent variables. This means that forecasts for Standard regular and Standard nonprofit volume must be made prior to making the projection for First-Class letters. In addition, these two variables must be adjusted for adult population and for the length of postal accounting quarters since the variables are derived from postal volumes.

Computation of base period values (W_j in equation II.20) generally involves weighting the values of the variable in the base period by 3/13 or 4/13 depending on the quarter. However, for variables which involve lags such as UCAP(-3) in single-piece First-Class letters, the Base Year weights depend on the actual quarter of the observation. For example, UCAP(-3) is weighted by 4/13 for 1996Q3 since the observation actually occurred in the fourth quarter of 1995.

7. Share Multiplier (S_t)

The share multiplier is the projected share of the worksharing category in the mail volume of the subclass of which it is a part. Needs for projecting worksharing volumes occur for First-Class letters and cards, Standard regular, Standard regular ECR, Standard nonprofit and Standard nonprofit ECR. The shares for the subcategories total to one for

each mail type. The projection of worksharing categories is completed by applying the projected worksharing shares to the projected volume just described that used total subclass volume as the base volume, thus arriving at individual worksharing volumes.

A combination of regression approach and base period projection method is used to project the worksharing shares. A detailed description of the derivation of the before- and after-rates worksharing shares is presented in the direct testimony of Thomas Thress (USPS-T-7).

8. Rate Effect Multiplier (RM_t)

The rate effect multiplier adjusts the mail volume forecast for responses to changes in the price of a particular category of mail (own price) and to changes in the price of other mail categories (cross prices). The rate effect multiplier takes on two values--one for the before-rates forecast and one for the after-rates forecast. The rate effect multiplier is the product of terms which have the following form:

(22) $$(P_t/\bar{P}_0)^e$$

where:

P_t is deflated price in the projection quarter,

$\bar{P}_0$ is the deflated price in the Base Year, and

e is the elasticity or the percentage change in volume in response to a one percent change in the deflated price.

For a mail category where own price is the only price variable influencing volume, the rate effect multiplier has four component terms or submultipliers of the type shown above and is formulated as:

(23) $$RM_t = (P_t/\bar{P}_0)^{e_0}(P_{t-1}/\bar{P}_1)^{e_1}(P_{t-2}/\bar{P}_2)^{e_2}(P_{t-3}/\bar{P}_3)^{e_3}$$

In this formula t is a quarter in a projected year and e_0, e_1, e_2, e_3 are price elasticities for the current quarter and lagged quarters. P_t, P_{t-1}, P_{t-2}, *and* P_{t-3} are projected real prices for period t, and one, two and three quarters prior to t. $\bar{P}_0, \bar{P}_1, \bar{P}_2$, *and* $\bar{P}_3$ are the Base Year prices which are calculated as follows:

- $\bar{P}_0$ is the weighted average of deflated prices for 1996Q3 through 1997Q2 where weights depended on the length of the quarter. Q1, Q2 and Q3 receive weights of 3/13 while Q4 receives a weight of 4/13.
- $\bar{P}_1$ is the weighted average of deflated prices for 1996Q2 through 1997Q1.
- $\bar{P}_2$ is the weighted average of deflated prices for 1996Q1 through 1996Q4.
- $\bar{P}_3$ is the weighted average of deflated prices for 1995Q4 through 1996Q3.

The ratio of the real price in quarter t, P_t, to the Base Year weighted average price, $\bar{P}_0$ raised to e_0, the current elasticity, gives the response to price changes in period t. Similarly, the ratio $(P_{t-1}/\bar{P}_1)^{e_1}$ gives the volume response percentage in period t to price changes from the previous quarter. $(P_{t-2}/\bar{P}_2)^{e_2}$ and $(P_{t-3}/\bar{P}_3)^{e_3}$ give volume percentage responses to price changes from two and three quarters prior to the current quarter. (Note that these percentage responses are numbers such as 1.005 which would represent a ½ of one percent volume change due to the price change).

While the discussion above accounts for response of subclass volume to changes in own price, the rate effect multiplier also adjusts for changes in the price of competing categories for certain mail classes. These cross price responses are obtained in the same manner as the own price responses except that cross prices and cross price elasticities are used. If P_t' is price of the competing mail class and e' is the cross price elasticity, the cross price response is given by

(24) $$(P_t'/\bar{P}_0')^{e_0'}(P_{t-1}'/\bar{P}_1')^{e_1'}(P_{t-2}'/\bar{P}_2')^{e_2'}(P_{t-3}'/\bar{P}_3)^{e_3'}$$

The interpretations of the factors are similar to the interpretations of own price responses. $(P_t'/\bar{P}_0')^{e_0'}$ gives the volume response to changes in the price of the competing mail category while $(P_{t-1}'/\bar{P}_1')^{e_1'},(P_{t-2}'/\bar{P}_2')^{e_2'},(P_{t-3}'/\bar{P}_3')^{e_3'}$ give volume responses to changes in price of the competing category for earlier quarters.

For example, single piece First-Class letters have cross prices for cards, Standard regular mail, and the worksharing discount of First-Class letters. Since there are four component terms for own price and for every cross price, the First-Class letters rate effect multiplier for each Test Year quarter contains sixteen component terms.

RM_t can be written using the nomenclature Π which represents multiplication:

(25) $$M_t = (P_t/\bar{P}_0)^{e_0}(P_{t-1}/\bar{P}_1)^{e_1}(P_{t-2}/\bar{P}_2)^{e_2}(P_{t-3}/\bar{P}_3)^{e_3} = \prod_{k=0}^{k=3}(P_{t-k}/\bar{P}_k)$$

where k is the number of quarters prior to the projection quarter. This equation represents the rate effect multiplier for a mail class where there are no cross price effects.

In those mail classes where both own and cross price effects exist, the rate multiplier is given by:

(26)
$$RM_t = \prod_{j=1}^{j=n} \prod_{k=0}^{k=3} (P_{j,t-k}/\bar{P}_{j,k})^{\epsilon_{j,k}}$$

In this formula, n refers to the number of mail categories whose prices influence volume (own plus the number of mail categories for which cross price is included), and the subscript j denotes the specific own- or cross-price mail category. For example, in First-Class letters n=4 and j=1 would represent own price effects, while j=2 would represent the cards cross price, j=3 would represent the standard regular cross price, and j=4 represents the First-Class worksharing discount cross price.

To obtain an expression for use in the basic forecasting equation (II.17), notation is needed to indicate which mail category (subscript i) and which projection quarter (subscript t) are being considered. Introducing this notation, the rate effect multiplier for mail category i in quarter t is:

(27)
$$RM_{it} = \prod_{j=1}^{j=N_i} \prod_{k=0}^{k=3} (P_{j,t-k}/\bar{P}_{j,k})^{\epsilon_{i,j,k}}$$

where:

N_i is the number of mail categories whose prices impact volume for category i (for example N_i is 4 for First-Class letters in view of the influence of own price and three cross prices),

$P_{j,t-k}$ is the deflated value of the jth own or cross price influencing volume category i in quarter t-k where k is the order of the lag effect (for example $P_{1,t-3}$ refers to deflated price of First-Class letters 3 quarters prior to the projection quarter),

$\bar{P}_{i,j,k}$ is the Base Year deflated value of the jth own or cross price lagged k quarters and is further defined in the formula below, and

e is the elasticity of category i mail volume with respect to the jth own or cross price with lag k (for example $e_{1,1,3}$ is the elasticity of First-Class letter volume with respect to the third lagged own price).

As noted before, the Base Year deflated value of the jth own or cross price lagged k quarters occurring in the above formula is a weighted average of historic values for years beginning k quarters prior to the Base Year:

(28) $$\bar{P}_{i,j,k} = \sum_{s=1}^{s=4} P_{i,j,s-k} q_{s-k}$$

where:

$P_{i,j,(s-k)}$ is the deflated value of the jth own or cross price for category i in quarter s-k where s = 1,2,3,4 refers to the four consecutive quarters of the Base Year and k=0,1,2,3 denotes the order of the lag, and

q_{s-k} is 4/13 if quarter s-k is a summer quarter and 3/13 otherwise.

C. Presentation of Projected Volumes

1. Before Rates

The before-rates volume projections for all mail categories in the Test Year are given in the second column of Appendix Table 4 following this section. Step-by-step illustrations in Workpaper 2 detail the calculations of the Base Year volume and the multipliers for each effect for the four quarters of the Test Year using the before-rates assumptions for First-Class letters, Periodical regular rate and Standard regular mail.

The final step in projecting Government Fiscal Year Test Year volumes is to day-weight adjust the volumes. This allows for differences between Postal Years, consisting of 364 days running from late September to late September, and the Test Year, a

Government Fiscal Year which is a full calendar year beginning October 1 and ending September 30, 365 days. A Postal Year consists of the four postal quarters summed. The adjustment from Postal Year to Government Fiscal year consists of subtracting the days from the first postal quarter which fell in to the previous Government Fiscal Year, and adding the remainder of quarter 1, all of quarters 2, 3, and 4, and the number of days from the first quarter of the next postal quarter which coincides with the number of days necessary to equalize the years. As an example, the 1998 Government Fiscal year is given by the following: (1 - 13.5/66)*V1998Q1 + V1998Q2 + V1998Q3 + V1998Q4 + (14.5/66)*V1999Q1, where V1998Q1 means volumes in 1998Q1 and so forth.

2. After Rates

The Test Year after-rates volume projections are obtained in the same manner as described for the before-rate projections, except that the rate effect multipliers and cross volume multipliers are calculated using proposed new postal rates. The test-year after-rates volume projections for all mail categories are presented in the third column of Appendix Tables 4 on the following pages.

Appendix Table 4
Detailed Before- and After-Rates
Volume Forecasts for First-Class and Standard A Mail

	Base Year	Before-Rates	After-Rates
FIRST-CLASS MAIL			
First-Class Letters & Flats	92,899.506	95,901.297	95,446.568
(Single-Piece)	53,738.949	54,394.309	54,413.387
(Nonautomated Presort)	7,846.568	5,369.390	4,855.407
(Automated)	31,313.989	36,137.599	36,177.775
(Basic Letters)	2,799.854	4,284.950	4,308.327
(Basic Flats)	40.721	48.688	49.024
(3-Digit Letters)	17,627.216	20,642.546	20,879.382
(5-Digit Letters)	8,763.350	9,375.321	9,488.132
(3/5-Digit Flats)	152.509	233.523	235.507
(Carrier-Route Letters)	1,930.337	1,552.572	1,217.403
First-Class Cards	5,217.264	5,693.117	5,523.046
Stamped Cards	570.329	594.894	583.005
Private Cards	4,646.935	5,098.223	4,940.041
(Single-Piece)	2,437.427	2,546.540	2,476.656
(Nonautomated Presort)	710.712	643.732	667.024
(Automated)	1,498.796	1,907.951	1,796.361
(Basic)	259.269	349.958	340.549
(3-Digit)	555.643	844.527	826.560
(5-Digit)	496.274	576.614	526.697
(Carrier-Route)	187.610	136.853	102.556
TOTAL FIRST-CLASS MAIL	98,116.770	101,594.414	100,969.614
STANDARD A MAIL			
Single-Piece	158.735	165.695	161.574
Regular Rate Bulk	60,923.517	66,783.249	66,313.735
Regular	30,924.312	34,359.008	37,627.554
(Nonautomated)	10,247.842	8,904.147	9,184.917
(Basic Letters)	2,283.095	2,012.524	2,373.994
(Basic Nonletters)	1,354.674	1,447.459	1,832.877
(Presort Letters)	3,889.677	2,941.617	2,902.289
(Presort Nonletters)	2,720.396	2,502.548	2,075.756
(Automated)	20,676.469	25,454.861	28,442.638
(Basic Letters)	2,113.042	3,157.221	3,136.543
(Basic Flats)	208.257	231.295	259.382
(3-Digit Letters)	5,915.906	9,750.408	9,535.365
(5-Digit Letters)	4,505.982	3,016.552	6,358.646
(3/5-Digit Flats)	7,933.283	9,299.383	9,152.702
Enhanced Carrier-Route	29,999.206	32,424.240	28,686.181
(Automated)	1,208.395	2,123.223	2,059.662
(Basic Letters)	7,464.164	6,781.043	3,173.765
(Basic Nonletters)	9,367.546	10,706.608	10,660.705
(High-Density Letters)	245.893	394.077	392.986
(High-Density Nonletters)	992.760	1,150.761	1,154.078
(Saturation Letters)	2,616.827	3,095.861	3,086.387
(Saturation Nonletters)	8,103.621	8,172.668	8,158.599

Appendix Table 4 (Continued)
Detailed Before- and After-Rates
Volume Forecasts for First-Class and Standard A Mail

	Base Year	Before-Rates	After-Rates
Nonprofit Rate Bulk	12,718.009	13,255.224	13,122.251
Nonprofit	9,711.959	10,123.229	10,550.968
(Nonautomated)	5,059.538	4,086.150	3,658.517
(Basic Letters)	1,711.691	1,311.851	991.091
(Basic Nonletters)	377.061	429.856	380.624
(Presort Letters)	2,414.727	1,892.724	1,815.980
(Presort Nonletters)	556.059	451.718	470.822
(Automated)	4,652.422	6,037.079	6,892.451
(Basic Letters)	698.896	1,218.997	1,237.641
(Basic Flats)	40.557	58.605	71.359
(3-Digit Letters)	1,710.389	2,669.375	2,927.691
(5-Digit Letters)	1,546.206	1,330.087	1,909.475
(3/5-Digit Flats)	656.374	760.016	746.285
Nonprofit ECR	3,006.050	3,131.995	2,571.283
(Automated)	174.930	356.913	354.654
(Basic Letters)	1,606.971	1,478.328	893.787
(Basic Nonletters)	519.514	572.451	580.550
(High-Density Letters)	19.306	39.475	40.407
(High-Density Nonletters)	10.251	14.390	14.647
(Saturation Letters)	488.257	496.013	509.019
(Saturation Nonletters)	186.821	174.425	178.220
TOTAL STANDARD A MAIL	73,800.261	80,204.168	79,597.559

IV. FORECAST ERROR ANALYSIS PROGRAM

Section II of this appendix discussed the rationale for using net trend in volume projections and gave the formula for computing the five-year net trend (Equation 2). This section of the appendix describes the Forecast Error Analysis Program used to help estimate the net trends used in the forecast for each subclass of mail. The discussion is divided into four sections. Section IV.A describes the details of the Forecast Error Analysis Program, Section IV.B discusses interpretation of the Forecast Error Analysis Program, and Section IV.C presents the results of the Forecast Error Analysis Program for each subclass along with the five-year net trends and the net trends used in the volume forecast.

A. Description of Forecast Error Analysis Program

The Forecast Error Analysis Program is a by-product of the net trend calculation from the in-sample forecast based on most recent five years of experience. The program generates the following outputs for each mail category:

1) In-sample forecast errors for each quarter over the past five years (1991 to 1996).
2) SPLY differences of the forecast errors for each quarter for the past five year period, where SPLY refers to "same period last year".
3) 4-quarter averages of the SPLY differences.

Also appearing at the bottom of each table are the five-year net trend projection factor and the net trend projection factor actually used in the volume projections. Details of these parts of the Forecast Error Analysis Program are discussed below.

1. Forecast Errors by Quarter

The top panel of the forecast error analysis output labeled "Forecast Errors" contains the logarithms of the forecast errors from the in-sample projection for the past five years by quarter. In a simple example with only price and income projection factors, these forecast errors would be computed as follows:

(29) $$\text{Forecast error}_t = \ln(Q_t) - \ln(Q_{pt})$$

where $Q_{pt} = Q_{92} \cdot (P_t/P_{92})^b \cdot (Y_t/Y_{92})^c$ is the projected volume for quarter t, and Q_t is actual volume for quarter t.

2. SPLY Differences in Forecast Errors

The second panel of the forecast error analysis output is the "SPLY Differences of Forecast Errors". This panel shows the difference between the in-sample forecast error for a quarter and the forecast error for the same quarter one year earlier. These SPLY differences are derived directly from the panel of forecast errors. For example, the value of -0.034961 for the workshared First-Class letters for Winter 1996 is the difference between -0.002759 and -0.032201 which are the forecast errors in Winter 1996 and Winter 1995, respectively.

It is important to note that the SPLY differences in forecast errors can be interpreted as rates of growth in forecast errors when discussing in-sample forecast errors. This is due to the fact that forecast errors are expressed as logarithms and that the difference of logarithms is equivalent to a rate of growth.

3. Four-Quarter Average of SPLY Differences

In the third panel, the column labeled "Four-Quarter Averages of SPLY differences" lists the annual average of SPLY differences from the table above. The mean of all 4-quarter averages is also given.

4. Five-Year Net Trend and Net Trend Used in Volume Projections

Annual net trend projection factors are shown at the bottom of the page of the forecast error analysis output table. The five-year net trend projection factor is calculated by taking the fifth root of the ratio of actual to predicted volume in the base period, using a Base Year starting five years ago in the forecast program. Also shown is the annual net trend projection factor chosen for the forecast labeled "Net Trend Used in Forecast," which may be the same as the five-year net trend or different, depending on the considerations to be discussed below.

B. Interpretation of Forecast Error Analysis Program Results

In this section, use of the Forecast Error Analysis Program in estimating net trends for the forecast to the Test Year is discussed.

A major consideration in examining the SPLY differences in forecast errors (changes in forecast errors from Same Period Last Year) in the output of the Forecast Error Analysis Program, is to see if they are relatively constant, which would indicate a smooth operation of the net trend over the five year period. For example, smooth operation of a net trend increasing by one percent per year will mean that the increase or difference

between the forecast error in any given quarter and the error in one year earlier will always be a constant one percent (constant SPLY difference of 0.01).

Smooth operation of the net trend could give a presumption of a systematic net trend process showing no sign of changing. This outcome would favor the estimate that the five-year calculated net trend might reasonably be expected to continue into the future. On the other hand, if a very erratic pattern is found, there is a possibility that the calculated five year net trend may be just a result of accidental or random variation in the first or last year. In this case, the net trend does not truly represent trend factors that continue over time. In the absence of strong non-econometric evidence indicating otherwise, a better estimate for the future, than the five-year net trend calculation, may well be a zero net trend (annualized net trend of 1.00), since in this case no truly systematic trend is indicated.

As another possibility, different definite regimes may be identifiable. For instance, if the forecast errors continually decrease during the first part of the five year period (negative SPLY differences) and continually increase (positive SPLY differences) in the last part of the period, absent non-econometric evidence to the contrary, it is reasonable to use the recent period of positive SPLY differences as the best indication of the net trend for the forecast period. In some cases, where non-econometric considerations suggest that conditions in the future will be markedly different from those in the past, a judgmental choice different from any past numbers is warranted.

As further detail, the following three cases may be considered:

1) Cases where five-year net trend is smooth.
2) Cases where the five-year net trend is distorted by random shocks

3) Cases where the trends due to non-econometric factors change over the five year period.

1. Smooth Net Trend

Smooth changes in forecast errors imply that the change or difference in forecast error from one year to the next will tend to be constant. In the example just given, the difference between the forecast error in any particular year and the error in the previous year will always be one percent. The constant change or difference in forecast error can be seen, in fact, to be equal to the net trend.

Exact results of this kind can seldom if ever be expected. The question becomes whether the pattern is reasonably smooth. Even in the case where quite smooth results are obtained for all five years, modifications for the forecast period are justified if indicated by non-econometric information.

2. Random Shocks

The five-year net trend is computed using the first and last years out of the data from the five year period. It is possible that temporary shocks influence the data in these periods and, therefore, the five-year net trend does not generate a good representation of systematic influence. Situations that may occur are illustrated by three hypothetical examples:

Example 1: Random shock in year one forecast errors

Assume that some random event caused residuals in the initial period to be negative but that there is no real sustained change which occurred over the whole period. In this case, the five-year net trend will be positive, but the SPLY averages will be about zero after

the first year. If annual SPLY averages after the initial year are significantly different than the five-year net trend, the five-year net trend should probably be adjusted.

Example 2: Random shocks in year five residuals

Assume that some random event in the final net trend period causes the residual to be positive but there had been no sustained positive trend prior to the final period. In this case the five-year net trend will be positive but the SPLY differences prior to the final year will be around zero. Since the final net trend year is also the base year for projections, a negative net trend may actually be appropriate for a case in which the factors which caused the positive base period forecast errors are not expected to continue. In this situation, knowledge of the influences which cause changes in mail volumes is brought into play.

Example 3: Random shocks in forecast errors between year one and year five

Assume that some random event occurs between the periods used to compute the net trend. If this is a temporary random shock that reverses before the final net trend period, the five-year net trend will correctly represent sustained growth in volume due to reconstructive influences. The SPLY changes will reflect the shock, but the average SPLY differences over the whole net trend period should be similar to the five-year net trend.

3. Changes in the Net Trend

The five-year net trend is computed based on a five year time period. If the underlying net trend is based on a sustained influence and random shocks are not observed, the five-year net trend will be a good indicator of volume growth due to influences not measured

econometrically. On the other hand, if recent events have changed the influence of non-econometric forces, the five-year net trend may not represent the best forecast of future volume growth due to these forces.

The Forecast Error Analysis Program can be used to gain an indication of whether the underlying net trend has changed over the five year period. Examination of year by year SPLY differences is needed. For example, in DBMC Parcel Post mail, the SPLY differences vary from 0.337 to 0.893 from 1993q3 to 1994q2, with an average of 0.537. In contrast, from 1996Q3 to 1997Q2, the differences range from 0.065 to 0.178, with an average of 0.113. The five year average is 0.181. The forecast error analysis thus indicates that a noticeable change has occurred in the net trend over the five year period, and therefore the five-year net trend needs to be adjusted. In this case, a 3-year net trend was used in forecasting rather than the 5-year net trend.

C. Forecast Error Analysis Output

The remainder of this Appendix presents the forecast error analysis output for each subclass, including the entries that have been described. Note particularly at the bottom of each page, the two annual net trends 1+g: 1) the one calculated from the five-year in-sample forecast, and 2) the one used in the Test Year forecast.

FORECAST ERROR ANALYSIS
Single-Piece First-Class Letters

From Forecast Using Base Year Ending 1991Q3
R97-1 Forecast Specifications

Forecast Errors

Calculated as the log of the actual volume minus the log of the forecasted volume

Year	Fall	Winter	Spring	Summer
1991				-0.022808
1992	-0.044012	-0.026466	-0.001336	-0.002367
1993	-0.017359	-0.009550	0.026541	-0.009246
1994	-0.017421	-0.014692	-0.037295	-0.006961
1995	-0.032768	-0.033378	0.013904	-0.031557
1996	-0.002285	-0.013797	-0.010556	

SPLY Differences of Forecast Errors

Year	Fall	Winter	Spring	Summer
1991				NA
1992	NA	NA	NA	-0.025176
1993	0.026653	0.016916	0.027877	-0.011613
1994	0.000238	-0.005142	-0.037836	0.002285
1995	-0.016257	0.028597	-0.020262	0.004677
1996	0.019581	0.003348	0.031557	

Four Quarter Average of SPLY Differences

Begin	End	4-Qtr Average
1992Q4	1993Q3	0.024155
1993Q1	1993Q4	0.014958
1993Q2	1994Q1	0.008354
1993Q3	1994Q2	0.002840
1993Q4	1994Q3	-0.013588
1994Q1	1994Q4	-0.010114
1994Q2	1995Q1	-0.014237
1994Q3	1995Q2	-0.005803
1994Q4	1995Q3	-0.001409
1995Q1	1995Q4	-0.000811
1995Q2	1996Q1	0.008148
1995Q3	1996Q2	0.000162
1995Q4	1996Q3	0.013117

Mean of the 4 Quarter Averages:	0.001982
Five Year Mechanical Net Trend 1991q3 to 1996q3:	0.997846
Net Trend used in Forecast	1.000000

FORECAST ERROR ANALYSIS
Workshared First-Class Letters

From Forecast Using Base Year Ending 1991Q3
R97-1 Forecast Specifications

Forecast Errors

Calculated as the log of the actual volume minus the log of the forecasted volume

Year	Fall	Winter	Spring	Summer
1991				0.022717
1992	-0.057388	-0.013317	-0.035907	-0.012457
1993	-0.018087	-0.020549	-0.005081	-0.000926
1994	-0.012552	0.009810	-0.040453	0.002510
1995	0.007692	0.032201	0.034351	0.012345
1996	-0.015520	-0.002759	-0.035878	

SPLY Differences of Forecast Errors

Year	Fall	Winter	Spring	Summer
1991				NA
1992	NA	NA	NA	0.010560
1993	-0.075476	-0.007232	-0.040988	-0.013083
1994	0.005535	0.030360	0.045534	0.003437
1995	0.044754	0.024541	-0.028108	0.013009
1996	-0.034961	0.001527	-0.012345	

Four Quarter Average of SPLY Differences

Begin	End	4-Qtr Average
1992Q4	1993Q3	-0.033564
1993Q1	1993Q4	-0.034195
1993Q2	1994Q1	-0.013942
1993Q3	1994Q2	-0.004544
1993Q4	1994Q3	0.017086
1994Q1	1994Q4	0.021216
1994Q2	1995Q1	0.031021
1994Q3	1995Q2	0.029566
1994Q4	1995Q3	0.011156
1995Q1	1995Q4	0.013549
1995Q2	1996Q1	-0.006380
1995Q3	1996Q2	-0.012133
1995Q4	1996Q3	-0.008193

Mean of the 4 Quarter Averages: 0.000819

Five Year Mechanical Net Trend
1991q3 to 1996q3: 1.002999

Net Trend used in Forecast 1.000000

FORECAST ERROR ANALYSIS
Stamped Cards

From Forecast Using Base Year Ending 1992Q2
R97-1 Forecast Specifications

Forecast Errors

Calculated as the log of the actual volume minus the log of the forecasted volume

Year	Fall	Winter	Spring	Summer
1992			0.188051	0.329992
1993	-0.089647	-0.328722	-0.203833	-0.238328
1994	-0.057933	-0.044168	0.044168	0.003909
1995	-0.026465	-0.093049	-0.032954	-0.037751
1996	0.060935	-0.141418	-0.046598	0.038810
1997	-0.316928	-0.432173		

SPLY Differences of Forecast Errors

Year	Fall	Winter	Spring	Summer
1992			NA	NA
1993	NA	NA	0.015783	-0.091664
1994	-0.147579	-0.372889	-0.159665	-0.234419
1995	0.031467	0.048881	0.077123	0.041660
1996	0.087400	-0.048369	-0.013644	0.076562
1997	0.255994	0.573591		

Four Quarter Average of SPLY Differences

Begin	End	4-Qtr Average
1993Q3	1994Q2	-0.149087
1993Q4	1994Q3	-0.192949
1994Q1	1994Q4	-0.228638
1994Q2	1995Q1	-0.183877
1994Q3	1995Q2	-0.102874
1994Q4	1995Q3	-0.082239
1995Q1	1995Q4	-0.034049
1995Q2	1996Q1	-0.020066
1995Q3	1996Q2	-0.019938
1995Q4	1996Q3	-0.004068
1996Q1	1996Q4	0.025487
1996Q2	1997Q1	0.067636
1996Q3	1997Q2	0.223126

Mean of the 4 Quarter Averages: -0.053964

Five Year Mechanical Net Trend
1992q2 to 1997q2: 1.041698

Net Trend used in Forecast 1.000000

FORECAST ERROR ANALYSIS
Private First-Class Cards

From Forecast Using Base Year Ending 1992Q2
R97-1 Forecast Specifications

Forecast Errors

Calculated as the log of the actual volume minus the log of the forecasted volume

Year	Fall	Winter	Spring	Summer
1992			0.016144	0.041262
1993	-0.017938	-0.005188	0.022328	-0.043602
1994	0.015041	0.012020	0.040719	-0.048028
1995	-0.029719	0.054989	0.026192	-0.023805
1996	-0.022145	0.012979	0.006084	-0.003203
1997	0.028886	-0.006765		

SPLY Differences of Forecast Errors

Year	Fall	Winter	Spring	Summer
1992			NA	NA
1993	NA	NA	-0.006184	-0.084865
1994	0.032978	0.017208	0.018391	-0.004426
1995	-0.044160	0.042969	-0.014527	0.025923
1996	0.006974	-0.042010	-0.020108	0.019802
1997	0.051031	-0.019743		

Four Quarter Average of SPLY Differences

Begin	End	4-Qtr Average
1993Q3	1994Q2	-0.007123
1993Q4	1994Q3	-0.004072
1994Q1	1994Q4	0.016038
1994Q2	1995Q1	-0.003247
1994Q3	1995Q2	0.003194
1994Q4	1995Q3	-0.005036
1995Q1	1995Q4	0.002326
1995Q2	1996Q1	0.015110
1995Q3	1996Q2	-0.006135
1995Q4	1996Q3	-0.007530
1996Q1	1996Q4	-0.008836
1996Q2	1997Q1	0.002179
1996Q3	1997Q2	0.007745

Mean of the 4 Quarter Averages:	0.000355
Five Year Mechanical Net Trend 1992q2 to 1997q2:	1.001221
Net Trend used in Forecast	1.000000

FORECAST ERROR ANALYSIS
Single-Piece First-Class Cards

From Forecast Using Base Year Ending 1992Q2
R97-1 Forecast Specifications

Forecast Errors

Calculated as the log of the actual volume minus the log of the forecasted volume

Year	Fall	Winter	Spring	Summer
1992			0.057842	0.115298
1993	-0.003648	-0.024625	0.045945	-0.009311
1994	0.031236	-0.051837	0.010183	-0.127807
1995	-0.035775	-0.094031	-0.030850	-0.103909
1996	-0.062628	-0.164262	-0.054770	-0.079083
1997	-0.042342	-0.200428		

SPLY Differences of Forecast Errors

Year	Fall	Winter	Spring	Summer
1992			NA	NA
1993	NA	NA	-0.011908	-0.020409
1994	-0.005245	-0.073462	-0.035751	-0.034697
1995	-0.067011	-0.042194	-0.041033	-0.023899
1996	-0.026853	-0.070231	-0.023920	0.024825
1997	-0.020286	-0.036166		

Four Quarter Average of SPLY Differences

Begin	End	4-Qtr Average
1993Q3	1994Q2	-0.074756
1993Q4	1994Q3	-0.080717
1994Q1	1994Q4	-0.037289
1994Q2	1995Q1	-0.052730
1994Q3	1995Q2	-0.044913
1994Q4	1995Q3	-0.046233
1995Q1	1995Q4	-0.031585
1995Q2	1996Q1	-0.021545
1995Q3	1996Q2	-0.028555
1995Q4	1996Q3	-0.024276
1996Q1	1996Q4	-0.024045
1996Q2	1997Q1	-0.012260
1996Q3	1997Q2	-0.003744

Mean of the 4 Quarter Averages: -0.037127

Five Year Mechanical Net Trend
1992q2 to 1997q2: 0.981974

Net Trend used in Forecast 0.981974

FORECAST ERROR ANALYSIS
Workshared First-Class Cards

From Forecast Using Base Year Ending 1992Q2
R97-1 Forecast Specifications

Forecast Errors

Calculated as the log of the actual volume minus the log of the forecasted volume

Year	Fall	Winter	Spring	Summer
1992			-0.045416	-0.072616
1993	-0.099355	-0.043659	-0.011256	-0.021631
1994	-0.007483	0.094768	0.082103	0.053613
1995	-0.019282	-0.230689	-0.100489	-0.079185
1996	0.031639	0.214450	0.084813	0.093453
1997	-0.120363	-0.209274		

SPLY Differences of Forecast Errors

Year	Fall	Winter	Spring	Summer
1992			NA	NA
1993	NA	NA	0.034160	0.094246
1994	0.091872	0.138427	0.093360	0.031983
1995	-0.011800	-0.135921	-0.018385	-0.025571
1996	0.050921	-0.016239	-0.015675	0.014268
1997	-0.088724	-0.005177		

Four Quarter Average of SPLY Differences

Begin	End	4-Qtr Average
1993Q3	1994Q2	0.089676
1993Q4	1994Q3	0.104476
1994Q1	1994Q4	0.088910
1994Q2	1995Q1	0.062992
1994Q3	1995Q2	0.062366
1994Q4	1995Q3	0.043622
1995Q1	1995Q4	0.042020
1995Q2	1996Q1	0.057700
1995Q3	1996Q2	0.019660
1995Q4	1996Q3	0.011145
1996Q1	1996Q4	0.008319
1996Q2	1997Q1	0.017769
1996Q3	1997Q2	0.020535

Mean of the 4 Quarter Averages:	0.048399
Five Year Mechanical Net Trend 1992q2 to 1997q2:	1.025634
Net Trend used in Forecast	1.025634

FORECAST ERROR ANALYSIS
Periodical Within County Mail

From Forecast Using Base Year Ending 1992Q2
R97-1 Forecast Specifications

Forecast Errors

Calculated as the log of the actual volume minus the log of the forecasted volume

Year	Fall	Winter	Spring	Summer
1992			0.073534	0.090337
1993	-0.020616	-0.179809	-0.260319	-0.185592
1994	0.265771	0.226101	0.149965	0.056264
1995	-0.023969	-0.074270	-0.006811	-0.039558
1996	0.048414	-0.028176	-0.039962	-0.004325
1997	-0.083705	-0.074824		

SPLY Differences of Forecast Errors

Year	Fall	Winter	Spring	Summer
1992			NA	NA
1993	NA	NA	-0.186785	0.095254
1994	0.245154	0.046292	-0.110354	-0.129327
1995	-0.241802	-0.300371	-0.143154	-0.075294
1996	0.024446	0.046094	-0.046773	-0.135883
1997	-0.035291	-0.103000		

Four Quarter Average of SPLY Differences

Begin	End	4-Qtr Average
1993Q3	1994Q2	0.143371
1993Q4	1994Q3	0.069087
1994Q1	1994Q4	0.012941
1994Q2	1995Q1	-0.108798
1994Q3	1995Q2	-0.195464
1994Q4	1995Q3	-0.203664
1995Q1	1995Q4	-0.152508
1995Q2	1996Q1	-0.085946
1995Q3	1996Q2	0.000670
1995Q4	1996Q3	0.024765
1996Q1	1996Q4	-0.028029
1996Q2	1997Q1	-0.025318
1996Q3	1997Q2	-0.011092

Mean of the 4 Quarter Averages: -0.043076

Five Year Mechanical Net Trend
1992q2 to 1997q2: 1.005442

Net Trend used in Forecast 0.975107

FORECAST ERROR ANALYSIS
Periodical Nonprofit Mail

From Forecast Using Base Year Ending 1992Q2
R97-1 Forecast Specifications

Forecast Errors

Calculated as the log of the actual volume minus the log of the forecasted volume

Year	Fall	Winter	Spring	Summer
1992			0.056360	0.059547
1993	-0.035661	-0.003321	-0.054930	-0.046498
1994	-0.077361	-0.038405	-0.056473	-0.103109
1995	-0.092711	-0.097442	-0.045872	-0.095255
1996	-0.050788	-0.079621	-0.100714	-0.119900
1997	-0.093976	-0.111270		

SPLY Differences of Forecast Errors

Year	Fall	Winter	Spring	Summer
1992			NA	NA
1993	NA	NA	0.001290	0.006045
1994	-0.041700	-0.035084	-0.001544	-0.056611
1995	-0.050250	-0.058737	0.010602	0.007746
1996	-0.023676	0.017521	-0.054842	-0.014645
1997	-0.041188	-0.031649		

Four Quarter Average of SPLY Differences

Begin	End	4-Qtr Average
1993Q3	1994Q2	-0.073530
1993Q4	1994Q3	-0.046093
1994Q1	1994Q4	-0.033735
1994Q2	1995Q1	-0.010747
1994Q3	1995Q2	-0.016660
1994Q4	1995Q3	-0.013624
1995Q1	1995Q4	-0.000008
1995Q2	1996Q1	-0.018489
1995Q3	1996Q2	0.000575
1995Q4	1996Q3	-0.015786
1996Q1	1996Q4	-0.018910
1996Q2	1997Q1	-0.023288
1996Q3	1997Q2	-0.035581

Mean of the 4 Quarter Averages:	-0.023529
Five Year Mechanical Net Trend 1992q2 to 1997q2:	0.978934
Net Trend used in Forecast	0.978934

FORECAST ERROR ANALYSIS
Periodical Classroom Mail

From Forecast Using Base Year Ending 1992Q2
R97-1 Forecast Specifications

Forecast Errors

Calculated as the log of the actual volume minus the log of the forecasted volume

Year	Fall	Winter	Spring	Summer
1992			0.523768	0.695970
1993	-0.139621	0.361039	0.350795	0.040969
1994	0.218642	0.418078	0.304280	0.113497
1995	-0.152415	0.528123	0.094400	-0.233227
1996	0.044436	0.404767	0.089481	-0.030426
1997	0.009553	0.292145		

SPLY Differences of Forecast Errors

Year	Fall	Winter	Spring	Summer
1992			NA	NA
1993	NA	NA	-0.173573	-0.695000
1994	-0.177898	0.057039	-0.045915	0.072528
1995	-0.066227	0.110045	-0.209880	-0.119730
1996	-0.107979	-0.123356	-0.004919	-0.263653
1997	-0.034883	-0.112622		

Four Quarter Average of SPLY Differences

Begin	End	4-Qtr Average
1993Q3	1994Q2	-0.237358
1993Q4	1994Q3	-0.205444
1994Q1	1994Q4	-0.023561
1994Q2	1995Q1	0.004356
1994Q3	1995Q2	0.017608
1994Q4	1995Q3	-0.023383
1995Q1	1995Q4	-0.011583
1995Q2	1996Q1	-0.022021
1995Q3	1996Q2	-0.080371
1995Q4	1996Q3	-0.029131
1996Q1	1996Q4	-0.124977
1996Q2	1997Q1	-0.106703
1996Q3	1997Q2	-0.104019

Mean of the 4 Quarter Averages: -0.072814

Five Year Mechanical Net Trend
1992q2 to 1997q2: 1.018866

Net Trend used in Forecast 1.000000

FORECAST ERROR ANALYSIS
Periodical Regular Rate

From Forecast Using Base Year Ending 1992Q2
R97-1 Forecast Specifications

Forecast Errors

Calculated as the log of the actual volume minus the log of the forecasted volume

Year	Fall	Winter	Spring	Summer
1992			-0.047076	-0.037920
1993	-0.022663	-0.053607	-0.000810	-0.053106
1994	-0.081212	-0.060898	-0.009225	-0.060760
1995	-0.055352	-0.116327	-0.032426	-0.046727
1996	-0.050148	0.003398	-0.056286	-0.059743
1997	-0.024566	-0.029395		

SPLY Differences of Forecast Errors

Year	Fall	Winter	Spring	Summer
1992			NA	NA
1993	NA	NA	-0.046266	-0.015186
1994	-0.058549	-0.007292	-0.008415	-0.007654
1995	0.025860	0.055429	0.041652	0.014033
1996	0.005204	0.119726	-0.088713	-0.013015
1997	0.025582	0.032794		

Four Quarter Average of SPLY Differences

Begin	End	4-Qtr Average
1993Q3	1994Q2	-0.008690
1993Q4	1994Q3	-0.022361
1994Q1	1994Q4	-0.020478
1994Q2	1995Q1	0.000625
1994Q3	1995Q2	-0.011410
1994Q4	1995Q3	0.001107
1995Q1	1995Q4	0.006529
1995Q2	1996Q1	0.001365
1995Q3	1996Q2	0.045154
1995Q4	1996Q3	0.012563
1996Q1	1996Q4	0.005801
1996Q2	1997Q1	0.010895
1996Q3	1997Q2	-0.027235

Mean of the 4 Quarter Averages: -0.000472

Five Year Mechanical Net Trend
1992q2 to 1997q2: 0.991306

Net Trend used in Forecast 0.991306

FORECAST ERROR ANALYSIS
Standard Single-Piece

From Forecast Using Base Year Ending 1992Q2
R97-1 Forecast Specifications

Forecast Errors

Calculated as the log of the actual volume minus the log of the forecasted volume

Year	Fall	Winter	Spring	Summer
1992			0.014092	-0.067877
1993	-0.080667	-0.172530	-0.148003	-0.061845
1994	-0.279612	-0.194395	-0.027754	-0.253052
1995	-0.219142	-0.337128	-0.325521	-0.622665
1996	-0.316799	-0.365233	-0.141665	-0.275485
1997	-0.134938	-0.197092		

SPLY Differences of Forecast Errors

Year	Fall	Winter	Spring	Summer
1992			NA	NA
1993	NA	NA	-0.162095	0.006032
1994	-0.198945	-0.021865	0.120248	-0.191207
1995	0.060470	0.142733	0.297767	0.369613
1996	-0.097657	-0.028105	0.183856	0.347180
1997	0.181861	0.168142		

Four Quarter Average of SPLY Differences

Begin	End	4-Qtr Average
1993Q3	1994Q2	-0.094218
1993Q4	1994Q3	-0.023633
1994Q1	1994Q4	-0.072942
1994Q2	1995Q1	-0.008088
1994Q3	1995Q2	-0.038305
1994Q4	1995Q3	-0.142809
1995Q1	1995Q4	-0.187411
1995Q2	1996Q1	-0.226942
1995Q3	1996Q2	-0.198285
1995Q4	1996Q3	-0.077880
1996Q1	1996Q4	0.101319
1996Q2	1997Q1	0.171198
1996Q3	1997Q2	0.220260

Mean of the 4 Quarter Averages:	-0.044441
Five Year Mechanical Net Trend 1992q2 to 1997q2:	0.962948
Net Trend used in Forecast	1.000000

FORECAST ERROR ANALYSIS
Standard Regular Rate

From Forecast Using Base Year Ending 1992Q2
R97-1 Forecast Specifications

Forecast Errors

Calculated as the log of the actual volume minus the log of the forecasted volume

Year	Fall	Winter	Spring	Summer
1992			0.012428	0.018197
1993	[illegible]	[illegible]	[illegible]	[illegible]
1994	-0.022226	-0.022457	-0.002996	-0.019801
1995	[illegible]	[illegible]	[illegible]	[illegible]
1996	0.010483	-0.020585	0.015372	-0.011403
1997	[illegible]	[illegible]		

SPLY Differences of Forecast Errors

Year	Fall	Winter	Spring	Summer
1992			NA	NA
1993	[illegible]	[illegible]	[illegible]	[illegible]
1994	0.007106	0.003321	-0.055274	-0.031341
1995	[illegible]	[illegible]	[illegible]	[illegible]
1996	0.012090	-0.036909	-0.017941	0.008893
1997	[illegible]	[illegible]		

Four Quarter Average of SPLY Differences

Begin	End	4-Qtr Average
1993Q3	1994Q2	0.010905
1993Q4	1994Q3	-0.012876
1994Q1	1994Q4	-0.019047
1994Q2	1995Q1	-0.015669
1994Q3	1995Q2	-0.006804
1994Q4	1995Q3	0.016092
1995Q1	1995Q4	0.023803
1995Q2	1996Q1	0.021671
1995Q3	1996Q2	0.002748
1995Q4	1996Q3	-0.010814
1996Q1	1996Q4	-0.008467
1996Q2	1997Q1	-0.014900
1996Q3	1997Q2	-0.001068

Mean of the 4 Quarter Averages: -0.001110

Five Year Mechanical Net Trend
1992q2 to 1997q2: 0.999766

Net Trend used in Forecast 1.000000

FORECAST ERROR ANALYSIS
Standard Enhanced Carrier Route

From Forecast Using Base Year Ending 1992Q2
R97-1 Forecast Specifications

Forecast Errors

Calculated as the log of the actual volume minus the log of the forecasted volume

Year	Fall	Winter	Spring	Summer
1992			-0.002464	-0.007816
1993	-0.035392	-0.057280	-0.050063	-0.017563
1994	0.031998	0.012436	0.075387	0.024690
1995	-0.005852	-0.009177	-0.023706	-0.020293
1996	-0.011214	0.012747	0.051511	-0.012061
1997	-0.009110	0.007986		

SPLY Differences of Forecast Errors

Year	Fall	Winter	Spring	Summer
1992			NA	NA
1993	NA	NA	0.052525	0.025379
1994	-0.003394	-0.044845	0.025326	0.007128
1995	-0.037850	-0.021613	-0.053681	-0.004398
1996	-0.005362	0.021924	0.029805	-0.032353
1997	-0.020324	-0.004761		

Four Quarter Average of SPLY Differences

Begin	End	4-Qtr Average
1993Q3	1994Q2	0.007416
1993Q4	1994Q3	0.000616
1994Q1	1994Q4	-0.003946
1994Q2	1995Q1	-0.012560
1994Q3	1995Q2	-0.006752
1994Q4	1995Q3	-0.026504
1995Q1	1995Q4	-0.029385
1995Q2	1996Q1	-0.021263
1995Q3	1996Q2	-0.010379
1995Q4	1996Q3	0.010492
1996Q1	1996Q4	0.003504
1996Q2	1997Q1	0.009925
1996Q3	1997Q2	0.003254

Mean of the 4 Quarter Averages: -0.005814

Five Year Mechanical Net Trend
1992q2 to 1997q2: 1.002467

Net Trend used in Forecast 1.000000

FORECAST ERROR ANALYSIS
Standard Bulk Nonprofit

From Forecast Using Base Year Ending 1992Q2
R97-1 Forecast Specifications

Forecast Errors

Calculated as the log of the actual volume minus the log of the forecasted volume

Year	Fall	Winter	Spring	Summer
1992			0.008485	-0.025749
1993	[illegible]	[illegible]	[illegible]	[illegible]
1994	-0.502728	-0.472813	-0.375010	-0.480987
1995	[illegible]	[illegible]	[illegible]	[illegible]
1996	-0.446033	-0.448983	-0.393616	-0.410786
1997	[illegible]	[illegible]		

SPLY Differences of Forecast Errors

Year	Fall	Winter	Spring	Summer
1992			NA	NA
1993	[illegible]	[illegible]	[illegible]	[illegible]
1994	-0.476624	-0.477279	-0.386812	-0.453947
1995	[illegible]	[illegible]	[illegible]	[illegible]
1996	-0.021671	-0.022757	0.047288	0.028867
1997	[illegible]	[illegible]		

Four Quarter Average of SPLY Differences

Begin	End	4-Qtr Average
1993Q3	1994Q2	-0.237969
1993Q4	1994Q3	-0.335501
1994Q1	1994Q4	-0.448666
1994Q2	1995Q1	-0.309918
1994Q3	1995Q2	-0.178951
1994Q4	1995Q3	-0.098722
1995Q1	1995Q4	0.025098
1995Q2	1996Q1	0.000089
1995Q3	1996Q2	-0.017247
1995Q4	1996Q3	0.011048
1996Q1	1996Q4	0.007932
1996Q2	1997Q1	0.036119
1996Q3	1997Q2	0.047858

Mean of the 4 Quarter Averages: -0.115295

Five Year Mechanical Net Trend
1992q2 to 1997q2: 1.000222

Net Trend used in Forecast 1.000000

FORECAST ERROR ANALYSIS
Standard Parcel Post

From Forecast Using Base Year Ending 1992Q2
R97-1 Forecast Specifications

Forecast Errors

Calculated as the log of the actual volume minus the log of the forecasted volume

Year	Fall	Winter	Spring	Summer
1992			0.210354	0.009134
1993	-0.016473	-0.009175	-0.090858	-0.004991
1994	0.085555	0.031920	0.133182	0.099073
1995	-0.081863	-0.060453	-0.043584	-0.031246
1996	0.065491	0.041550	0.017561	0.047201
1997	-0.026243	-0.007563		

SPLY Differences of Forecast Errors

Year	Fall	Winter	Spring	Summer
1992			NA	NA
1993	NA	NA	-0.119495	-0.004143
1994	0.096028	0.022745	0.042324	0.094082
1995	-0.003693	-0.028533	-0.089599	-0.067826
1996	-0.016372	-0.018903	-0.026023	0.015955
1997	-0.039248	-0.034084		

Four Quarter Average of SPLY Differences

Begin	End	4-Qtr Average
1993Q3	1994Q2	-0.001216
1993Q4	1994Q3	0.039238
1994Q1	1994Q4	0.063795
1994Q2	1995Q1	0.038864
1994Q3	1995Q2	0.040312
1994Q4	1995Q3	0.007331
1995Q1	1995Q4	-0.033146
1995Q2	1996Q1	-0.036316
1995Q3	1996Q2	-0.048175
1995Q4	1996Q3	-0.032281
1996Q1	1996Q4	-0.011336
1996Q2	1997Q1	-0.017055
1996Q3	1997Q2	-0.003808

Mean of the 4 Quarter Averages:	0.000477
Five Year Mechanical Net Trend 1992q2 to 1997q2:	1.008560
Net Trend used in Forecast	1.000000

FORECAST ERROR ANALYSIS
Inter-BMC Parcel Post

From Forecast Using Base Year Ending 1992Q2
R97-1 Forecast Specifications

Forecast Errors

Calculated as the log of the actual volume minus the log of the forecasted volume

Year	Fall	Winter	Spring	Summer
1992			0.029920	-0.140679
1993	-0.307699	-0.239044	-0.241986	-0.352848
1994	-0.414222	-0.344190	-0.303228	-0.385373
1995	-0.490490	-0.409242	-0.516649	-0.579640
1996	-0.605472	-0.639252	-0.681186	-0.693702
1997	-0.840942	-0.733056		

SPLY Differences of Forecast Errors

Year	Fall	Winter	Spring	Summer
1992			NA	NA
1993	NA	NA	-0.271907	-0.212169
1994	-0.106522	-0.105145	-0.061241	-0.032525
1995	-0.013732	-0.065052	-0.213422	-0.194266
1996	-0.204982	-0.230010	-0.164537	-0.114062
1997	-0.235470	-0.093804		

Four Quarter Average of SPLY Differences

Begin	End	4-Qtr Average
1993Q3	1994Q2	-0.173936
1993Q4	1994Q3	-0.121270
1994Q1	1994Q4	-0.076358
1994Q2	1995Q1	-0.046295
1994Q3	1995Q2	-0.036272
1994Q4	1995Q3	-0.074317
1995Q1	1995Q4	-0.114752
1995Q2	1996Q1	-0.169431
1995Q3	1996Q2	-0.210670
1995Q4	1996Q3	-0.198449
1996Q1	1996Q4	-0.178398
1996Q2	1997Q1	-0.186020
1996Q3	1997Q2	-0.151968

Mean of the 4 Quarter Averages: -0.133703

Five Year Mechanical Net Trend
1992q2 to 1997q2: 0.862568

Net Trend used in Forecast 0.862568

FORECAST ERROR ANALYSIS
Intra-BMC Parcel Post

From Forecast Using Base Year Ending 1992Q2
R97-1 Forecast Specifications

Forecast Errors

Calculated as the log of the actual volume minus the log of the forecasted volume

Year	Fall	Winter	Spring	Summer
1992			0.520818	0.075557
1993	-0.140555	0.042218	-0.020035	-0.013297
1994	-0.071965	-0.166489	-0.002372	0.094876
1995	-0.090988	0.004461	-0.087641	-0.000628
1996	-0.201812	-0.073147	-0.076584	-0.030037
1997	-0.020578	-0.177236		

SPLY Differences of Forecast Errors

Year	Fall	Winter	Spring	Summer
1992			NA	NA
1993	NA	NA	-0.540853	-0.088854
1994	0.068591	-0.124272	0.017664	0.108173
1995	-0.019024	-0.170950	-0.085269	-0.095505
1996	-0.110824	-0.077608	0.011057	-0.029409
1997	-0.006766	-0.104081		

Four Quarter Average of SPLY Differences

Begin	End	4-Qtr Average
1993Q3	1994Q2	-0.171347
1993Q4	1994Q3	-0.031718
1994Q1	1994Q4	0.017539
1994Q2	1995Q1	-0.004365
1994Q3	1995Q2	0.069441
1994Q4	1995Q3	0.043708
1995Q1	1995Q4	-0.007212
1995Q2	1996Q1	-0.030162
1995Q3	1996Q2	-0.092301
1995Q4	1996Q3	-0.068220
1996Q1	1996Q4	-0.051696
1996Q2	1997Q1	-0.025681
1996Q3	1997Q2	-0.032301

Mean of the 4 Quarter Averages: -0.029563

Five Year Mechanical Net Trend
1992q2 to 1997q2: 0.975626

Net Trend used in Forecast 0.975626

FORECAST ERROR ANALYSIS
DBMC Parcel Post

From Forecast Using Base Year Ending 1992Q2
R97-1 Forecast Specifications

Forecast Errors

Calculated as the log of the actual volume minus the log of the forecasted volume

Year	Fall	Winter	Spring	Summer
1992			0.338096	0.561479
1993	[illegible]	[illegible]	[illegible]	[illegible]
1994	1.460237	1.291064	1.426702	1.358543
1995	[illegible]	[illegible]	[illegible]	[illegible]
1996	1.637526	1.549720	1.528067	1.578262
1997	[illegible]	[illegible]		

SPLY Differences of Forecast Errors

Year	Fall	Winter	Spring	Summer
1992			NA	NA
1993	[illegible]	[illegible]	[illegible]	[illegible]
1994	0.370829	0.336786	0.195156	0.249023
1995	[illegible]	[illegible]	[illegible]	[illegible]
1996	0.190035	0.209602	0.066172	0.141940
1997	[illegible]	[illegible]		

Four Quarter Average of SPLY Differences

Begin	End	4-Qtr Average
1993Q3	1994Q2	0.537276
1993Q4	1994Q3	0.362703
1994Q1	1994Q4	0.287949
1994Q2	1995Q1	0.192055
1994Q3	1995Q2	0.120122
1994Q4	1995Q3	0.080132
1995Q1	1995Q4	0.037321
1995Q2	1996Q1	0.088015
1995Q3	1996Q2	0.128152
1995Q4	1996Q3	0.135897
1996Q1	1996Q4	0.151937
1996Q2	1997Q1	0.120795
1996Q3	1997Q2	0.112953

Mean of the 4 Quarter Averages: 0.181178

Five Year Mechanical Net Trend
1992q2 to 1997q2: 1.388932

Net Trend used in Forecast 1.124059

FORECAST ERROR ANALYSIS
Standard Bound Printed Matter

From Forecast Using Base Year Ending 1992Q2
R97-1 Forecast Specifications

Forecast Errors

Calculated as the log of the actual volume minus the log of the forecasted volume

Year	Fall	Winter	Spring	Summer
1992			-0.046671	-0.062633
1993	-0.093393	-0.034449	-0.016702	-0.033604
1994	0.042316	-0.157581	0.064778	-0.102048
1995	-0.080200	-0.065118	-0.063193	-0.010222
1996	0.040916	0.057331	-0.009994	0.040196
1997	-0.008484	-0.089562		

SPLY Differences of Forecast Errors

Year	Fall	Winter	Spring	Summer
1992			NA	NA
1993	NA	NA	-0.063372	-0.029030
1994	0.135709	-0.192029	0.048076	-0.068445
1995	-0.122516	-0.092462	-0.001585	0.112270
1996	0.121116	0.122449	-0.073187	0.029974
1997	0.043925	0.146893		

Four Quarter Average of SPLY Differences

Begin	End	4-Qtr Average
1993Q3	1994Q2	0.009020
1993Q4	1994Q3	0.005196
1994Q1	1994Q4	-0.019172
1994Q2	1995Q1	-0.083729
1994Q3	1995Q2	-0.012606
1994Q4	1995Q3	-0.025021
1995Q1	1995Q4	0.020158
1995Q2	1996Q1	0.081066
1995Q3	1996Q2	0.088563
1995Q4	1996Q3	0.070662
1996Q1	1996Q4	0.050088
1996Q2	1997Q1	0.030790
1996Q3	1997Q2	-0.036545

Mean of the 4 Quarter Averages: 0.013729

Five Year Mechanical Net Trend
1992q2 to 1997q2: 1.003300

Net Trend used in Forecast 1.000000

FORECAST ERROR ANALYSIS
Standard Special Rate

From Forecast Using Base Year Ending 1992Q2
R97-1 Forecast Specifications

Forecast Errors

Calculated as the log of the actual volume minus the log of the forecasted volume

Year	Fall	Winter	Spring	Summer
1992			-0.013997	0.008846
1993	-0.016462	0.037554	0.051763	-0.042788
1994	-0.101416	0.010888	-0.013311	-0.011426
1995	0.009273	0.024523	0.013773	-0.063152
1996	-0.066647	-0.044577	0.035249	0.025268
1997	-0.072774	0.018523		

SPLY Differences of Forecast Errors

Year	Fall	Winter	Spring	Summer
1992			NA	NA
1993	NA	NA	0.065460	0.051634
1994	-0.117878	-0.026666	-0.064774	0.031362
1995	0.110689	0.035411	0.027083	-0.051726
1996	-0.075920	-0.020054	0.021476	0.088420
1997	-0.006127	0.026054		

Four Quarter Average of SPLY Differences

Begin	End	4-Qtr Average
1993Q3	1994Q2	-0.032680
1993Q4	1994Q3	-0.065238
1994Q1	1994Q4	-0.044489
1994Q2	1995Q1	0.012653
1994Q3	1995Q2	0.010467
1994Q4	1995Q3	0.033431
1995Q1	1995Q4	0.012659
1995Q2	1996Q1	-0.033993
1995Q3	1996Q2	-0.030154
1995Q4	1996Q3	-0.031556
1996Q1	1996Q4	0.003480
1996Q2	1997Q1	0.020929
1996Q3	1997Q2	0.032456

Mean of the 4 Quarter Averages:	-0.008618
Five Year Mechanical Net Trend 1992q2 to 1997q2:	0.998028
Net Trend used in Forecast	1.000000

FORECAST ERROR ANALYSIS
Standard Library Rate

From Forecast Using Base Year Ending 1992Q2
R97-1 Forecast Specifications

Forecast Errors

Calculated as the log of the actual volume minus the log of the forecasted volume

Year	Fall	Winter	Spring	Summer
1992			-0.389358	-0.347691
1993	-0.032605	-0.229200	0.138791	-0.248003
1994	-0.128315	-0.192209	0.163748	-0.088809
1995	-0.226900	-0.205326	0.056295	-0.174411
1996	-0.106430	0.019540	0.289734	-0.019190
1997	-0.172341	-0.152027		

SPLY Differences of Forecast Errors

Year	Fall	Winter	Spring	Summer
1992			NA	NA
1993	NA	NA	0.275480	0.099687
1994	0.197735	0.036991	0.277626	0.159195
1995	-0.098585	-0.013117	-0.220043	-0.085602
1996	0.120470	0.224866	0.346029	0.155221
1997	-0.065914	-0.171567		

Four Quarter Average of SPLY Differences

Begin	End	4-Qtr Average
1993Q3	1994Q2	0.152473
1993Q4	1994Q3	0.153010
1994Q1	1994Q4	0.167887
1994Q2	1995Q1	0.093807
1994Q3	1995Q2	0.081280
1994Q4	1995Q3	-0.043138
1995Q1	1995Q4	-0.104337
1995Q2	1996Q1	-0.049573
1995Q3	1996Q2	0.009923
1995Q4	1996Q3	0.151441
1996Q1	1996Q4	0.211647
1996Q2	1997Q1	0.165051
1996Q3	1997Q2	0.065942

Mean of the 4 Quarter Averages:	0.081186
Five Year Mechanical Net Trend 1992q2 to 1997q2:	0.998726
Net Trend used in Forecast	1.000000

FORECAST ERROR ANALYSIS
Mailgrams

From Forecast Using Base Year Ending 1992Q2
R97-1 Forecast Specifications

Forecast Errors

Calculated as the log of the actual volume minus the log of the forecasted volume

Year	Fall	Winter	Spring	Summer
1992			0.062511	-0.084302
1993	-0.059567	-0.143155	-0.308897	-0.710562
1994	-0.444215	-0.545554	-0.832762	-0.596875
1995	-0.724068	-0.860369	-0.546173	-0.987567
1996	-1.184187	-0.777763	-0.740184	-0.708542
1997	-0.367092	-0.414306		

SPLY Differences of Forecast Errors

Year	Fall	Winter	Spring	Summer
1992			NA	NA
1993	NA	NA	-0.371408	-0.626259
1994	-0.503781	-0.402399	-0.523865	0.113686
1995	-0.279873	-0.314815	-0.116588	-0.490242
1996	-0.460099	0.082606	-0.024011	0.378575
1997	0.817095	0.363458		

Four Quarter Average of SPLY Differences

Begin	End	4-Qtr Average
1993Q3	1994Q2	-0.475962
1993Q4	1994Q3	-0.514076
1994Q1	1994Q4	-0.329090
1994Q2	1995Q1	-0.273113
1994Q3	1995Q2	-0.251217
1994Q4	1995Q3	-0.091103
1995Q1	1995Q4	-0.242085
1995Q2	1996Q1	-0.287142
1995Q3	1996Q2	-0.187787
1995Q4	1996Q3	-0.222936
1996Q1	1996Q4	-0.005732
1996Q2	1997Q1	0.313566
1996Q3	1997Q2	0.383779

Mean of the 4 Quarter Averages:	-0.167915
Five Year Mechanical Net Trend 1992q2 to 1997q2:	0.896242
Net Trend used in Forecast	0.896242

FORECAST ERROR ANALYSIS
Postal Penalty Mail

From Forecast Using Base Year Ending 1992Q2
R97-1 Forecast Specifications

Forecast Errors

Calculated as the log of the actual volume minus the log of the forecasted volume

Year	Fall	Winter	Spring	Summer
1992			0.057721	-0.089189
1993	-0.186477	-0.103292	-0.022971	-0.006027
1994	-0.240716	-0.286926	-0.130145	-0.349819
1995	-0.120404	-0.329598	-0.380766	-0.641183
1996	-0.469880	-0.421927	-0.619529	-0.546047
1997	-0.616523	-0.439606		

SPLY Differences of Forecast Errors

Year	Fall	Winter	Spring	Summer
1992			NA	NA
1993	NA	NA	-0.034750	-0.095216
1994	-0.054239	-0.183634	-0.153116	-0.355846
1995	0.120312	0.042672	0.250621	0.291364
1996	-0.349476	-0.092329	-0.238763	0.095136
1997	-0.146643	-0.017679		

Four Quarter Average of SPLY Differences

Begin	End	4-Qtr Average
1993Q3	1994Q2	-0.044352
1993Q4	1994Q3	-0.073943
1994Q1	1994Q4	-0.186709
1994Q2	1995Q1	-0.143071
1994Q3	1995Q2	-0.107831
1994Q4	1995Q3	-0.132207
1995Q1	1995Q4	-0.116086
1995Q2	1996Q1	-0.233533
1995Q3	1996Q2	-0.245948
1995Q4	1996Q3	-0.242983
1996Q1	1996Q4	-0.146358
1996Q2	1997Q1	-0.095650
1996Q3	1997Q2	-0.076987

Mean of the 4 Quarter Averages: -0.141974

Five Year Mechanical Net Trend
1992q2 to 1997q2: 0.894783

Net Trend used in Forecast 0.894783

FORECAST ERROR ANALYSIS
Free-for-the-Blind-and-Handicapped

From Forecast Using Base Year Ending 1992Q2
R97-1 Forecast Specifications

Forecast Errors

Calculated as the log of the actual volume minus the log of the forecasted volume

Year	Fall	Winter	Spring	Summer
1992			0.758109	0.043129
1993	-0.021719	-0.325749	-0.614214	-0.754388
1994	0.550906	0.258120	0.311071	0.153448
1995	-0.259307	-0.658554	-0.002964	-0.306997
1996	0.424537	-0.033566	0.118046	0.478506
1997	-0.184192	-0.332214		

SPLY Differences of Forecast Errors

Year	Fall	Winter	Spring	Summer
1992			NA	NA
1993	NA	NA	-0.743896	-0.711258
1994	0.572624	-0.067630	0.296857	-0.600940
1995	-0.291599	-0.400434	-0.314035	-0.153548
1996	0.165230	-0.692120	0.121010	0.171509
1997	-0.240345	-0.365781		

Four Quarter Average of SPLY Differences

Begin	End	4-Qtr Average
1993Q3	1994Q2	0.118089
1993Q4	1994Q3	0.378278
1994Q1	1994Q4	0.050228
1994Q2	1995Q1	-0.165828
1994Q3	1995Q2	-0.048812
1994Q4	1995Q3	-0.201535
1995Q1	1995Q4	-0.012913
1995Q2	1996Q1	0.101294
1995Q3	1996Q2	-0.171844
1995Q4	1996Q3	-0.063083
1996Q1	1996Q4	-0.058593
1996Q2	1997Q1	-0.159986
1996Q3	1997Q2	0.104489

Mean of the 4 Quarter Averages:	-0.010017
Five Year Mechanical Net Trend 1992q2 to 1997q2:	1.060285
Net Trend used in Forecast	1.060285

FORECAST ERROR ANALYSIS
Registered Mail

From Forecast Using Base Year Ending 1992Q2
R97-1 Forecast Specifications

Forecast Errors

Calculated as the log of the actual volume minus the log of the forecasted volume

Year	Fall	Winter	Spring	Summer
1992			-0.080337	-0.171674
1993	-0.085855	-0.209283	-0.151016	-0.261110
1994	-0.176019	-0.298725	-0.259893	-0.299671
1995	-0.244682	-0.381926	-0.316174	-0.347778
1996	-0.647189	-0.363552	-0.468528	-0.464705
1997	-0.537273	-0.573046		

SPLY Differences of Forecast Errors

Year	Fall	Winter	Spring	Summer
1992			NA	NA
1993	NA	NA	-0.070681	-0.089436
1994	-0.090165	-0.089442	-0.108875	-0.038562
1995	-0.038663	-0.083201	-0.056278	-0.047707
1996	-0.432507	0.018374	-0.152357	0.007074
1997	-0.109916	-0.209494		

Four Quarter Average of SPLY Differences

Begin	End	4-Qtr Average
1993Q3	1994Q2	-0.084931
1993Q4	1994Q3	-0.094480
1994Q1	1994Q4	-0.081761
1994Q2	1995Q1	-0.068885
1994Q3	1995Q2	-0.067325
1994Q4	1995Q3	-0.054176
1995Q1	1995Q4	-0.087562
1995Q2	1996Q1	-0.186023
1995Q3	1996Q2	-0.160630
1995Q4	1996Q3	-0.184649
1996Q1	1996Q4	-0.139854
1996Q2	1997Q1	-0.004248
1996Q3	1997Q2	-0.061215

Mean of the 4 Quarter Averages:	-0.098134
Five Year Mechanical Net Trend 1992q2 to 1997q2:	0.903845
Net Trend used in Forecast	0.903845

FORECAST ERROR ANALYSIS
Insured Mail

From Forecast Using Base Year Ending 1992Q2
R97-1 Forecast Specifications

Forecast Errors

Calculated as the log of the actual volume minus the log of the forecasted volume

Year	Fall	Winter	Spring	Summer
1992			-0.241695	-0.221137
1993	-0.217267	-0.199674	-0.255367	-0.269270
1994	-0.239160	-0.240589	-0.253950	-0.270439
1995	-0.340347	-0.320743	-0.421509	-0.410714
1996	-0.461532	-0.302752	-0.412594	-0.361855
1997	-0.354930	-0.297023		

SPLY Differences of Forecast Errors

Year	Fall	Winter	Spring	Summer
1992			NA	NA
1993	NA	NA	-0.013672	-0.048197
1994	-0.067953	-0.040915	0.001417	-0.061169
1995	-0.101187	-0.080154	-0.167559	-0.140275
1996	-0.121185	0.017991	0.008915	0.048859
1997	0.106601	0.005729		

Four Quarter Average of SPLY Differences

Begin	End	4-Qtr Average
1993Q3	1994Q2	-0.027668
1993Q4	1994Q3	-0.023896
1994Q1	1994Q4	-0.042155
1994Q2	1995Q1	-0.050463
1994Q3	1995Q2	-0.060273
1994Q4	1995Q3	-0.102517
1995Q1	1995Q4	-0.122294
1995Q2	1996Q1	-0.127293
1995Q3	1996Q2	-0.102757
1995Q4	1996Q3	-0.058639
1996Q1	1996Q4	-0.011355
1996Q2	1997Q1	0.045591
1996Q3	1997Q2	0.042526

Mean of the 4 Quarter Averages: -0.049323

Five Year Mechanical Net Trend
1992q2 to 1997q2: 0.931877

Net Trend used in Forecast 0.961958

FORECAST ERROR ANALYSIS
Certified Mail

From Forecast Using Base Year Ending 1992Q2
R97-1 Forecast Specifications

Forecast Errors

Calculated as the log of the actual volume minus the log of the forecasted volume

Year	Fall	Winter	Spring	Summer
1992			0.082084	0.058434
1993	-0.137580	-0.062350	-0.120932	-0.130840
1994	0.195715	0.068393	0.142382	0.010495
1995	-0.091222	-0.348246	-0.222670	-0.220149
1996	0.108976	0.158086	0.185427	0.255014
1997	-0.234233	-0.196673		

SPLY Differences of Forecast Errors

Year	Fall	Winter	Spring	Summer
1992			NA	NA
1993	NA	NA	-0.038848	-0.072406
1994	0.058134	0.006043	0.021450	-0.120345
1995	-0.104492	-0.279853	-0.080488	-0.209655
1996	0.017753	-0.190160	-0.037442	0.034864
1997	-0.125257	-0.038586		

Four Quarter Average of SPLY Differences

Begin	End	4-Qtr Average
1993Q3	1994Q2	0.043858
1993Q4	1994Q3	0.039508
1994Q1	1994Q4	-0.008680
1994Q2	1995Q1	-0.049336
1994Q3	1995Q2	0.019116
1994Q4	1995Q3	0.033876
1995Q1	1995Q4	0.116376
1995Q2	1996Q1	0.146937
1995Q3	1996Q2	0.029434
1995Q4	1996Q3	-0.000048
1996Q1	1996Q4	-0.043746
1996Q2	1997Q1	-0.016870
1996Q3	1997Q2	0.040316

Mean of the 4 Quarter Averages:	0.026980
Five Year Mechanical Net Trend 1992q2 to 1997q2:	1.045100
Net Trend used in Forecast	1.045100

FORECAST ERROR ANALYSIS
Collect-on-Delivery

From Forecast Using Base Year Ending 1992Q2
R97-1 Forecast Specifications

Forecast Errors

Calculated as the log of the actual volume minus the log of the forecasted volume

Year	Fall	Winter	Spring	Summer
1992			0.027383	-0.018690
1993	-0.099892	-0.187505	-0.202672	-0.373161
1994	-0.368986	-0.518289	-0.419828	-0.502809
1995	-0.517277	-0.426774	-0.498567	-0.545998
1996	-0.545806	-0.567235	-0.550912	-0.619466
1997	-0.657026	-0.689420		

SPLY Differences of Forecast Errors

Year	Fall	Winter	Spring	Summer
1992			NA	NA
1993	NA	NA	-0.230055	-0.354471
1994	-0.269093	-0.330784	-0.217156	-0.129648
1995	-0.148292	-0.091575	-0.078679	-0.043189
1996	-0.028528	-0.140522	-0.052404	-0.073468
1997	-0.111220	-0.121784		

Four Quarter Average of SPLY Differences

Begin	End	4-Qtr Average
1993Q3	1994Q2	-0.296101
1993Q4	1994Q3	-0.292876
1994Q1	1994Q4	-0.236671
1994Q2	1995Q1	-0.206470
1994Q3	1995Q2	-0.100880
1994Q4	1995Q3	-0.066261
1995Q1	1995Q4	-0.044646
1995Q2	1996Q1	-0.014705
1995Q3	1996Q2	-0.072730
1995Q4	1996Q3	-0.066161
1996Q1	1996Q4	-0.073730
1996Q2	1997Q1	-0.094403
1996Q3	1997Q2	-0.087569

Mean of the 4 Quarter Averages: -0.127170

Five Year Mechanical Net Trend
1992q2 to 1997q2: 0.882390

Net Trend used in Forecast 0.882390

FORECAST ERROR ANALYSIS
Money Orders

From Forecast Using Base Year Ending 1992Q2
R97-1 Forecast Specifications

Forecast Errors

Calculated as the log of the actual volume minus the log of the forecasted volume

Year	Fall	Winter	Spring	Summer
1992			0.055415	0.040426
1993	-0.057359	-0.054324	-0.078223	-0.042954
1994	0.061712	0.100571	0.114104	0.059123
1995	-0.085255	-0.143679	-0.129216	-0.063531
1996	0.132205	0.084806	0.159341	0.226672
1997	-0.147519	-0.089250		

SPLY Differences of Forecast Errors

Year	Fall	Winter	Spring	Summer
1992			NA	NA
1993	NA	NA	-0.022808	-0.002529
1994	0.004353	0.046247	0.035881	0.016169
1995	-0.023543	-0.043108	-0.015112	-0.004408
1996	0.046951	-0.058873	0.030125	0.163141
1997	-0.015306	-0.004444		

Four Quarter Average of SPLY Differences

Begin	End	4-Qtr Average
1993Q3	1994Q2	0.018984
1993Q4	1994Q3	0.022252
1994Q1	1994Q4	0.025662
1994Q2	1995Q1	0.030460
1994Q3	1995Q2	0.029675
1994Q4	1995Q3	0.024483
1995Q1	1995Q4	0.021543
1995Q2	1996Q1	0.027395
1995Q3	1996Q2	0.001899
1995Q4	1996Q3	0.005653
1996Q1	1996Q4	0.045336
1996Q2	1997Q1	0.037425
1996Q3	1997Q2	0.053254

Mean of the 4 Quarter Averages: 0.026463

Five Year Mechanical Net Trend
1992q2 to 1997q2: 1.033249

Net Trend used in Forecast 1.033249

EXHIBIT USPS-6A

QUARTERLY AND GOVERNMENT YEAR VOLUME FORECASTS

Exhibit USPS-6A

TABLE 1
QUARTERLY VOLUME FORECASTS, 1997Q1 TO 1999Q4
GOVERNMENT DISTRIBUTED TO CLASS
(In Millions of Pieces)
Before-Rates

	(Actual) 1997Q1	(Actual) 1997Q2	1997Q3	1997Q4	1997PFY	1997GFY
FIRST-CLASS MAIL						
First-Class Letters & Flats	21,728.723	22,961.738	21,098.663	27,683.291	93,472.415	93,876.849
(Single Piece)	12,693.919	13,524.103	11,895.923	16,012.017	54,125.962	54,340.025
(Nonautomated Presort)	1,486.816	1,389.262	1,340.317	1,645.165	5,861.559	5,839.898
(Automated)	7,547.988	8,048.374	7,862.422	10,026.109	33,484.893	33,696.925
First-Class Cards	1,349.376	1,242.492	1,195.974	1,651.307	5,439.149	5,469.433
Stamped Cards	159.569	175.124	129.712	167.157	631.563	631.124
Private Cards	1,189.807	1,067.368	1,066.262	1,484.150	4,807.586	4,838.309
(Single Piece)	641.260	506.498	545.186	753.490	2,446.434	2,454.239
(Nonautomated Presort)	162.683	159.095	143.825	196.754	662.358	664.916
(Automated)	385.864	401.775	377.251	533.906	1,698.795	1,719.154
TOTAL FIRST-CLASS MAIL	23,078.099	24,204.230	22,294.636	29,334.598	98,911.564	99,346.282
Priority Mail	237.394	246.239	249.589	317.073	1,050.295	1,058.918
Express Mail	13.096	14.377	14.390	18.671	60.534	60.882
Mailgrams	1.354	1.847	1.316	1.302	5.819	5.771
PERIODICAL MAIL						
Within County	224.175	216.211	210.798	282.358	933.542	934.013
Nonprofit	537.403	512.169	524.826	616.833	2,191.232	2,197.551
Classroom	13.350	16.858	15.214	15.546	60.967	61.308
Regular Rate	1,651.532	1,643.863	1,682.762	2,134.778	7,112.935	7,132.880
TOTAL PERIODICAL MAIL	2,426.460	2,389.101	2,433.600	3,049.516	10,298.677	10,325.752
STANDARD MAIL						
Single-Piece	43.040	33.966	38.800	46.998	162.804	163.121
Regular Rate Bulk	15,990.123	13,905.081	14,190.039	18,739.460	62,824.703	63,331.756
Regular	7,910.290	7,134.231	7,265.570	9,654.307	31,964 398	32,241.467
(Nonautomated)	2,199.919	1,779.793	1,886.681	2,505.515	8,371.908	8,415.728
(Automated)	5,710.370	5,354.438	5,378.889	7,148.793	23,592.490	23,825.739
Enhanced Carrier Route	8,079.833	6,770 850	6,924.469	9,085.153	30,860.305	31,090.289
(Nonautomated)	7,646.584	6,288.545	6,470.638	8,490.234	28,896.000	29,092.773
(Automated)	433.250	482.305	453.831	594.919	1,964.305	1,997.516
Nonprofit Rate Bulk	3,636.469	2,835.623	2,908.104	3,612.474	12,992.669	13,036.602
Nonprofit	2,653.017	2,269.181	2,218.993	2,756.112	9,897.303	9,954.108
(Nonautomated)	1,199.459	984.575	923.361	1,131.854	4,239.249	4,239.978
(Automated)	1,453.558	1,284.607	1,295.632	1,624 258	5,658.055	5,714.129
Nonprofit ECR	983.452	566 442	689.111	856.361	3,095.365	3,082.494
(Nonautomated)	894.631	480.332	610.723	758.937	2,744 624	2,728.830
(Automated)	88.821	86.109	78.388	97.424	350 742	353.664
TOTAL STANDARD A	19,669.631	16,774.670	17,136.943	22,398.932	75,980.176	76,531.479
Parcel Post	58.902	57.756	50.270	61.240	228.167	230.023
(Inter-BMC)	15.960	16.592	13.426	15.720	61.699	61.878
(Intra-BMC)	11.995	11.551	10.720	12.944	47.210	47.658
(DBMC)	30.947	29.612	26.124	32.575	119.258	120.487
Bound Printed Matter	142.625	98.493	106.615	185.013	532.746	536.140
Special Rate	52.487	44.094	42.814	53.261	192.656	194.731
Library Rate	6.947	5.925	6.773	7.468	27.113	27.527
TOTAL STANDARD B	260.960	206.268	206.472	306.981	980.682	988.421
Postal Penalty	81.350	87.422	84.938	85.814	339.524	339.086
Free-for-the-Blind	12.248	10.236	13.112	15.319	50.915	51.618
TOTAL DOMESTIC MAIL	45,780.593	43,934.390	42,434.996	55,528.207	187,678.186	188,708.209
SPECIAL SERVICES						
Registry	4.146	3.726	4.131	5.293	17.296	17.322
Insurance	8.176	8.098	6.135	8.672	31.081	31.266
Certified	71.429	60.277	72.819	85 165	289 691	291.380
Collect-on-Delivery	1.039	1.019	0.996	1.297	4.351	4 348
Money Orders	47.877	44.707	52.266	71.861	216.711	218.171
TOTAL SPECIAL SERVICES	132.706	117.875	136.347	172.288	559.216	562.566

Exhibit USPS-6A

TABLE 1 (continued)
QUARTERLY VOLUME FORECASTS, 1997Q1 TO 1999Q4
GOVERNMENT DISTRIBUTED TO CLASS
(In Millions of Pieces)
Before-Rates

	1998Q1	1998Q2	1998Q3	1998Q4	1998PFY	1998GFY
FIRST-CLASS MAIL						
First-Class Letters & Flats	22,096.419	23,383.583	21,629.947	28,368.645	95,478.594	95,901.297
(Single Piece)	12,800.158	13,419.129	11,943.764	16,058.080	54,221.131	54,394.309
(Nonautomated Presort)	1,270.782	1,320.749	1,244.682	1,533.421	5,369.634	5,369.390
(Automated)	8,025.479	8,643.704	8,441.501	10,777.145	35,887.829	36,137.599
First-Class Cards	1,397.479	1,280.853	1,254.132	1,725.663	5,658.127	5,693.117
Stamped Cards	145.604	143.632	132.535	169.818	591.589	594.894
Private Cards	1,251.875	1,137.221	1,121.597	1,555.846	5,066.538	5,098.223
(Single Piece)	631.917	570.719	559.594	771.689	2,533.919	2,546.540
(Nonautomated Presort)	163.143	145.542	141.123	192.276	642.183	643.732
(Automated)	456.816	420.859	420.880	591.881	1,890.436	1,907.951
TOTAL FIRST-CLASS MAIL	23,493.897	24,664.435	22,884.079	30,094.308	101,136.720	101,594.414
Priority Mail	261.969	259.051	263.036	332.998	1,117.053	1,123.760
Express Mail	13.825	15.085	15.348	19.745	64.004	64.377
Mailgrams	1.019	1.392	1.189	1.159	4.759	4.757
PERIODICAL MAIL						
Within County	209.871	204.750	210.741	282.939	908.301	911.204
Nonprofit	528.487	511.926	525.630	613.761	2,179.905	2,186.677
Classroom	14.024	12.301	12.889	12.165	51.379	51.194
Regular Rate	1,626.703	1,645.492	1,710.902	2,163.246	7,146.343	7,172.571
TOTAL PERIODICAL MAIL	2,379.086	2,374.368	2,460.362	3,072.112	10,285.928	10,321.646
STANDARD MAIL						
Single-Piece	41.403	35.302	39.796	48.422	164.923	165.695
Regular Rate Bulk	17,284.593	14,770.965	14,824.267	19,479.362	66,359.186	66,783.249
Regular	8,678.900	7,533.644	7,701.481	10,205.439	34,119.464	34,359.008
(Nonautomated)	2,251.191	1,953.119	1,995.620	2,643.133	8,843.062	8,904.147
(Automated)	6,427.709	5,580.525	5,705.861	7,562.307	25,276.402	25,454.861
Enhanced Carrier Route	8,605.693	7,237.321	7,122.786	9,273.923	32,239.722	32,424.240
(Nonautomated)	8,042.170	6,763.402	6,656.368	8,666.642	30,128.582	30,301.017
(Automated)	563.523	473.918	466.418	607.280	2,111.140	2,123.223
Nonprofit Rate Bulk	3,581.885	2,948.737	2,981.375	3,672.896	13,184.892	13,255.224
Nonprofit	2,734.206	2,251.745	2,277.105	2,805.722	10,068.779	10,123.229
(Nonautomated)	1,114.176	914.786	919.102	1,121.921	4,069.985	4,086.150
(Automated)	1,620.030	1,336.960	1,358.003	1,683.802	5,998.795	6,037.079
Nonprofit ECR	847.678	696.992	704.269	867.174	3,116.113	3,131.995
(Nonautomated)	751.149	617.576	624.003	768.320	2,761.049	2,775.082
(Automated)	96.529	79.416	80.266	98.854	355.064	356.913
TOTAL STANDARD A	20,907.880	17,755.004	17,845.437	23,200.681	79,709.002	80,204.168
Parcel Post	63.612	59.762	52.515	64.233	240.122	241.598
(Inter-BMC)	15.656	14.091	11.853	13.868	55.468	55.256
(Intra-BMC)	13.294	12.339	10.704	12.916	49.253	49.406
(DBMC)	34.662	33.332	29.957	37.449	135.400	136.937
Bound Printed Matter	148.652	113.979	110.846	188.161	561.637	567.896
Special Rate	58.745	44.084	42.574	53.780	199.182	200.562
Library Rate	8.459	6.962	6.953	7.711	30.085	30.245
TOTAL STANDARD B	279.468	224.786	212.887	313.886	1,031.027	1,040.302
Postal Penalty	73.183	73.278	75.432	76.879	298.772	297.820
Free-for-the-Blind	14.780	11.094	13.993	16.097	55.965	56.390
TOTAL DOMESTIC MAIL	47,425.107	45,378.493	43,771.764	57,127.865	193,703.230	194,707.635
SPECIAL SERVICES						
Registry	3.967	3.611	3.739	4.879	16.197	16.195
Insurance	8.474	7.846	6.320	8.703	31.343	31.438
Certified	74.396	63.571	75.318	88.752	302.037	304.153
Collect-on-Delivery	0.949	0.913	0.898	1.182	3.942	3.936
Money Orders	51.470	51.768	55.489	76.563	235.290	236.661
TOTAL SPECIAL SERVICES	139.256	127.709	141.764	180.079	588.808	592.383

Exhibit USPS-6A

TABLE 1 (continued)
QUARTERLY VOLUME FORECASTS, 1997Q1 TO 1999Q4
GOVERNMENT DISTRIBUTED TO CLASS
(In Millions of Pieces)
Before-Rates

	1999Q1	1999Q2	1999Q3	1999Q4	1999PFY	1999GFY
FIRST-CLASS MAIL						
First-Class Letters & Flats	22,496.557	23,855.201	22,112.194	28,983.938	97,447.889	92,505.463
(Single Piece)	12,705.647	13,344.292	11,938.094	16,118.585	54,106.618	51,315.226
(Nonautomated Presort)	1,182.028	1,229.744	1,153.437	1,413.192	4,978.401	4,718.713
(Automated)	8,608.881	9,281.164	9,020.663	11,452.161	38,362.869	36,471.524
First-Class Cards	1,460.370	1,328.762	1,318.915	1,804.780	5,912.827	5,591.988
Stamped Cards	150.609	145.007	136.342	173.256	605.214	572.126
Private Cards	1,309.761	1,183.755	1,182.573	1,631.524	5,307.613	5,019.863
(Single Piece)	645.784	580.172	576.105	790.000	2,592.061	2,450.184
(Nonautomated Presort)	158.939	141.016	138.258	187.156	625.370	590.451
(Automated)	505.038	462.567	468.209	654.368	2,090.182	1,979.227
TOTAL FIRST-CLASS MAIL	23,956.926	25,183.962	23,431.109	30,788.718	103,360.715	98,097.451
Priority Mail	274.431	270.195	273.842	346.412	1,164.880	1,104.589
Express Mail	14.569	15.865	16.137	20.754	67.325	64.124
Mailgrams	0.941	1.274	1.072	1.025	4.311	4.105
PERIODICAL MAIL						
Within County	208.609	208.466	209.333	281.864	908.273	862.442
Nonprofit	522.864	507.397	524.598	606.980	2,161.839	2,046.968
Classroom	12.215	11.254	12.791	12.091	48.351	45.667
Regular Rate	1,633.901	1,667.894	1,733.982	2,191.455	7,227.233	6,868.270
TOTAL PERIODICAL MAIL	2,377.588	2,395.011	2,480.706	3,092.391	10,345.695	9,823.346
STANDARD MAIL						
Single-Piece	42.061	36.448	40.912	50.177	169.599	160.358
Regular Rate Bulk	18,022.767	15,383.563	15,500.225	20,326.591	69,233.146	65,273.599
Regular	9,170.696	7,918.233	8,144.310	10,782.599	36,015.838	34,001.064
(Nonautomated)	2,373.979	2,048.773	2,106.272	2,787.285	9,316.310	8,794.754
(Automated)	6,796.716	5,869.460	6,038.038	7,995.314	26,699.528	25,206.310
Enhanced Carrier Route	8,852.072	7,465.330	7,355.915	9,543.992	33,217.308	31,272.535
(Nonautomated)	8,272.415	6,976.481	6,874.231	8,919.027	31,042.153	29,224.729
(Automated)	579.656	488.849	481.684	624.965	2,175.155	2,047.806
Nonprofit Rate Bulk	3,654.990	3,011.199	3,051.500	3,729.997	13,447.686	12,644.696
Nonprofit	2,793.482	2,302.231	2,333.458	2,852.723	10,281.893	9,668.174
(Nonautomated)	1,110.917	913.765	921.888	1,119.368	4,065.938	3,821.873
(Automated)	1,682.565	1,388.466	1,411.570	1,733.355	6,215.955	5,846.301
Nonprofit ECR	861.509	708.969	718.042	877.274	3,165.793	2,976.522
(Nonautomated)	763.222	628.045	636.065	777.100	2,804.431	2,636.754
(Automated)	98.287	80.924	81.977	100.174	361.362	339.769
TOTAL STANDARD A	21,719.819	18,431.211	18,592.637	24,106.765	82,850.432	78,078.653
Parcel Post	65.945	63.663	55.370	68.303	253.281	238.793
(Inter-BMC)	13.609	12.549	10.418	12.258	48.834	45.844
(Intra-BMC)	13.071	12.429	10.641	12.912	49.053	46.182
(DBMC)	39.265	38.684	34.311	43.134	155.394	146.768
Bound Printed Matter	166.888	120.343	118.272	192.449	597.952	561.287
Special Rate	60.973	44.379	43.238	54.866	203.456	190.061
Library Rate	8.603	7.108	7.193	8.015	30.919	29.029
TOTAL STANDARD B	302.409	235.493	224.073	323.633	1,085.609	1,019.170
Postal Penalty	63.804	69.618	68.871	68.330	270.623	256.605
Free-for-the-Blind	15.696	11.788	15.166	16.928	59.579	56.131
TOTAL DOMESTIC MAIL	48,726.182	46,614.418	45,103.612	58,764.956	199,209.169	188,504.174
SPECIAL SERVICES						
Registry	3.687	3.342	3.464	4.542	15.035	14.225
Insurance	8.322	7.910	6.289	8.774	31.295	29.467
Certified	78.897	66.995	81.269	94.073	321.235	303.901
Collect-on-Delivery	0.856	0.827	0.807	1.071	3.561	3.373
Money Orders	54.158	55.593	58.715	81.470	249.936	238.038
TOTAL SPECIAL SERVICES	145.921	134.668	150.543	189.930	621.062	589.003

Exhibit USPS-6A

TABLE 2
QUARTERLY VOLUME FORECASTS, 1997Q1 TO 1999Q4
GOVERNMENT DISTRIBUTED TO CLASS
(In Millions of Pieces)
Before-Rates

	(Actual) 1997Q1	(Actual) 1997Q2	1997Q3	1997Q4	1997PFY	1997GFY
FIRST-CLASS MAIL						
First-Class Letters & Flats	21,728.723	22,961.738	21,098.663	27,683.291	93,472.415	93,876.849
(Single-Piece)	12,693.919	13,524.103	11,895.923	16,012.017	54,125.962	54,340.025
(Nonautomated Presort)	1,486.816	1,389.262	1,340.317	1,645.165	5,861.559	5,839.898
(Automated)	7,547.988	8,048.374	7,862.422	10,026.109	33,484.893	33,696.925
(Basic Letters)	916.915	969.082	944.292	1,200.472	4,030.761	4,052.971
(Basic Flats)	9.715	11.231	10.616	13.589	45.153	45.532
(3-Digit Letters)	4,335.408	4,586.704	4,475.102	5,710.745	19,107.959	19,222.873
(5-Digit Letters)	1,927.556	2,115.166	2,041.061	2,603.428	8,687.211	8,748.237
(3/5-Digit Flats)	54.463	48.022	50.663	64.556	217.703	217.973
(Carrier-Route Letters)	303.931	318.169	340.689	433.318	1,396.107	1,409.338
First-Class Cards	1,349.376	1,242.492	1,195.974	1,651.307	5,439.149	5,469.433
Stamped Cards	159.569	175.124	129.712	167.157	631.563	631.124
Private Cards	1,189.807	1,067.368	1,066.262	1,484.150	4,807.586	4,838.309
(Single-Piece)	641.260	506.498	545.186	753.490	2,446.434	2,454.239
(Nonautomated Presort)	162.683	159.095	143.825	196.754	662.358	664.916
(Automated)	385.864	401.775	377.251	533.906	1,698.795	1,719.154
(Basic)	72.247	75.406	70.615	99.433	317.701	321.322
(3-Digit)	169.217	165.522	161.459	230.471	726.671	735.332
(5-Digit)	115.271	123.420	115.371	162.933	516.996	523.579
(Carrier-Route)	29.128	37.426	29.805	41.069	137.427	138.920
TOTAL FIRST-CLASS MAIL	23,078.099	24,204.230	22,294.636	29,334.598	98,911.564	99,346.282
STANDARD A MAIL						
Single-Piece	43.040	33.966	38.800	46.998	162.804	163.121
Regular Rate Bulk	15,990.123	13,905.081	14,190.039	18,739.460	62,824.703	63,331.756
Regular	7,910.290	7,134.231	7,265.570	9,654.307	31,964.398	32,241.467
(Nonautomated)	2,199.919	1,779.793	1,886.681	2,505.515	8,371.908	8,415.728
(Basic Letters)	439.030	363.814	418.356	558.397	1,779.597	1,799.590
(Basic Nonletters)	324.136	276.211	293.503	394.441	1,288.290	1,300.245
(Presort Letters)	759.346	570.161	632.455	836.685	2,798.648	2,808.011
(Presort Nonletters)	677.407	569.607	542.367	715.993	2,505.373	2,507.882
(Automated)	5,710.370	5,354.438	5,378.889	7,148.793	23,592.490	23,825.739
(Basic Letters)	656.323	645.297	668.456	887.966	2,858.043	2,896.963
(Basic Flats)	56.156	53.199	49.188	65.261	223.804	225.151
(3-Digit Letters)	2,079.768	1,999.352	2,058.400	2,736.408	8,873.928	8,983.423
(5-Digit Letters)	642.085	610.062	637.667	847.401	2,737.215	2,771.441
(3/5-Digit Flats)	2,276.038	2,046.528	1,965.178	2,611.756	8,899.500	8,948.761
Enhanced Carrier-Route	8,079.833	6,770.850	6,924.469	9,085.153	30,860.305	31,090.289
(Automated)	433.250	482.305	453.831	594.919	1,964.305	1,997.516
(Basic Letters)	1,642.961	1,296.642	1,450.146	1,900.023	6,289.772	6,346.737
(Basic Nonletters)	2,857.064	2,215.488	2,284.924	2,999.952	10,357.427	10,397.560
(High-Density Letters)	83.863	81.167	83.997	110.419	359.446	364.956
(High-Density Nonletters)	277.445	278.479	246.041	322.439	1,124.405	1,134.331
(Saturation Letters)	715.370	591.509	660.387	867.449	2,834.716	2,867.298
(Saturation Nonletters)	2,069.881	1,825.259	1,745.143	2,289.951	7,930.234	7,981.891
Nonprofit Rate Bulk	3,636.469	2,835.623	2,908.104	3,612.474	12,992.669	13,036.602
Nonprofit	2,653.017	2,269.181	2,218.993	2,756.112	9,897.303	9,954.108
(Nonautomated)	1,199.459	984.575	923.361	1,131.854	4,239.249	4,239.978
(Basic Letters)	343.617	294.449	273.054	369.034	1,280.153	1,289.945
(Basic Nonletters)	92.065	81.992	86.755	117.448	378.260	384.700
(Presort Letters)	625.162	497.315	456.738	522.718	2,101.933	2,087.871
(Presort Nonletters)	138.615	110.819	106.815	122.654	478.903	477.463
(Automated)	1,453.558	1,284.607	1,295.632	1,624.258	5,658.055	5,714.129
(Basic Letters)	243.927	238.880	270.737	336.062	1,089.606	1,111.344
(Basic Flats)	11.703	10.309	12.791	15.799	50.602	51.628
(3-Digit Letters)	632.409	607.399	556.332	704.899	2,501.038	2,526.135
(5-Digit Letters)	379.177	260.291	289.945	361.296	1,290.710	1,292.294
(3/5-Digit Flats)	186.342	167.727	165.827	206.203	726.099	732.729
Nonprofit ECR	983.452	566.442	689.111	856.361	3,095.365	3,082.494
(Automated)	88.821	86.109	78.388	97.424	350.742	353.664
(Basic Letters)	535.431	198.424	326.444	405.192	1,465.491	1,446.001
(Basic Nonletters)	181.965	102.379	124.863	155.446	564.654	561.792
(High-Density Letters)	11.790	7.516	8.703	10.828	38.837	38.793
(High-Density Nonletters)	5.068	2.066	3.138	3.907	14.179	14.013
(Saturation Letters)	112.688	131.113	109.538	136.202	489.541	495.712
(Saturation Nonletters)	47.689	38.834	38.036	47.362	171.921	172.518
TOTAL STANDARD A MAIL	19,669.631	16,774.670	17,136.943	22,398.932	75,980.176	76,531.479

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TABLE 2 (continued)
QUARTERLY VOLUME FORECASTS, 1997Q1 TO 1999Q4
GOVERNMENT DISTRIBUTED TO CLASS
(In Millions of Pieces)
Before-Rates

	1998Q1	1998Q2	1998Q3	1998Q4	1998PFY	1998GFY
FIRST-CLASS MAIL						
First-Class Letters & Flats	22,096.419	23,383.583	21,629.947	28,368.645	95,478.594	95,901.297
(Single-Piece)	12,800.158	13,419.129	11,943.764	16,058.080	54,221.131	54,394.309
(Nonautomated Presort)	1,270.782	1,320.749	1,244.682	1,533.421	5,369.634	5,369.390
(Automated)	8,025.479	8,643.704	8,441.501	10,777.145	35,887.829	36,137.599
(Basic Letters)	957.580	1,027.783	1,000.279	1,272.619	4,258.260	4,284.950
(Basic Flats)	10.853	11.664	11.368	14.485	48.370	48.688
(3-Digit Letters)	4,576.072	4,933.631	4,822.966	6,163.267	20,495.936	20,642.546
(5-Digit Letters)	2,083.126	2,242.870	2,189.822	2,795.135	9,310.953	9,375.321
(3/5-Digit Flats)	51.745	55.803	54.564	69.742	231.854	233.523
(Carrier-Route Letters)	346.103	371.954	362.503	461.896	1,542.455	1,552.572
First-Class Cards	1,397.479	1,280.853	1,254.132	1,725.663	5,658.127	5,693.117
Stamped Cards	145.604	143.632	132.535	169.818	591.589	594.894
Private Cards	1,251.875	1,137.221	1,121.597	1,555.846	5,066.538	5,098.223
(Single-Piece)	631.917	570.719	559.594	771.689	2,533.919	2,546.540
(Nonautomated Presort)	163.143	145.642	141.123	192.276	642.183	643.732
(Automated)	456.816	420.859	420.880	591.881	1,890.436	1,907.951
(Basic)	84.600	77.518	77.116	107.900	347.134	349.958
(3-Digit)	199.029	185.004	186.607	264.599	835.239	844.527
(5-Digit)	138.920	127.543	127.115	178.163	571.740	576.614
(Carrier-Route)	34.268	30.794	30.042	41.219	136.322	136.853
TOTAL FIRST-CLASS MAIL	23,493.897	24,664.435	22,884.079	30,094.308	101,136.720	101,594.414
STANDARD A MAIL						
Single-Piece	41.403	35.302	39.796	48.422	164.923	165.695
Regular Rate Bulk	17,284.593	14,770.965	14,824.267	19,479.362	66,359.186	66,783.249
Regular	8,678.900	7,533.644	7,701.481	10,205.439	34,119.464	34,359.008
(Nonautomated)	2,251.191	1,953.119	1,995.620	2,643.133	8,843.062	8,904.147
(Basic Letters)	504.254	439.694	451.518	601.015	1,996.481	2,012.524
(Basic Nonletters)	358.569	314.685	325.181	435.492	1,433.927	1,447.459
(Presort Letters)	748.872	647.217	658.751	869.121	2,923.960	2,941.617
(Presort Nonletters)	639.495	551.523	560.170	737.505	2,488.694	2,502.548
(Automated)	6,427.709	5,580.525	5,705.861	7,562.307	25,276.402	25,454.861
(Basic Letters)	797.982	692.447	707.633	937.386	3,135.448	3,157.221
(Basic Flats)	58.582	50.776	51.829	68.575	229.761	231.295
(3-Digit Letters)	2,461.021	2,137.191	2,185.731	2,897.578	9,681.520	9,750.408
(5-Digit Letters)	761.850	661.374	676.164	896.078	2,995.466	3,016.552
(3/5-Digit Flats)	2,348.274	2,038.738	2,084.504	2,762.691	9,234.207	9,299.383
Enhanced Carrier-Route	8,605.693	7,237.321	7,122.786	9,273.923	32,239.722	32,424.240
(Automated)	563.523	473.918	466.418	607.280	2,111.140	2,123.223
(Basic Letters)	1,799.752	1,513.577	1,489.624	1,939.502	6,742.454	6,781.043
(Basic Nonletters)	2,841.633	2,389.791	2,351.971	3,062.285	10,645.679	10,706.608
(High-Density Letters)	104.592	87.961	86.569	112.713	391.835	394.077
(High-Density Nonletters)	305.422	256.858	252.793	329.138	1,144.212	1,150.761
(Saturation Letters)	821.670	691.018	680.082	885.473	3,078.243	3,095.861
(Saturation Nonletters)	2,169.102	1,824.198	1,795.329	2,337.532	8,126.159	8,172.668
Nonprofit Rate Bulk	3,581.885	2,948.737	2,981.375	3,672.896	13,184.892	13,255.224
Nonprofit	2,734.206	2,251.745	2,277.105	2,805.722	10,068.779	10,123.229
(Nonautomated)	1,114.176	914.786	919.102	1,121.921	4,069.985	4,086.150
(Basic Letters)	366.034	277.100	281.275	378.964	1,303.374	1,311.851
(Basic Nonletters)	116.730	90.953	93.585	125.036	426.305	429.856
(Presort Letters)	510.104	441.549	439.467	498.650	1,889.771	1,892.724
(Presort Nonletters)	121.307	105.184	104.775	119.269	450.535	451.718
(Automated)	1,620.030	1,336.960	1,358.003	1,683.802	5,998.795	6,037.079
(Basic Letters)	332.135	271.703	273.560	336.319	1,213.716	1,218.997
(Basic Flats)	15.853	13.065	13.172	16.180	58.271	58.605
(3-Digit Letters)	708.257	587.612	601.091	751.386	2,648.347	2,669.375
(5-Digit Letters)	358.833	295.601	299.185	369.096	1,322.716	1,330.087
(3/5-Digit Flats)	204.952	168.978	170.995	210.821	755.746	760.016
Nonprofit ECR	847.678	696.992	704.269	867.174	3,116.113	3,131.995
(Automated)	96.529	79.416	80.266	98.854	355.064	356.913
(Basic Letters)	400.485	329.049	332.373	409.140	1,471.047	1,478.328
(Basic Nonletters)	154.497	127.319	128.780	158.701	569.296	572.451
(High-Density Letters)	10.700	8.787	8.874	10.922	39.284	39.475
(High-Density Nonletters)	3.884	3.201	3.237	3.989	14.311	14.390
(Saturation Letters)	134.508	110.426	111.500	137.212	493.646	496.013
(Saturation Nonletters)	47.075	38.794	39.239	48.356	173.464	174.425
TOTAL STANDARD A MAIL	20,907.880	17,755.004	17,845.437	23,200.681	79,709.002	80,204.168

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TABLE 2 (continued)
QUARTERLY VOLUME FORECASTS, 1997Q1 TO 1999Q4
GOVERNMENT DISTRIBUTED TO CLASS
(In Millions of Pieces)
Before-Rates

	1999Q1	1999Q2	1999Q3	1999Q4	1999PFY	1999GFY
FIRST-CLASS MAIL						
First-Class Letters & Flats	22,496.557	23,855.201	22,112.194	28,983.938	97,447.889	92,505.463
(Single-Piece)	12,705.647	13,344.292	11,938.094	16,118.585	54,106.618	51,315.226
(Nonautomated Presort)	1,182.028	1,229.744	1,153.437	1,413.192	4,978.401	4,718.713
(Automated)	8,608.881	9,281.164	9,020.663	11,452.161	38,362.869	36,471.524
(Basic Letters)	1,013.022	1,088.240	1,053.832	1,332.840	4,487.934	4,265.376
(Basic Flats)	11.550	12.431	12.062	15.291	51.334	48.796
(3-Digit Letters)	4,927.810	5,317.399	5,172.691	6,572.661	21,990.562	20,907.937
(5-Digit Letters)	2,232.445	2,406.557	2,338.930	2,969.457	9,947.389	9,456.928
(3/5-Digit Flats)	55.772	60.191	58.560	74.417	248.940	236.687
(Carrier-Route Letters)	368.283	396.347	384.587	487.495	1,636.711	1,555.801
First-Class Cards	1,460.370	1,328.762	1,318.915	1,804.780	5,912.827	5,591.988
Stamped Cards	150.609	145.007	136.342	173.256	605.214	572.126
Private Cards	1,309.761	1,183.755	1,182.573	1,631.524	5,307.613	5,019.863
(Single-Piece)	645.784	580.172	576.105	790.000	2,592.061	2,450.184
(Nonautomated Presort)	156.939	141.016	138.256	187.156	625.370	590.451
(Automated)	505.038	462.567	468.209	654.368	2,090.182	1,979.227
(Basic)	91.620	83.522	84.159	117.110	376.411	356.283
(3-Digit)	227.576	210.035	214.163	301.432	953.205	903.208
(5-Digit)	151.523	138.335	139.582	194.482	623.921	590.632
(Carrier-Route)	34.319	30.676	30.305	41.344	136.644	129.104
TOTAL FIRST-CLASS MAIL	23,956.926	25,183.962	23,431.109	30,788.718	103,360.715	98,097.451
STANDARD A MAIL						
Single-Piece	42.061	36.448	40.912	50.177	169.599	160.358
Regular Rate Bulk	18,022.767	15,383.563	15,500.225	20,326.591	69,233.146	65,273.599
Regular	9,170.696	7,918.233	8,144.310	10,782.599	36,015.838	34,001.064
(Nonautomated)	2,373.979	2,048.773	2,106.272	2,787.285	9,316.310	8,794.754
(Basic Letters)	542.504	470.513	486.110	646.450	2,145.577	2,026.391
(Basic Nonletters)	395.431	344.938	358.373	479.183	1,577.925	1,491.050
(Presort Letters)	777.592	668.465	684.550	902.350	3,032.958	2,862.123
(Presort Nonletters)	658.452	564.858	577.238	759.302	2,559.849	2,415.190
(Automated)	6,796.716	5,869.460	6,038.038	7,995.314	26,699.528	25,206.310
(Basic Letters)	842.057	726.808	747.305	989.051	3,305.220	3,120.223
(Basic Flats)	61.527	53.041	54.469	71.998	241.035	227.518
(3-Digit Letters)	2,604.856	2,250.011	2,315.169	3,066.346	10,236.382	9,664.103
(5-Digit Letters)	805.289	695.365	715.275	947.058	3,162.987	2,986.068
(3/5-Digit Flats)	2,482.989	2,144.236	2,205.820	2,920.860	9,753.904	9,208.399
Enhanced Carrier-Route	8,852.072	7,465.330	7,355.915	9,543.992	33,217.308	31,272.535
(Automated)	579.656	488.849	481.684	624.965	2,175.155	2,047 806
(Basic Letters)	1,851.278	1,561.262	1,538.379	1,995.983	6,946.901	6,540.181
(Basic Nonletters)	2,922.988	2,465.080	2,428.951	3,151.462	10,968 482	10,326.310
(High-Density Letters)	107.586	90.732	89.402	115.996	403.716	380.080
(High-Density Nonletters)	314.167	264.950	261.067	338.723	1,178.907	1,109.886
(Saturation Letters)	845.194	712.788	702.341	911.259	3,171.583	2,985.896
(Saturation Nonletters)	2,231.202	1,881.668	1,854.090	2,405.604	8,372.564	7,882.376
Nonprofit Rate Bulk	3,654.990	3,011.199	3,051.500	3,729.997	13,447.686	12,644.696
Nonprofit	2,793.482	2,302.231	2,333.458	2,852.723	10,281 893	9,668.174
(Nonautomated)	1,110.917	913.765	921.888	1,119.368	4,065.938	3,821.873
(Basic Letters)	379.377	289.939	296.468	396.226	1,362.010	1,278.662
(Basic Nonletters)	124.845	97.763	100.674	132.606	455.887	428.459
(Presort Letters)	488.369	423.309	422.172	474.783	1,808.633	1,701.340
(Presort Nonletters)	118.326	102.754	102.574	115.754	439.408	413.412
(Automated)	1,682.565	1,388.466	1,411.570	1,733.355	6,215.955	5,846.301
(Basic Letters)	333.264	272.761	275.172	335.551	1,216.748	1,143.531
(Basic Flats)	16.280	13.427	13.569	16.538	59.815	56.238
(3-Digit Letters)	755.126	625.763	639.538	789.936	2,810.364	2,644.465
(5-Digit Letters)	367.640	303.043	307.355	376.116	1,354.153	1,273.384
(3/5-Digit Flats)	210.255	173.471	175.937	215.214	774.876	728.684
Nonprofit ECR	861.509	708.969	718.042	877.274	3,165.793	2,976 522
(Automated)	98.287	80.924	81.977	100.174	361.362	339.769
(Basic Letters)	406.005	333.879	338.043	412.899	1,490.826	1,401.628
(Basic Nonletters)	158.200	130.465	132.261	161.716	582.642	547.886
(High-Density Letters)	10.831	8.903	9.012	11.006	39.751	37.372
(High-Density Nonletters)	3.977	3.280	3.325	4.065	14.647	13.773
(Saturation Letters)	136.005	111.766	113.124	138.139	499.034	469.154
(Saturation Nonletters)	48.204	39.753	40.300	49.275	177.531	166.941
TOTAL STANDARD A MAIL	21,719.819	18,431.211	18,592.637	24,106.765	82,850.432	78,078.653

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TABLE 3
QUARTERLY VOLUME FORECASTS, 1997Q1 TO 1999Q4
GOVERNMENT DISTRIBUTED TO CLASS
(In Millions of Pieces)
After-Rates

	1998Q1	1998Q2	1998Q3	1998Q4	1998PFY	1998GFY
FIRST-CLASS MAIL						
First-Class Letters & Flats	22,071.668	23,303.995	21,504.921	28,173.532	95,054.115	95,446.568
(Single Piece)	12,808.434	13,423.019	11,946.123	16,063.409	54,240.985	54,413.387
(Nonautomated Presort)	1,177.871	1,194.246	1,118.971	1,372.994	4,864.082	4,855.407
(Automated)	8,085.362	8,686.730	8,439.827	10,737.129	35,949.048	36,177.775
First-Class Cards	1,380.076	1,248.684	1,212.769	1,656.310	5,497.840	5,523.046
Stamped Cards	143.954	140.791	129.511	165.874	580.130	583.005
Private Cards	1,236.123	1,107.893	1,083.258	1,490.436	4,917.710	4,940.041
(Single Piece)	624.925	557.697	542.609	742.872	2,468.104	2,476.656
(Nonautomated Presort)	169.955	151.956	146.188	197.807	665.905	667.024
(Automated)	441.243	398.240	394.462	549.758	1,783.702	1,796.361
TOTAL FIRST-CLASS MAIL	23,451.744	24,552.679	22,717.690	29,829.842	100,551.955	100,969.614
Priority Mail	259.085	252.632	252.893	318.566	1,083.176	1,087.829
Express Mail	13.751	14.866	15.086	19 379	63.082	63.410
Mailgrams	1.019	1.392	1.189	1.159	4.759	4.757
PERIODICAL MAIL						
Within County	208.739	202.923	208.317	279.323	899.303	901.870
Nonprofit	525.442	506.722	518.781	604.456	2,155.401	2,161.077
Classroom	13.497	11.525	11.802	10.963	47.787	47.452
Regular Rate	1,625.119	1,641.655	1,704.212	2,151.991	7,122.977	7,147.574
TOTAL PERIODICAL MAIL	2,372.797	2,362.826	2,443.112	3,046.732	10,225.467	10,257.973
STANDARD MAIL						
Single-Piece	40.888	34.524	38.707	46.880	160.999	161.574
Regular Rate Bulk	17,222.328	14,676.065	14,708.183	19,307.115	65,913.691	66,313.735
Regular	9,417.579	8,298.212	8,447.122	11,173.154	37,336.067	37,627.554
(Nonautomated)	2,299.863	2,018.513	2,063.941	2,733.903	9,116.220	9,184 917
(Automated)	7,117.717	6,279.699	6,383.181	8,439.251	28,219.847	28,442.638
Enhanced Carrier Route	7,804.749	6,377.853	6,261.060	8,133.961	28,577.624	28,686.181
(Nonautomated)	7,248.500	5,915.736	5,810.261	7,551.603	26,526.120	26,626.519
(Automated)	556.249	462.117	450.780	582.358	2,051.504	2,059.662
Nonprofit Rate Bulk	3,561.213	2,921.082	2,948.473	3,627.343	13,058.111	13,122.251
Nonprofit	2,841.545	2,355.207	2,375.834	2,921.388	10,493.974	10,550.968
(Nonautomated)	1,004.709	813.681	819.951	1,005.905	3,644.247	3,658.517
(Automated)	1,836.836	1,541.525	1,555.883	1,915.482	6,849.727	6,892 451
Nonprofit ECR	719.668	565.876	572.639	705.955	2,564.137	2,571.283
(Nonautomated)	623.488	486.926	492.926	607.865	2,211.204	2,216.629
(Automated)	96.180	78.950	79.713	98.090	352.933	354.654
TOTAL STANDARD A	20,824.429	17,631.672	17,695 363	22,981.338	79,132.802	79,597.559
Parcel Post	61.885	57.075	50.030	61 611	230.601	231.879
(Inter-BMC)	14.827	12.796	10.620	12.472	50.716	50.375
(Intra-BMC)	12.361	10.847	9.230	11.170	43.608	43.566
(DBMC)	34.697	33.432	30.180	37.968	136.277	137.938
Bound Printed Matter	148.238	113.148	109.477	185.128	555.991	561.718
Special Rate	58.737	44.072	42.561	53.764	199.134	200.511
Library Rate	8.291	6.685	6.547	7.137	28.661	28.709
TOTAL STANDARD B	277.151	220.980	208.615	307.640	1,014 387	1,022 817
Postal Penalty	73.183	73.278	75.432	76.879	298.772	297.820
Free-for-the-Blind	14.780	11.094	13 993	16.097	55.965	56.390
TOTAL DOMESTIC MAIL	47,287.940	45,121.419	43,423.374	56,597.633	192,430.365	193,358.170
SPECIAL SERVICES						
Registry	3.739	3.250	3.240	4.139	14.368	14 288
Insurance	8.358	7.646	6.120	8.417	30.541	30.600
Certified	73.417	61.857	72 301	84.161	291.735	293.118
Collect-on-Delivery	0.946	0.905	0.885	1.159	3.895	3.886
Money Orders	51.460	51.750	55.466	76.527	235 204	236.570
TOTAL SPECIAL SERVICES	137.919	125.408	138.013	174.402	575.743	578.463

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TABLE 3 (continued)
QUARTERLY VOLUME FORECASTS, 1997Q1 TO 1999Q4
GOVERNMENT DISTRIBUTED TO CLASS
(In Millions of Pieces)
After-Rates

	1999Q1	1999Q2	1999Q3	1999Q4	1999PFY	1999GFY
FIRST-CLASS MAIL						
First-Class Letters & Flats	22,335.822	23,682.135	21,944.267	28,771.841	96,734.065	91,826.953
(Single Piece)	12,709.818	13,348.402	11,941.802	16,123.687	54,123.709	51,331.401
(Nonautomated Presort)	1,057.149	1,099.281	1,030.600	1,262.174	4,449.205	4,216.952
(Automated)	8,568.854	9,234.452	8,971.865	11,385.981	38,161.151	36,278.600
First-Class Cards	1,399.626	1,273.541	1,263.832	1,728.969	5,665.969	5,358.475
Stamped Cards	147.111	141.639	133.176	169.232	591.158	558.839
Private Cards	1,252.515	1,131.902	1,130.656	1,559.737	5,074.810	4,799.637
(Single Piece)	620.754	557.685	553.776	759.380	2,491.595	2,355.217
(Nonautomated Presort)	163.326	144.962	142.181	192.542	643.011	607.129
(Automated)	468.435	429.256	434.699	607.814	1,940.204	1,837.290
TOTAL FIRST-CLASS MAIL	23,735.448	24,955.676	23,208.099	30,500.811	102,400.034	97,185.428
Priority Mail	262.397	258.347	261.834	331.222	1,113.800	1,056.152
Express Mail	14.294	15.566	15.832	20.362	66.053	62.913
Mailgrams	0.941	1.274	1.072	1.025	4.311	4.105
PERIODICAL MAIL						
Within County	206.029	205.974	206.894	278.622	897.518	852.254
Nonprofit	515.040	499.984	517.084	598.377	2,130.486	2,017.333
Classroom	11.042	10.219	11.657	11.047	43.964	41.538
Regular Rate	1,625.002	1,658.810	1,724.538	2,179.519	7,187.869	6,830.861
TOTAL PERIODICAL MAIL	2,357.113	2,374.987	2,460.173	3,067.565	10,259.837	9,741.986
STANDARD MAIL						
Single-Piece	40.684	35.255	39.573	48.534	164.045	155.107
Regular Rate Bulk	17,855.469	15,242.043	15,360.078	20,144.228	68,601.818	64,679.026
Regular	10,094.859	8,697.190	8,911.148	11,777.011	39,480.208	37,262.398
(Nonautomated)	2,453.940	2,116.132	2,173.867	2,874.601	9,618.540	9,079.417
(Autornated)	7,640.919	6,581.058	6,737.281	8,902.410	29,861.668	28,182.981
Enhanced Carrier Route	7,760.610	6,544.854	6,448.930	8,367.217	29,121.610	27,416.628
(Nonautomated)	7,205.590	6,076.781	5,987.718	7,768.813	27,038.902	25,455.856
(Autornated)	555.020	468.072	461.212	598.403	2,082.708	1,960.772
Nonprofit Rate Bulk	3,607.557	2,971.434	3,010.902	3,680.128	13,270.021	12,477.452
Nonprofit	2,904.998	2,392.712	2,424.517	2,963.452	10,685.679	10,047.460
(Nonautomated)	1,000.373	825.276	836.398	1,021.291	3,683.339	3,463.560
(Autornated)	1,904.625	1,567.435	1,588.119	1,942.161	7,002.340	6,583.899
Nonprofit ECR	702.559	578.723	586.385	716.675	2,584.342	2,429.992
(Nonautomated)	605.182	498.620	505.272	617.590	2,226.664	2,093.707
(Automated)	97.377	80.103	81.113	99.085	357.678	336.285
TOTAL STANDARD A	21,503.710	18,248.733	18,410.552	23,872.889	82,035.884	77,311.584
Parcel Post	63.437	61.337	53.430	66.010	244.214	230.277
(Inter-BMC)	12.256	11.301	9.382	11.038	43.977	41.284
(Intra-BMC)	11.319	10.764	9.215	11.182	42.480	39.993
(DBMC)	39.862	39.272	34.833	43.790	157.758	149.000
Bound Printed Matter	164.084	118.321	116.284	189.215	587.904	551.855
Special Rate	60.954	44.366	43.225	54.850	203.395	190 003
Library Rate	7.937	6.558	6.636	7.394	28.526	26 782
TOTAL STANDARD B	296.412	230.582	219.575	317.469	1,064.038	998.917
Postal Penalty	63.804	69.618	68.871	68.330	270.623	256.605
Free-for-the-Blind	15.696	11.788	15.166	16.928	59.579	56.131
TOTAL DOMESTIC MAIL	48,249.814	46,166.570	44,661.174	58,196.600	197,274.159	186,673.821
SPECIAL SERVICES						
Registry	3.118	2.826	2.929	3.841	12.714	12.029
Insurance	8.052	7.657	6.092	8.504	30.305	28.536
Certified	74.647	63.386	76.890	89.005	303.928	287.528
Collect-on-Delivery	0.839	0.811	0.791	1.049	3.490	3.306
Money Orders	54.132	55.566	58.686	81.430	249.815	237.922
TOTAL SPECIAL SERVICES	140.787	130.247	145.388	183.830	600.252	569.322

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TABLE 4
QUARTERLY VOLUME FORECASTS, 1997Q1 TO 1999Q4
GOVERNMENT DISTRIBUTED TO CLASS
(In Millions of Pieces)
After-Rates

	1998Q1	1998Q2	1998Q3	1998Q4	1998PFY	1998GFY
FIRST-CLASS MAIL						
First-Class Letters & Flats	22,071.668	23,303.995	21,504.921	28,173.532	95,054.115	95,446.568
(Single-Piece)	12,808.434	13,423.019	11,946.123	16,063.409	54,240.985	54,413.387
(Nonautomated Presort)	1,177.871	1,194.246	1,118.971	1,372.994	4,864.082	4,855.407
(Automated)	8,085.362	8,686.730	8,439.827	10,737.129	35,949.048	36,177.775
(Basic Letters)	970.127	1,038.600	1,004.367	1,271.717	4,284.811	4,308.327
(Basic Flats)	11.016	11.811	11.428	14.487	48.742	49.024
(3-Digit Letters)	4,648.971	5,010.660	4,873.837	6,207.360	20,740.829	20,879.382
(5-Digit Letters)	2,117.382	2,279.249	2,214.146	2,816.632	9,427.409	9,488.132
(3/5-Digit Flats)	52.548	56.572	54.953	69.913	233.986	235.507
(Carrier-Route Letters)	285.319	289.838	281.094	357.020	1,213.272	1,217.403
First-Class Cards	1,380.076	1,248.684	1,212.769	1,656.310	5,497.840	5,523.046
Stamped Cards	143.954	140.791	129.511	165.874	580.130	583.005
Private Cards	1,236.123	1,107.893	1,083.258	1,490.436	4,917.710	4,940.041
(Single-Piece)	624.925	557.697	542.609	742.872	2,468.104	2,476.656
(Nonautomated Presort)	169.955	151.956	146.188	197.807	665.905	667.024
(Automated)	441.243	398.240	394.462	549.758	1,783.702	1,796.361
(Basic)	83.887	75.892	74.820	103.787	338.386	340.549
(3-Digit)	198.226	182.189	182.179	256.197	818.791	826.560
(5-Digit)	131.661	117.185	115.301	159.688	523.835	526.697
(Carrier-Route)	27.469	22.974	22.162	30.086	102.690	102.556
TOTAL FIRST-CLASS MAIL	23,451.744	24,552.679	22,717.690	29,829.842	100,551.955	100,969.614
STANDARD A MAIL						
Single-Piece	40.888	34.524	38.707	46.880	160.999	161.574
Regular Rate Bulk	17,222.328	14,676.065	14,708.183	19,307.115	65,913.691	66,313.735
Regular	9,417.579	8,298.212	8,447.122	11,173.154	37,336.067	37,627.554
(Nonautomated)	2,299.863	2,018.513	2,063.941	2,733.903	9,116.220	9,184.917
(Basic Letters)	572.743	524.580	538.224	714 441	2,349.988	2,373.994
(Basic Nonletters)	441.118	403.319	414.912	553.725	1,813.073	1,832.877
(Presort Letters)	737.495	637.047	650.429	859.230	2,884.201	2,902.289
(Presort Nonletters)	548.507	453.566	460.376	606.509	2,068.958	2,075.756
(Automated)	7,117.717	6,279.699	6,383.181	8,439.251	28,219.847	28,442.638
(Basic Letters)	794.591	687.490	702.316	930.926	3,115.322	3,136.543
(Basic Flats)	64.374	56.802	58.466	77.592	257.234	259.382
(3-Digit Letters)	2,416.417	2,083.439	2,134.859	2,834.604	9,469.319	9,535.365
(5-Digit Letters)	1,515.967	1,446.352	1,440.727	1,882.310	6,285.356	6,358.646
(3/5-Digit Flats)	2,326.368	2,005.616	2,046.813	2,713.819	9,092.616	9,152.702
Enhanced Carrier-Route	7,804.749	6,377.853	6,261.060	8,133.961	28,577.624	28,686.181
(Automated)	556.249	462.117	450.780	582.358	2,051.504	2,059.662
(Basic Letters)	1,013.667	678.335	660.081	850.925	3,203.008	3,173.765
(Basic Nonletters)	2,836.452	2,381.306	2,340.674	3,044.215	10,602.647	10,660.705
(High-Density Letters)	104.469	87.759	86.300	112.283	390.811	392.986
(High-Density Nonletters)	305.796	257.470	253.610	330.446	1,147.321	1,154.078
(Saturation Letters)	820.601	689.267	677.751	881 742	3,069.362	3,086.387
(Saturation Nonletters)	2,167.516	1,821.598	1,791.866	2,331.991	8,112.971	8,158.599
Nonprofit Rate Bulk	3,561.213	2,921.082	2,948.473	3,627.343	13,058.111	13,122.251
Nonprofit	2,841.545	2,355.207	2,375.834	2,921.388	10,493.974	10,550.968
(Nonautomated)	1,004.709	813.681	819.951	1,005.905	3,644.247	3,658.517
(Basic Letters)	277.166	200.226	208.382	295.710	981.485	991.091
(Basic Nonletters)	105.965	79.533	81.797	110.445	377.741	380.624
(Presort Letters)	495.314	423.863	420.459	475.485	1,815.121	1,815.980
(Presort Nonletters)	126.264	110.059	109.312	124.265	469.901	470.822
(Automated)	1,836.836	1,541.525	1,555.883	1,915.482	6,849.727	6,892.451
(Basic Letters)	338.005	276.511	277.622	340.564	1,232.703	1,237 641
(Basic Flats)	18.947	16.002	16.133	19.823	70.905	71.359
(3-Digit Letters)	785.994	651.942	659.310	813.228	2,910.474	2,927.691
(5-Digit Letters)	491.061	430.933	435.205	535.735	1,892.934	1,909.475
(3/5-Digit Flats)	202.829	166.136	167.613	206.132	742.711	746.285
Nonprofit ECR	719.668	565.876	572.639	705.955	2,564.137	2,571.283
(Automated)	96.180	78.950	79.713	98.090	352.933	354.654
(Basic Letters)	268.841	192.959	194.805	239.694	896.299	893.787
(Basic Nonletters)	155.728	129.006	130.794	161.493	577.021	580.550
(High-Density Letters)	10.844	8.982	9.106	11.243	40.174	40.407
(High-Density Nonletters)	3.923	3.254	3.301	4.078	14.556	14.647
(Saturation Letters)	136.505	113.141	114.735	141.691	506.072	509.019
(Saturation Nonletters)	47.647	39.584	40.184	49 666	177.082	178.220
TOTAL STANDARD A MAIL	20,824.429	17,631.672	17,695.363	22,981.338	79,132.802	79,597.559

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TABLE 4 (continued)
QUARTERLY VOLUME FORECASTS, 1997Q1 TO 1999Q4
GOVERNMENT DISTRIBUTED TO CLASS
(In Millions of Pieces)
After-Rates

	1999Q1	1999Q2	1999Q3	1999Q4	1999PFY	1999GFY
FIRST-CLASS MAIL						
First-Class Letters & Flats	22,335.822	23,682.135	21,944.267	28,771.841	96,734.065	91,826.953
(Single-Piece)	12,709.818	13,348.402	11,941.802	16,123.687	54,123.709	51,331.401
(Nonautomated Presort)	1,057.149	1,099.281	1,030.600	1,262.174	4,449.205	4,216.952
(Automated)	8,568.854	9,234.452	8,971.865	11,385.981	38,161.151	36,278.600
(Basic Letters)	1,010.261	1,083.581	1,047.480	1,322.184	4,463.506	4,241.555
(Basic Flats)	11.538	12.415	12.044	15.265	51.262	48.727
(3-Digit Letters)	4,959.007	5,349.718	5,202.999	6,609.983	22,121.706	21,032.228
(5-Digit Letters)	2,247.752	2,422.426	2,353.813	2,987.776	10,011.766	9,517.942
(3/5-Digit Flats)	55.850	60.261	58.616	74.475	249.202	236.932
(Carrier-Route Letters)	284.446	306.052	296.912	376.298	1,263.708	1,201.216
First-Class Cards	1,399.626	1,273.541	1,263.832	1,728.969	5,665.969	5,358.475
Stamped Cards	147.111	141.639	133.176	169.232	591.158	558.839
Private Cards	1,252.515	1,131.902	1,130.656	1,559.737	5,074.810	4,799.637
(Single-Piece)	620.754	557.685	553.776	759.380	2,491.595	2,355.217
(Nonautomated Presort)	163.326	144.962	142.181	192.542	643.011	607.129
(Automated)	468.435	429.256	434.699	607.814	1,940.204	1,837.290
(Basic)	87.944	80.140	80.722	112.290	361.095	341.775
(3-Digit)	219.917	202.898	206.817	290.998	920.630	872.315
(5-Digit)	135.611	123.941	125.187	174.596	559.334	529.541
(Carrier-Route)	24.963	22.277	21.973	29.931	99.144	93.660
TOTAL FIRST-CLASS MAIL	23,735.448	24,955.676	23,208.099	30,500.811	102,400.034	97,185.428
STANDARD A MAIL						
Single-Piece	40.684	35.255	39.573	48.534	164.045	155.107
Regular Rate Bulk	17,855.469	15,242.043	15,360.078	20,144.228	68,601.818	64,679.026
Regular	10,094.859	8,697.190	8,911.148	11,777.011	39,480.208	37,262.398
(Nonautomated)	2,453.940	2,116.132	2,173.867	2,874.601	9,618.540	9,079.417
(Basic Letters)	642.515	555.167	571.479	757.278	2,526.438	2,385.280
(Basic Nonletters)	500.835	435.160	450.369	599.925	1,986.290	1,876.258
(Presort Letters)	768.968	661.136	677.130	892.679	2,999.913	2,830.973
(Presort Nonletters)	541.621	464.669	474.890	624.719	2,105.900	1,986.907
(Automated)	7,640.919	6,581.058	6,737.281	8,902.410	29,861.668	28,182.981
(Basic Letters)	836.381	721.907	742.264	982.378	3,282.931	3,099.180
(Basic Flats)	69.715	60.175	61.874	81.892	273.656	258.340
(3-Digit Letters)	2,550.390	2,204.430	2,269.735	3,008.060	10,032.616	9,472.303
(5-Digit Letters)	1,745.012	1,487.945	1,496.318	1,960.526	6,689.801	6,306.427
(3/5-Digit Flats)	2,439.421	2,106.600	2,167.090	2,869.554	9,582.665	9,046.731
Enhanced Carrier-Route	7,760.610	6,544.854	6,448.930	8,367.217	29,121.610	27,416.628
(Automated)	555.020	468.072	461.212	598.403	2,082.708	1,960.772
(Basic Letters)	810.653	683.658	673.638	874.017	3,041.965	2,863.867
(Basic Nonletters)	2,905.098	2,449.993	2,414.085	3,132.174	10,901.351	10,263.110
(High-Density Letters)	107.161	90.373	89.049	115.537	402.119	378.576
(High-Density Nonletters)	315.462	266.042	262.143	340.120	1,183.766	1,114.460
(Saturation Letters)	841.501	709.674	699.272	907.277	3,157.723	2,972.848
(Saturation Nonletters)	2,225.716	1,877.041	1,849.531	2,399.689	8,351.977	7,862.994
Nonprofit Rate Bulk	3,607.557	2,971.434	3,010.902	3,680.128	13,270.021	12,477.452
Nonprofit	2,904.998	2,392.712	2,424.517	2,963.452	10,685.679	10,047.460
(Nonautomated)	1,000.373	825.276	836.398	1,021.291	3,683.339	3,463.560
(Basic Letters)	301.776	229.685	239.477	331.437	1,102.376	1,036.076
(Basic Nonletters)	111.781	87.260	90.027	119.692	408.760	384.202
(Presort Letters)	465.066	403.075	401.836	451.522	1,721.499	1,619.326
(Presort Nonletters)	121.750	105.256	105.058	118.639	450.704	423.956
(Automated)	1,904.625	1,567.435	1,588.119	1,942.161	7,002.340	6,583.899
(Basic Letters)	337.174	275.888	278.345	339.495	1,230.902	1,156.826
(Basic Flats)	19.703	16.215	16.411	20.035	72.364	68.035
(3-Digit Letters)	810.154	667.933	677.871	830.226	2,986.185	2,808.196
(5-Digit Letters)	532.485	438.381	444.173	542.945	1,957.983	1,840.998
(3/5-Digit Flats)	205.109	169.018	171.319	209.460	754.906	709.844
Nonprofit ECR	702.559	578.723	586.385	716.675	2,584.342	2,429.992
(Automated)	97.377	80.103	81.113	99.085	357.678	336.285
(Basic Letters)	238.866	196.988	199.699	244.174	879.727	827.249
(Basic Nonletters)	161.050	132.815	134.643	164.629	593.136	557.754
(High-Density Letters)	11.154	9.168	9.280	11.332	40.934	38.483
(High-Density Nonletters)	4.067	3.354	3.400	4.158	14.979	14.086
(Saturation Letters)	140.503	115.439	116.831	142.654	515.428	484.560
(Saturation Nonletters)	49.542	40.856	41.419	50.643	182.460	171.576
TOTAL STANDARD A MAIL	21,503.710	18,248.733	18,410.552	23,872.889	82,035.884	77,311.584