

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

POSTAL RATE AND FEE CHANGES
PURSUANT TO PUBLIC LAW 108-18

Docket No. R2005-1

RESPONSES OF POSTAL SERVICE WITNESS THRESS
TO INTERROGATORIES OF ABA AND NAPM (ABA&NAPM/USPS-T7-1 - 5)
(May 25, 2005)

The United States Postal Service hereby provides the responses of witness Thress to the following interrogatory of ABA and NAPM, filed on May 11, 2005:
ABA&NAPM/USPS-T7-1 - 5.

Each interrogatory is stated verbatim and is followed by the response.

Respectfully submitted,

UNITED STATES POSTAL SERVICE

By its attorneys:

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May 25, 2005

RESPONSE OF POSTAL SERVICE WITNESS THRESS TO
INTERROGATORIES OF ABA&NAPM

ABA&NAPM/USPS-T7-1.

In your econometric specifications for addressing competing substitutes, you have claimed now for several consecutive rate increases that insufficient data exists to model competing substitutes in your FCLM demand equations as explicit variables, in particular that insufficient price data exists.

- a. Please confirm that high own price elasticities of demand tend to be associated with high cross price elasticities of demand, and vice versa.
- b. If sufficient high frequency volume data were available on competing substitutes, please confirm that cross price elasticities of demand could be calculated with respect to variations in postal rates and variations in the quantities demanded of competing substitutes.

RESPONSE

It is not clear to me to what specifically you are referring in your introductory sentence of this interrogatory.

a. Own-price elasticities of demand may be affected by a number of factors, including the number of substitutes, the closeness of these substitutes, other costs associated with the product, as well as the utility functions of the consumers of said product. In general, it is true that high cross-price elasticities of demand are often associated with high own-price elasticities of demand, although this need not be true.

b. It is hard to say with any degree of certainty what types of elasticities could be estimated given a particular data set without seeing the actual data of interest. As I noted above, it is not clear to me to what specific "high frequency volume data" you are referring. As such, I would be reluctant to offer any kind of definitive answer to your question here. As posited, however, I would say that it is not obvious to me how such information could be used to further our understanding of the demand for Postal products, which is, of course, the focus of my testimony.

RESPONSE OF POSTAL SERVICE WITNESS THRESS TO
INTERROGATORIES OF ABA&NAPM

ABA&NAPM/USPS-T7-2.

Please refer to the following table.

Period	<u>R97-1</u>	<u>R2000-1</u>	<u>R2001-1</u>	<u>R2005-1</u>
First Class Mail:				
Single Piece Letters	-0.189	-0.262	-0.311	-0.175
Worksharing Discount	-0.164	-0.139	-0.027	-0.102
Subtotal	-0.353	-0.400	-0.338	-0.277
Workshared Letters	-0.289	-0.251	-0.071	-0.329
Worksharing Discount	0.222	0.216	0.027	0.108
Subtotal	-0.067	-0.035	-0.044	-0.221

- a. Please confirm that the elasticities given in this table are correct.
- b. Please explain what specific factors might have caused the elasticities for Single Piece Letters to rise from 0.189 in R97-1 to 0.311 in R2001-1 and then to drop significantly to 0.175 in R2005-1.
- c. Please explain what specific factors might have caused the elasticities for Workshared Letters to drop from 0.289 in R97-1 to 0.071 in R2001-1 and then to more than quadruple to 0.329 in R2005-1.
- d. Please refer to the Worksharing Discount elasticities reported in the above table for the Single-Piece and the Workshared Letters. Please explain what specific factors might have caused these elasticities, in both cases, to exhibit a significant drop between R97-1 to R2001-1, but to quadruple between R2001-1 and R2005-1.
- e. Please confirm that the models used to estimate these elasticities over these four rate cases were different. Please explain whether these changing results are just the artifact of the data used and the variables included, or excluded, in the model.
- f. Please confirm that one possible way to compare these results is to run the same regression you have employed in your current testimony using the current data, variables, and model structure and run the regressions over 1983-1997, 1983-2000, 1983-2001, and 1998-2004. Please conduct the regressions for these time periods and provide the results.

RESPONSE:

- a. Confirmed.

RESPONSE OF POSTAL SERVICE WITNESS THRESS TO INTERROGATORIES OF ABA&NAPM

b. Changes in demand elasticity estimates from one rate case to another may be the result of any of four possible factors: changes in the demand specification (e.g., replacing permanent income with employment in this case), changes in the time period over which the elasticities are estimated (e.g., the equations are estimated using data through 2005Q1 in this case), changes in the underlying data used in estimation (e.g., the Postal volume data used in this case has been restated from 2000 to the present to conform to Gregorian quarters, rather than Postal quarters), and changes in the econometric methodology by which the elasticities are estimated. This last factor is not especially relevant here, as the basic econometric methodology has not changed over the last several rate cases.

In order to accurately forecast mail volumes, it is important to be able to distinguish between cases where elasticities change because of specification changes – which represent improvements in one’s estimates of the true elasticities – and cases where elasticities change simply because of the introduction of new data. Cases of this latter type may be indicative of changes in the underlying true elasticities over time.

To ensure that my estimated demand elasticities are valid for forecasting purposes, I undertook a project last fall which estimated each demand equation over a series of sample periods, each of which started at the same time, but which ended at various times through the end of the full sample period. This process parallels the process alluded to in section f. of your question. Comparing the elasticity estimates across these sample periods can be helpful in identifying possible changes in elasticities over time. This exercise led, for example, to the decision to allow the elasticity with respect to employment in the single-piece First-Class letters equation to decline over time.

In the case of single-piece First-Class letters, this exercise makes clear that the estimated own-price elasticity for single-piece First-Class letters is stable across various sample periods. Hence, to answer your question here, the specific factors which appear to have led to the changes in my own-price elasticity estimates across rate cases appear to be the changes in the variables

RESPONSE OF POSTAL SERVICE WITNESS THRESS TO INTERROGATORIES OF ABA&NAPM

included in the single-piece First-Class letters equation. In this case, this would include replacing permanent income with private employment, allowing the elasticity with respect to employment decline over time, and replacing consumption expenditures on Internet Service Providers with the Internet Experience variable described in my testimony.

c. The three principal changes to the workshared First-Class letters equation from R2001-1 to R2005-1 which appear to have had the most significant impact on my estimate of the workshared First-Class letters own-price elasticity were shortening the sample period to begin in 1991Q1 (versus 1983Q1 in R2001-1 and earlier), the inclusion of the number of Broadband subscribers, and the inclusion of a dummy variable starting in 1993Q1 reflecting a change in the way in which workshared letters volume was calculated by the Postal Service.

Because of the shorter sample period over which the workshared First-Class letters elasticities are estimated (1991Q1 – 2005Q1) as compared with the single-piece First-Class letters sample period (1983Q1 – 2005Q1), the exercise described in section b. above is less informative for workshared First-Class letters than for single-piece First-Class letters. For example, the coefficient on the number of Broadband subscribers has the wrong sign when the workshared letters equation is stopped in either 2000 or 2001. This makes the other elasticities less trustworthy in these cases.

Nevertheless, the results of the exercise which I performed last fall were generally supportive of the notion that the estimated own-price elasticity of workshared First-Class letters is stable throughout its sample period (i.e., since 1991).

d. The significant change in the estimated coefficient associated with the worksharing discount for single-piece and workshared First-Class letters between R2000-1 and R2001-1 was the result of a specification change which recognized that this elasticity has very likely fallen over time with respect to workshared First-Class letters. Starting in R2001-1, therefore, the discount elasticity with respect

RESPONSE OF POSTAL SERVICE WITNESS THRESS TO INTERROGATORIES OF ABA&NAPM

to workshared First-Class letters was modeled as declining over time as the ratio of workshared letters to single-piece letters has grown over time. The treatment of the workshared discount in the First-Class letters demand equations is described on pages 50 – 53 of my testimony in this case.

The changes in discount coefficients between R2001-1 and R2005-1 were driven by the same factors which drove the changes in the estimated own-price elasticity of workshared First-Class letters as described in my response to part c.

e. Confirmed. As explained in my responses to parts b. and c. above, the changes in elasticity estimates in this case were the result of changes to the demand specifications used in this case. In all cases, these changes in the demand specifications represent improvements over the demand specifications estimated in earlier rate case. The general process by which I decide when and how to change demand specifications was described in Library Reference LR-K-65 as follows:

The process by which the final demand equations presented in my testimony were chosen was a fairly comprehensive process. First, possible explanatory variables were only investigated as candidates for inclusion in specific demand equations when there was a compelling theoretical rationale for their inclusion. In all of the cases considered here, there was a definite expectation regarding the sign of the coefficient on the variable being investigated (e.g., macro-economic variables were expected to have positive coefficients, Internet variables were expected to have negative coefficients).

A variable which had a coefficient of the opposite sign of what was expected was immediately discarded as a candidate variable. A variable which had a coefficient of the correct sign, however, may have been retained even if the coefficient were not statistically significant.

In such cases, the significance (or lack thereof) was considered vis-à-vis the theoretical significance of the variable (e.g., own-price variables which produced negative coefficients were always kept regardless of the significance of the own-price elasticity) and also vis-à-vis the importance of the variable for forecasting purposes (e.g., some of the recent negative trends were retained despite having coefficients which may not have been significant at a 95 percent, or possibly even 90 percent, confidence level).

The principal regression diagnostic which I considered in choosing among candidate equations was mean-squared error, which is equal to the sum of squared residuals divided by degrees of freedom, so lower

RESPONSE OF POSTAL SERVICE WITNESS THRESS TO INTERROGATORIES OF ABA&NAPM

mean-squared errors are generally to be preferred. The t-statistic on the coefficient of the variable of interest was also used in some cases to decide between multiple variables which presented similar theoretical candidacies.

Finally, because the ultimate purpose of these demand equations is, of course, to develop volume forecasts, recent residuals may have been given greater weight than earlier residuals. In many cases, mean-squared errors were calculated over the most recent one to five years (in these cases, calculated as sum of squared residuals divided by the total number of observations over the relevant time period) to provide an additional diagnostic tool.

f. Confirmed. As I explained in my response to b., I performed such an analysis in the fall of 2004. In response to this interrogatory, I have updated these results to reflect the final demand specifications presented in my testimony for single-piece and workshared First-Class letters using sample periods ending in 1997, 2000, and 2001. These results are presented at the conclusion of this response. The results presented here for workshared First-Class letters should be viewed with extreme caution as they rely on extremely short sample periods which lead to generally unreliable results.

It would not be possible to obtain meaningful results using a sample period beginning in 1998 due to a lack of degrees of freedom.

RESPONSE OF POSTAL SERVICE WITNESS THRESS TO INTERROGATORIES OF ABA&NAPM

Mail Category:

Single-Piece First-Class Letters

R2005-1 Demand Equation

Sample Period:

1983:1 TO 2005:1

Non-Seasonal Variables

	Coefficients	Std. Error	T-Ratio
CONSTANT	-0.001421	0.130298	-0.010904
EMPLOY(-1)	0.672518	0.116066	5.794280
EMPL_T(-1)	-0.002299	0.000903	-2.545767
T02Q4	-0.002796	0.001779	-1.571715
ISP_CUM_LCOEF	-0.491406	0.032531	-15.105758
GDIST	0.018346	0.010519	1.744147
MSADJ	0.008365	0.009030	0.926388
MC95	0.068799	0.012726	5.406313
D1_3WS	-0.102425	0.018416	-5.561583
PX01SP	-0.046031	0.115157	-0.399721
lag 1	-0.128711	0.110552	-1.164263
lag 2	0.000000	0.000000	0.000000
lag 3	0.000000	0.000000	0.000000
lag 4	0.000000	0.000000	0.000000

Long-Run Price Elasticities

	PX01SP
Current	-0.046031
Lag 1	-0.128711
Lag 2	0.000000
Lag 3	0.000000
Lag 4	0.000000
Sum	-0.174742
T-Statistic on Sum	-2.175511

RESPONSE OF POSTAL SERVICE WITNESS THRESS TO INTERROGATORIES OF ABA&NAPM

Seasonal Variables

	Coefficients	Std. Error	T-Ratio
SEP1_15	-0.539109	0.319251	-1.688664
SEP16_30	-0.229601	0.082323	-2.789013
OCT	0.088381	0.047723	1.851961
NOV1_DEC10	0.088381	0.047723	1.851961
DEC11_12	0.323773	0.118008	2.743641
DEC13_15	0.323773	0.118008	2.743641
DEC16_17	0.323773	0.118008	2.743641
DEC18_19	0.323773	0.118008	2.743641
DEC20_21	-0.178728	0.177421	-1.007366
DEC22_23	-0.178728	0.177421	-1.007366
DEC24	-0.178728	0.177421	-1.007366
DEC25_JAN1	0.085863	0.048501	1.770329
JAN2_FEB	0.085863	0.048501	1.770329
MARCH	-0.148545	0.073420	-2.023219
APR1_15	0.537633	0.337968	1.590783
APR16_MAY	-0.194870	0.116812	-1.668235
JUNE	0.000000	0.000000	0.000000
GQTR1	-0.002271	0.010014	-0.226789
GQTR2	-0.005327	0.016019	-0.332541
GQTR3	-0.036956	0.019476	-1.897495
GQTR4	0.044554	0.013576	3.281879

SEASONAL INDEX

	Quarter 1	Quarter 2	Quarter 3	Quarter 4
1983	0.092906	0.030708	-0.028871	-0.100576
1984	0.096777	0.033712	-0.043372	-0.095691
1985	0.103322	0.033268	-0.035800	-0.089955
1986	0.102585	0.032824	-0.037892	-0.093248
1987	0.101848	0.032380	-0.037239	-0.090805
1988	0.093828	0.039326	-0.041424	-0.085920
1989	0.077788	0.042381	-0.043516	-0.083478
1990	0.073179	0.053218	-0.055925	-0.081035
1991	0.069768	0.060163	-0.048353	-0.075300
1992	0.061748	0.070557	-0.047048	-0.078223
1993	0.045708	0.077554	-0.048458	-0.076595
1994	0.037688	0.077110	-0.047814	-0.076222
1995	0.033080	0.077133	-0.047171	-0.075849
1996	0.028472	0.091417	-0.046527	-0.068446
1997	0.019378	0.094938	-0.045884	-0.070541
1998	0.010283	0.094975	-0.038729	-0.064744
1999	0.001189	0.098474	-0.031168	-0.061043
2000	0.090105	-0.003851	-0.042356	-0.078227
2001	0.096949	-0.003851	-0.051869	-0.076822
2002	0.096805	-0.001823	-0.044887	-0.071226
2003	0.096805	-0.001823	-0.044887	-0.078227
2004	0.096805	-0.003851	-0.042356	-0.078227
2005	0.090105			

RESPONSE OF POSTAL SERVICE WITNESS THRESS TO INTERROGATORIES OF ABA&NAPM

REGRESSION DIAGNOSTICS

Sum of Sq Resids	0.019008
Mean-Squared Error	0.000288
Durbin-Watson	2.096608
R-Square	0.989183
Adj. R-Square	0.985577
Degrees of Freedom	66

SHILLER K-SQUARED VALUES

PX01SP	0.000000
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AUTOCORRELATION STRUCTURE OF FINAL RESIDUALS

Lag	Auto-Correlation	Partial Auto-Correlation	Standard Error	T-Stat on Partial
1	-0.061145	-0.061727	0.106600	-0.579055
2	-0.155830	-0.161459	0.107211	-1.505985
3	0.166151	0.154868	0.107833	1.436188
4	-0.120104	-0.132070	0.108465	-1.217627
5	-0.117675	-0.095847	0.109109	-0.878456
6	-0.046702	-0.124895	0.109764	-1.137846
7	-0.078374	-0.079711	0.110432	-0.721812
8	-0.271349	-0.326206	0.111111	-2.935851
9	-0.072314	-0.166103	0.111803	-1.485667

REGRESSION RESIDUALS (Final)

	Quarter 1	Quarter 2	Quarter 3	Quarter 4
1983	-0.007440	-0.000955	0.001447	-0.013137
1984	0.001915	0.017944	-0.013460	0.007455
1985	-0.011028	-0.003982	0.013482	0.008023
1986	0.023952	-0.018155	0.012529	0.011599
1987	0.003247	-0.006990	-0.011727	-0.014718
1988	-0.014533	-0.019509	-0.000711	-0.002741
1989	-0.005983	0.031859	0.005843	-0.008748
1990	0.007740	0.011129	0.007848	0.000353
1991	0.023166	0.000982	0.007209	-0.014364
1992	-0.031140	-0.007661	-0.004636	0.013897
1993	0.007500	0.006588	0.011490	0.014658
1994	0.006076	0.007805	-0.029244	0.020877
1995	-0.019211	-0.013168	-0.017409	-0.012027
1996	0.022664	0.003372	-0.010125	0.000486
1997	-0.004178	0.002118	0.006099	-0.005847
1998	0.003188	-0.008209	0.001519	-0.003701
1999	-0.003010	-0.001633	0.021307	-0.000804
2000	0.007124	0.011992	-0.036082	-0.000880
2001	0.004992	-0.033203	0.029323	0.005505
2002	-0.034208	-0.004024	0.034675	0.011451
2003	-0.013896	0.015021	-0.003199	-0.003042
2004	0.014008	0.008419	-0.026513	-0.014829
2005	0.020186			

RESPONSE OF POSTAL SERVICE WITNESS THRESS TO INTERROGATORIES OF ABA&NAPM

Mail Category:

Single-Piece First-Class Letters

R2005-1 Demand Equation

Sample Period:

1983:1 TO 1997:4

Non-Seasonal Variables

	Coefficients	Std. Error	T-Ratio
CONSTANT	0.145229	0.143349	1.013116
EMPLOY(-1)	0.797859	0.122999	6.486693
EMPL_T(-1)	-0.000979	0.000865	-1.132382
ISP_CUM_LCOEF	-0.562288	0.064444	-8.725174
GDIST	0.004544	0.009789	0.464175
MSADJ	0.022612	0.011228	2.013792
MC95	0.083045	0.015653	5.305301
D1_3WS	-0.100349	0.018684	-5.370944
PX01SP	-0.054918	0.110043	-0.499059
lag 1	-0.097891	0.107273	-0.912535
lag 2	0.000000	0.000000	0.000000
lag 3	0.000000	0.000000	0.000000
lag 4	0.000000	0.000000	0.000000

Long-Run Price Elasticities

	PX01SP
Current	-0.054918
Lag 1	-0.097891
Lag 2	0.000000
Lag 3	0.000000
Lag 4	0.000000
Sum	-0.152809
T-Statistic on Sum	-1.816339

RESPONSE OF POSTAL SERVICE WITNESS THRESS TO INTERROGATORIES OF ABA&NAPM

Seasonal Variables

	Coefficients	Std. Error	T-Ratio
SEP1_15	-0.380135	0.572564	-0.663917
SEP16_30	-0.248036	0.081082	-3.059100
OCT	0.112017	0.084325	1.328385
NOV1_DEC10	0.112017	0.084325	1.328385
DEC11_12	0.351957	0.112303	3.133984
DEC13_15	0.351957	0.112303	3.133984
DEC16_17	0.351957	0.112303	3.133984
DEC18_19	0.351957	0.112303	3.133984
DEC20_21	-0.295820	0.164346	-1.799985
DEC22_23	-0.295820	0.164346	-1.799985
DEC24	-0.295820	0.164346	-1.799985
DEC25_JAN1	0.120219	0.086291	1.393184
JAN2_FEB	0.120219	0.086291	1.393184
MARCH	-0.173009	0.077170	-2.241916
APR1_15	0.591009	0.443778	1.331768
APR16_MAY	-0.167204	0.170296	-0.981845
JUNE	0.000000	0.000000	0.000000

SEASONAL INDEX

	Quarter 1	Quarter 2	Quarter 3	Quarter 4
1983	0.106805	0.051225	-0.008081	-0.082831
1984	0.112716	0.053731	-0.023634	-0.077553
1985	0.122796	0.051925	-0.015310	-0.073509
1986	0.123489	0.050119	-0.017746	-0.074915
1987	0.124181	0.048313	-0.017828	-0.072276
1988	0.115486	0.056033	-0.022702	-0.066999
1989	0.098095	0.057634	-0.025138	-0.064360
1990	0.092876	0.071473	-0.038254	-0.061721
1991	0.089399	0.079193	-0.029930	-0.057677
1992	0.080703	0.091225	-0.030094	-0.058223
1993	0.063312	0.098041	-0.032078	-0.056182
1994	0.054617	0.096235	-0.032159	-0.055313
1995	0.049399	0.096898	-0.032240	-0.054443
1996	0.044180	0.115048	-0.032320	-0.049864
1997	0.037048	0.119119	-0.032401	-0.051662

RESPONSE OF POSTAL SERVICE WITNESS THRESS TO INTERROGATORIES OF ABA&NAPM

REGRESSION DIAGNOSTICS

Sum of Sq Resids	0.009123
Mean-Squared Error	0.000223
Durbin-Watson	2.149277
R-Square	0.978817
Adj. R-Square	0.969517
Degrees of Freedom	41

SHILLER K-SQUARED VALUES

PX01SP	0.000000
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AUTOCORRELATION STRUCTURE OF FINAL RESIDUALS

Lag	Auto-Correlation	Partial Auto-Correlation	Standard Error	T-Stat on Partial
1	-0.077298	-0.077152	0.130189	-0.592616
2	-0.044830	-0.051401	0.131306	-0.391460
3	-0.054401	-0.062694	0.132453	-0.473328
4	-0.220174	-0.236066	0.133631	-1.766554
5	0.139342	0.101019	0.134840	0.749180
6	-0.209525	-0.226589	0.136083	-1.665080
7	-0.104419	-0.167689	0.137361	-1.220794
8	-0.062683	-0.169098	0.138675	-1.219381
9	-0.055290	-0.106119	0.140028	-0.757839

REGRESSION RESIDUALS (Final)

	Quarter 1	Quarter 2	Quarter 3	Quarter 4
1983	-0.006256	-0.002476	0.001284	-0.009668
1984	0.006606	0.017094	-0.014923	0.007177
1985	-0.012998	-0.005259	0.010135	0.007587
1986	0.019828	-0.018052	0.010789	0.012437
1987	0.001048	-0.002332	-0.009991	-0.012030
1988	-0.001138	-0.012033	0.002931	-0.004137
1989	-0.011287	0.030522	0.000336	-0.015295
1990	0.000956	0.005735	0.003004	-0.005463
1991	0.018777	0.000219	0.008083	-0.012526
1992	-0.028445	-0.004790	0.003795	0.020755
1993	0.004108	0.001553	0.010907	0.010799
1994	0.006141	0.005938	-0.027336	0.017431
1995	-0.017897	-0.014510	-0.014889	-0.014782
1996	0.028024	0.002990	0.001577	-0.000169
1997	-0.006544	-0.004169	0.013150	-0.002323

RESPONSE OF POSTAL SERVICE WITNESS THRESS TO INTERROGATORIES OF ABA&NAPM

Mail Category:

Single-Piece First-Class Letters

R2005-1 Demand Equation

Sample Period:

1983:1 TO 2000:4

Non-Seasonal Variables

	Coefficients	Std. Error	T-Ratio
CONSTANT	0.117248	0.124276	0.943447
EMPLOY(-1)	0.766214	0.116240	6.591683
EMPL_T(-1)	-0.001111	0.000767	-1.448147
ISP_CUM_LCOEF	-0.493710	0.036835	-13.403195
GDIST	0.011349	0.009207	1.232633
MSADJ	0.016107	0.009636	1.671498
MC95	0.071274	0.012306	5.791771
D1_3WS	-0.100384	0.018325	-5.477885
PX01SP	-0.063370	0.102757	-0.616702
lag 1	-0.118215	0.101078	-1.169538
lag 2	0.000000	0.000000	0.000000
lag 3	0.000000	0.000000	0.000000
lag 4	0.000000	0.000000	0.000000

Long-Run Price Elasticities

	PX01SP
Current	-0.063370
Lag 1	-0.118215
Lag 2	0.000000
Lag 3	0.000000
Lag 4	0.000000
Sum	-0.181585
T-Statistic on Sum	-2.469238

RESPONSE OF POSTAL SERVICE WITNESS THRESS TO INTERROGATORIES OF ABA&NAPM

Seasonal Variables

	Coefficients	Std. Error	T-Ratio
SEP1_15	-0.551577	0.276881	-1.992112
SEP16_30	-0.268783	0.070515	-3.811694
OCT	0.089459	0.041277	2.167293
NOV1_DEC10	0.089459	0.041277	2.167293
DEC11_12	0.299505	0.101451	2.952209
DEC13_15	0.299505	0.101451	2.952209
DEC16_17	0.299505	0.101451	2.952209
DEC18_19	0.299505	0.101451	2.952209
DEC20_21	-0.284222	0.150949	-1.882902
DEC22_23	-0.284222	0.150949	-1.882902
DEC24	-0.284222	0.150949	-1.882902
DEC25_JAN1	0.093276	0.042092	2.216000
JAN2_FEB	0.093276	0.042092	2.216000
MARCH	-0.192198	0.063345	-3.034160
APR1_15	0.831693	0.296836	2.801865
APR16_MAY	-0.285900	0.102827	-2.780393
JUNE	0.000000	0.000000	0.000000
GQTR1	0.010150	0.014539	0.698161
GQTR2	0.015615	0.017991	0.867932
GQTR3	-0.078646	0.020591	-3.819495
GQTR4	0.052881	0.016413	3.221877

SEASONAL INDEX

	Quarter 1	Quarter 2	Quarter 3	Quarter 4
1983	0.083690	0.026106	-0.030512	-0.107586
1984	0.089106	0.028951	-0.051667	-0.101867
1985	0.097789	0.027597	-0.039953	-0.096000
1986	0.098013	0.026244	-0.042660	-0.099008
1987	0.098237	0.024891	-0.041340	-0.096149
1988	0.090001	0.032122	-0.046754	-0.090430
1989	0.073528	0.033801	-0.049461	-0.087571
1990	0.068337	0.046584	-0.067909	-0.084711
1991	0.065292	0.053815	-0.056195	-0.078843
1992	0.057056	0.065244	-0.053556	-0.082034
1993	0.040584	0.071309	-0.055481	-0.080026
1994	0.032348	0.069956	-0.054180	-0.080210
1995	0.027156	0.071009	-0.052878	-0.080394
1996	0.021964	0.087990	-0.051577	-0.074680
1997	0.012674	0.092075	-0.050276	-0.077755
1998	0.003384	0.092019	-0.041044	-0.071824
1999	-0.005907	0.095052	-0.028186	-0.068967
2000	0.094556	0.006120	-0.079324	-0.078458

RESPONSE OF POSTAL SERVICE WITNESS THRESS TO INTERROGATORIES OF ABA&NAPM

REGRESSION DIAGNOSTICS

Sum of Sq Resids	0.010153
Mean-Squared Error	0.000203
Durbin-Watson	2.013901
R-Square	0.984698
Adj. R-Square	0.978271
Degrees of Freedom	50

SHILLER K-SQUARED VALUES

PX01SP	0.000000
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AUTOCORRELATION STRUCTURE OF FINAL RESIDUALS

Lag	Auto-Correlation	Partial Auto-Correlation	Standard Error	T-Stat on Partial
1	-0.009021	-0.009003	0.118678	-0.075861
2	0.053182	0.052986	0.119523	0.443312
3	-0.027295	-0.026317	0.120386	-0.218602
4	-0.132536	-0.135328	0.121268	-1.115941
5	0.078790	0.080964	0.122169	0.662715
6	-0.250588	-0.236773	0.123091	-1.923551
7	-0.145448	-0.171930	0.124035	-1.386142
8	-0.041225	-0.024182	0.125000	-0.193455
9	-0.098521	-0.094299	0.125988	-0.748474

REGRESSION RESIDUALS (Final)

	Quarter 1	Quarter 2	Quarter 3	Quarter 4
1983	-0.006378	-0.001535	-0.000905	-0.009829
1984	0.005195	0.017005	-0.011691	0.006660
1985	-0.012864	-0.005667	0.010784	0.006885
1986	0.021806	-0.017944	0.011723	0.012411
1987	0.002565	-0.003564	-0.011400	-0.013256
1988	-0.007764	-0.016508	0.000302	-0.004598
1989	-0.009717	0.031480	0.001861	-0.014966
1990	0.002440	0.007325	0.009018	-0.006495
1991	0.018244	0.000734	0.010857	-0.013854
1992	-0.027976	-0.002641	0.002776	0.019482
1993	0.007601	0.008476	0.014092	0.013893
1994	0.007137	0.010380	-0.027794	0.019116
1995	-0.019814	-0.013290	-0.018722	-0.014440
1996	0.022878	0.000886	-0.010287	-0.000352
1997	-0.005348	-0.002433	0.003584	-0.005468
1998	0.003737	-0.011450	-0.002123	-0.001962
1999	-0.000653	-0.002018	0.015204	0.004836
2000	0.001083	0.001083	0.001083	0.001083

RESPONSE OF POSTAL SERVICE WITNESS THRESS TO INTERROGATORIES OF ABA&NAPM

Mail Category:

Single-Piece First-Class Letters

R2005-1 Demand Equation

Sample Period:

1983:1 TO 2001:4

Non-Seasonal Variables

	Coefficients	Std. Error	T-Ratio
CONSTANT	0.000873	0.124853	0.006990
EMPLOY(-1)	0.665443	0.117104	5.682482
EMPL_T(-1)	-0.001550	0.000786	-1.970887
ISP_CUM_LCOEF	-0.473682	0.030641	-15.459214
GDIST	0.017457	0.009148	1.908274
MSADJ	0.008741	0.008620	1.014108
MC95	0.069753	0.010653	6.547822
D1_3WS	-0.103916	0.017235	-6.029518
PX01SP	-0.093855	0.115184	-0.814826
lag 1	-0.086781	0.113487	-0.764679
lag 2	0.000000	0.000000	0.000000
lag 3	0.000000	0.000000	0.000000
lag 4	0.000000	0.000000	0.000000

Long-Run Price Elasticities

	PX01SP
Current	-0.093855
Lag 1	-0.086781
Lag 2	0.000000
Lag 3	0.000000
Lag 4	0.000000
Sum	-0.180636
T-Statistic on Sum	-2.275685

RESPONSE OF POSTAL SERVICE WITNESS THRESS TO INTERROGATORIES OF ABA&NAPM

Seasonal Variables

	Coefficients	Std. Error	T-Ratio
SEP1_15	-0.428458	0.242861	-1.764214
SEP16_30	-0.211437	0.062145	-3.402342
OCT	0.100212	0.036240	2.765243
NOV1_DEC10	0.100212	0.036240	2.765243
DEC11_12	0.372058	0.089516	4.156346
DEC13_15	0.372058	0.089516	4.156346
DEC16_17	0.372058	0.089516	4.156346
DEC18_19	0.372058	0.089516	4.156346
DEC20_21	-0.242246	0.149705	-1.618151
DEC22_23	-0.242246	0.149705	-1.618151
DEC24	-0.242246	0.149705	-1.618151
DEC25_JAN1	0.104570	0.037296	2.803776
JAN2_FEB	0.104570	0.037296	2.803776
MARCH	-0.141561	0.059685	-2.371811
APR1_15	0.521357	0.271548	1.919943
APR16_MAY	-0.165584	0.091957	-1.800672
JUNE	0.000000	0.000000	0.000000
GQTR1	0.006449	0.010553	0.611165
GQTR2	-0.014609	0.014390	-1.015181
GQTR3	-0.035199	0.016884	-2.084759
GQTR4	0.043358	0.011738	3.693695

SEASONAL INDEX

	Quarter 1	Quarter 2	Quarter 3	Quarter 4
1983	0.102975	0.046657	-0.015095	-0.083938
1984	0.107938	0.048796	-0.028758	-0.079439
1985	0.117288	0.047315	-0.021415	-0.074881
1986	0.117734	0.045835	-0.023408	-0.077190
1987	0.118181	0.044354	-0.023070	-0.074941
1988	0.109724	0.051907	-0.027058	-0.070442
1989	0.092811	0.054360	-0.029051	-0.068193
1990	0.088295	0.067014	-0.040720	-0.065943
1991	0.084355	0.074567	-0.033377	-0.061385
1992	0.075898	0.085740	-0.032701	-0.063206
1993	0.058985	0.093607	-0.034213	-0.061612
1994	0.050529	0.092126	-0.033879	-0.061119
1995	0.046012	0.091684	-0.033545	-0.060626
1996	0.041496	0.107957	-0.033212	-0.054973
1997	0.033834	0.111448	-0.032878	-0.056754
1998	0.026172	0.111384	-0.025707	-0.052147
1999	0.018510	0.115318	-0.019251	-0.049320
2000	0.109494	0.001354	-0.028895	-0.059112
2001	0.117834	0.001354	-0.037816	-0.057678

RESPONSE OF POSTAL SERVICE WITNESS THRESS TO INTERROGATORIES OF ABA&NAPM

REGRESSION DIAGNOSTICS

Sum of Sq Resids	0.012076
Mean-Squared Error	0.000246
Durbin-Watson	2.098078
R-Square	0.984634
Adj. R-Square	0.976481
Degrees of Freedom	49

SHILLER K-SQUARED VALUES

PX01SP	0.000000
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AR-Coefficients

	Coefficient	Std. Error	T-Ratio
Rho-1	0.000000	0.130927	-0.004663
Rho-2	0.000000	0.000000	0.000000
Rho-4	-0.350520	0.116313	-3.013594

AUTOCORRELATION STRUCTURE OF FINAL RESIDUALS

Lag	Auto-Correlation	Partial Auto-Correlation	Standard Error	T-Stat on Partial
1	-0.049664	-0.049689	0.118678	-0.418689
2	-0.010314	-0.013296	0.119523	-0.111243
3	-0.014571	-0.015354	0.120386	-0.127541
4	-0.036425	-0.037910	0.121268	-0.312610
5	-0.025815	-0.029060	0.122169	-0.237863
6	-0.214665	-0.225164	0.123091	-1.829242
7	-0.189613	-0.225417	0.124035	-1.817369
8	-0.154137	-0.212375	0.125000	-1.699003
9	-0.008824	-0.078302	0.125988	-0.621506

RESPONSE OF POSTAL SERVICE WITNESS THRESS TO INTERROGATORIES OF ABA&NAPM

REGRESSION RESIDUALS (w/o AR-Corrections)

	Quarter 1	Quarter 2	Quarter 3	Quarter 4
1983	-0.008570	-0.006862	-0.001865	-0.019024
1984	0.001952	0.014201	-0.016615	0.002879
1985	-0.013120	-0.004562	0.014431	0.006491
1986	0.022633	-0.016837	0.013206	0.010746
1987	0.002557	-0.003110	-0.009672	-0.014225
1988	-0.013032	-0.018181	0.002721	-0.003906
1989	-0.008518	0.032086	0.003141	-0.012256
1990	0.004344	0.008471	0.003922	-0.003435
1991	0.020034	0.001828	0.009519	-0.014107
1992	-0.030747	-0.007931	-0.003715	0.014362
1993	0.009602	0.006216	0.012875	0.015456
1994	0.008937	0.008443	-0.027763	0.020697
1995	-0.017504	-0.010349	-0.015549	-0.012679
1996	0.024250	0.001354	-0.008958	0.001156
1997	-0.004896	-0.000588	0.006980	-0.005788
1998	0.001131	-0.010707	0.002408	-0.002344
1999	-0.006331	-0.003803	0.024057	0.001941
2000	0.002249	0.021289	-0.034705	-0.004819
2001	-0.000220	-0.021649	0.032209	0.005344

REGRESSION RESIDUALS (Final)

	Quarter 1	Quarter 2	Quarter 3	Quarter 4
1983				
1984	-0.001053	0.011795	-0.017268	-0.003789
1985	-0.012436	0.000415	0.008607	0.007500
1986	0.018034	-0.018437	0.018264	0.013021
1987	0.010490	-0.009012	-0.005042	-0.010458
1988	-0.012135	-0.019271	-0.000669	-0.008892
1989	-0.013086	0.025714	0.004095	-0.013625
1990	0.001358	0.019718	0.005023	-0.007731
1991	0.021556	0.004798	0.010894	-0.015311
1992	-0.023725	-0.007290	-0.000379	0.009417
1993	-0.001176	0.003436	0.011573	0.020490
1994	0.012303	0.010622	-0.023250	0.026115
1995	-0.014372	-0.007390	-0.025281	-0.005425
1996	0.018114	-0.002274	-0.014409	-0.003288
1997	0.003605	-0.000113	0.003840	-0.005383
1998	-0.000585	-0.010913	0.004855	-0.004373
1999	-0.005934	-0.007556	0.024901	0.001119
2000	0.000030	0.019956	-0.026272	-0.004138
2001	0.000568	-0.014186	0.020044	0.003655

RESPONSE OF POSTAL SERVICE WITNESS THRESS TO INTERROGATORIES OF ABA&NAPM

Mail Category:

Workshared First-Class Letters

R2005-1 Demand Equation

Sample Period:

1991:1 TO 2005:1

Non-Seasonal Variables

	Coefficients	Std. Error	T-Ratio
CONSTANT	-0.743693	0.287659	-2.585330
STR	0.459166	0.169899	2.702575
T02Q4	-0.004298	0.002768	-1.552953
BROADBAND(-4)	-1.260504	0.610338	-2.065255
MSADJ	-0.069388	0.015249	-4.550242
MC95	-0.068276	0.013621	-5.012640
D1_3WS_FIT	0.107755	0.019401	5.553957
D3R_NCR_L	-0.096643	0.033842	-2.855740
PX1_3WS	-0.127552	0.175198	-0.728042
lag 1	-0.039982	0.183970	-0.217328
lag 2	-0.002142	0.174283	-0.012288
lag 3	-0.043073	0.160172	-0.268917
lag 4	-0.116119	0.116539	-0.996398

Long-Run Price Elasticities

	PX1_3WS
Current	-0.127552
Lag 1	-0.039982
Lag 2	-0.002142
Lag 3	-0.043073
Lag 4	-0.116119
Sum	-0.328867
T-Statistic on Sum	-2.179111

RESPONSE OF POSTAL SERVICE WITNESS THRESS TO INTERROGATORIES OF ABA&NAPM

Seasonal Variables

	Coefficients	Std. Error	T-Ratio
SEP_DEC10	0.157359	0.288084	0.546226
DEC11_31	0.462128	0.286957	1.610442
JAN_MAY	0.121544	0.288685	0.421026
JUNE	0.229266	0.874102	0.262287
GQTR1	-0.063426	0.007252	-8.745659
GQTR2	0.070434	0.005578	12.628015
GQTR3	-0.053769	0.195650	-0.274821
GQTR4	0.046761	0.195601	0.239061

SEASONAL INDEX

	Quarter 1	Quarter 2	Quarter 3	Quarter 4
1991	0.175027	0.186655	0.121544	0.087759
1992	0.170610	0.191664	0.121544	0.089817
1993	0.161776	0.201681	0.121544	0.089091
1994	0.157359	0.206690	0.121544	0.088706
1995	0.157359	0.202735	0.121544	0.088321
1996	0.157359	0.202735	0.121544	0.085086
1997	0.157359	0.203788	0.121544	0.086392
1998	0.157359	0.204315	0.121544	0.087166
1999	0.157359	0.209323	0.121544	0.086781
2000	0.163015	0.191977	0.104149	0.097851
2001	0.163948	0.191977	0.104149	0.096453
2002	0.163015	0.191977	0.102750	0.095808
2003	0.163015	0.191977	0.102750	0.097851
2004	0.163015	0.191977	0.104149	0.097851
2005	0.163015			

RESPONSE OF POSTAL SERVICE WITNESS THRESS TO INTERROGATORIES OF ABA&NAPM

REGRESSION DIAGNOSTICS

Sum of Sq Resids	0.005551
Mean-Squared Error	0.000173
Durbin-Watson	1.234855
R-Square	0.990975
Adj. R-Square	0.984206
Degrees of Freedom	32

SHILLER K-SQUARED VALUES

PX1_3WS	0.006250
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AR-Coefficients

	Coefficient	Std. Error	T-Ratio
Rho-1	0.000000	0.000000	0.000000
Rho-2	0.000000	0.000000	0.000000
Rho-4	-0.366801	0.082862	-4.426641

AUTOCORRELATION STRUCTURE OF FINAL RESIDUALS

Lag	Auto-Correlation	Partial Auto-Correlation	Standard Error	T-Stat on Partial
1	0.331404	0.354018	0.138675	2.552857
2	-0.056755	-0.190722	0.140028	-1.362027
3	-0.171714	-0.162734	0.141421	-1.150703
4	-0.211155	-0.149688	0.142857	-1.047815
5	-0.018819	0.081264	0.144338	0.563011
6	0.033221	0.011670	0.145865	0.080006
7	0.072456	-0.005474	0.147442	-0.037127
8	-0.223728	-0.307873	0.149071	-2.065278
9	-0.318219	-0.131112	0.150756	-0.869698

RESPONSE OF POSTAL SERVICE WITNESS THRESS TO INTERROGATORIES OF ABA&NAPM

REGRESSION RESIDUALS (w/o AR-Corrections)

	Quarter 1	Quarter 2	Quarter 3	Quarter 4
1991	-0.062791	0.040875	-0.060331	-0.008317
1992	0.032820	-0.007450	0.009543	-0.008086
1993	-0.002766	0.011052	-0.010545	0.016238
1994	-0.016532	-0.021860	-0.002944	-0.016640
1995	0.006718	0.010395	0.017143	0.012049
1996	-0.001962	-0.006716	-0.003704	-0.003403
1997	0.003348	0.014759	0.020407	0.007962
1998	-0.007417	-0.006813	-0.008082	0.004973
1999	0.002238	-0.007198	-0.012029	-0.013990
2000	-0.000705	-0.000456	0.009931	-0.008529
2001	-0.003041	0.001765	0.010541	0.016980
2002	0.000455	0.011883	-0.000046	-0.014895
2003	-0.003325	-0.000225	-0.003391	0.006892
2004	-0.016993	-0.013636	-0.015111	0.003132
2005	0.033757			

REGRESSION RESIDUALS (Final)

	Quarter 1	Quarter 2	Quarter 3	Quarter 4
1991				
1992	0.009788	0.007543	-0.012587	-0.011136
1993	0.009272	0.008320	-0.007045	0.013273
1994	-0.017547	-0.017806	-0.006812	-0.010684
1995	0.000654	0.002377	0.016063	0.005946
1996	0.000502	-0.002903	0.002584	0.001016
1997	0.002628	0.012295	0.019048	0.006714
1998	-0.006190	-0.001399	-0.000597	0.007894
1999	-0.000483	-0.009697	-0.014994	-0.012166
2000	0.000115	-0.003096	0.005518	-0.013661
2001	-0.003300	0.001598	0.014184	0.013852
2002	-0.000660	0.012530	0.003820	-0.008667
2003	-0.003158	0.004133	-0.003408	0.001428
2004	-0.018212	-0.013718	-0.016354	0.005660
2005	0.027524			

RESPONSE OF POSTAL SERVICE WITNESS THRESS TO INTERROGATORIES OF ABA&NAPM

Mail Category:

Workshared First-Class Letters

R2005-1 Demand Equation

Sample Period:

1991:1 TO 1997:4

Non-Seasonal Variables

	Coefficients	Std. Error	T-Ratio
CONSTANT	-1.351299	0.716383	-1.886279
STR	0.149500	0.342282	0.436775
MSADJ	-0.078801	0.019869	-3.966004
MC95	-0.050985	0.018126	-2.812854
D1_3WS_FIT	0.134338	0.029611	4.536757
D3R_NCR_L	-0.070749	0.054865	-1.289516
PX1_3WS	-0.136772	0.314996	-0.434204
lag 1	-0.040546	0.509978	-0.079506
lag 2	-0.004263	0.524984	-0.008120
lag 3	-0.083392	0.439647	-0.189678
lag 4	-0.203348	0.248244	-0.819147

Long-Run Price Elasticities

	PX1_3WS
Current	-0.136772
Lag 1	-0.040546
Lag 2	-0.004263
Lag 3	-0.083392
Lag 4	-0.203348
Sum	-0.468321
T-Statistic on Sum	-1.708080

RESPONSE OF POSTAL SERVICE WITNESS THRESS TO INTERROGATORIES OF ABA&NAPM

Seasonal Variables

	Coefficients	Std. Error	T-Ratio
SEP_DEC10	0.841983	0.694588	1.212204
DEC11_31	1.181982	0.708474	1.668349
JAN_MAY	0.801300	0.694216	1.154252
JUNE	2.295925	2.106672	1.089835

SEASONAL INDEX

	Quarter 1	Quarter 2	Quarter 3	Quarter 4
1991	0.861693	0.874078	0.801300	0.753934
1992	0.856765	0.879676	0.801300	0.777926
1993	0.846910	0.890873	0.801300	0.777238
1994	0.841983	0.896471	0.801300	0.776800
1995	0.841983	0.892069	0.801300	0.776363
1996	0.841983	0.892069	0.801300	0.750800
1997	0.841983	0.893266	0.801300	0.759417

RESPONSE OF POSTAL SERVICE WITNESS THRESS TO INTERROGATORIES OF ABA&NAPM

REGRESSION DIAGNOSTICS

Sum of Sq Resids	0.005375
Mean-Squared Error	0.000489
Durbin-Watson	1.830434
R-Square	0.971945
Adj. R-Square	0.931137
Degrees of Freedom	11

SHILLER K-SQUARED VALUES

PX1_3WS	0.010938
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AR-Coefficients

	Coefficient	Std. Error	T-Ratio
Rho-1	-0.563482	0.145760	-3.865812

AUTOCORRELATION STRUCTURE OF FINAL RESIDUALS

Lag	Auto-Correlation	Partial Auto-Correlation	Standard Error	T-Stat on Partial
1	0.006851	0.006285	0.196116	0.032050
2	-0.325036	-0.278959	0.200000	-1.394797
3	-0.070011	-0.035278	0.204124	-0.172825
4	-0.353771	-0.287553	0.208514	-1.379058
5	0.103964	0.102560	0.213201	0.481050
6	-0.159487	-0.348711	0.218218	-1.597993
7	-0.008010	0.049377	0.223607	0.220823
8	0.169423	-0.176005	0.229416	-0.767189
9	-0.207700	-0.283237	0.235702	-1.201671

RESPONSE OF POSTAL SERVICE WITNESS THRESS TO INTERROGATORIES OF ABA&NAPM

REGRESSION RESIDUALS (w/o AR-Corrections)

	Quarter 1	Quarter 2	Quarter 3	Quarter 4
1991	-0.035322	0.048670	-0.052493	0.005964
1992	0.019920	-0.013687	0.014645	-0.014115
1993	0.002482	0.011637	-0.004081	0.015375
1994	-0.013890	-0.024448	0.006221	-0.016927
1995	0.011642	0.003905	0.015857	0.003463
1996	-0.006278	-0.008961	0.006497	0.007578
1997	-0.009461	-0.003751	0.007784	-0.001280

REGRESSION RESIDUALS (Final)

	Quarter 1	Quarter 2	Quarter 3	Quarter 4
1991		0.028767	-0.025068	-0.023615
1992	0.023281	-0.002462	0.006933	-0.005863
1993	-0.005472	0.013035	0.002476	0.013075
1994	-0.005227	-0.032274	-0.007555	-0.013422
1995	0.002104	0.010465	0.018057	0.012398
1996	-0.004326	-0.012498	0.001447	0.011239
1997	-0.005191	-0.009082	0.005670	0.003106

RESPONSE OF POSTAL SERVICE WITNESS THRESS TO INTERROGATORIES OF ABA&NAPM

Mail Category:

Workshared First-Class Letters

R2005-1 Demand Equation

Sample Period:

1991:1 TO 2000:4

Non-Seasonal Variables

	Coefficients	Std. Error	T-Ratio
CONSTANT	-0.478489	0.650044	-0.736087
STR	-0.235334	0.331255	-0.710431
BROADBAND(-4)	23.182582	17.092172	1.356327
MSADJ	-0.081676	0.024228	-3.371118
MC95	-0.069607	0.023924	-2.909558
D1_3WS_FIT	0.159332	0.029720	5.361111
D3R_NCR_L	-0.070139	0.061426	-1.141849
PX1_3WS	-0.208890	0.284789	-0.733490
lag 1	-0.099555	0.387690	-0.256789
lag 2	-0.011194	0.387466	-0.028890
lag 3	-0.078181	0.353628	-0.221083
lag 4	-0.170511	0.235762	-0.723233

Long-Run Price Elasticities

	PX1_3WS
Current	-0.208890
Lag 1	-0.099555
Lag 2	-0.011194
Lag 3	-0.078181
Lag 4	-0.170511
Sum	-0.568330
T-Statistic on Sum	-1.901721

RESPONSE OF POSTAL SERVICE WITNESS THRESS TO INTERROGATORIES OF ABA&NAPM

Seasonal Variables

	Coefficients	Std. Error	T-Ratio
SEP_DEC10	0.038562	0.653305	0.059025
DEC11_31	0.370463	0.662906	0.558847
JAN_MAY	0.000408	0.652591	0.000625
JUNE	-0.131130	1.976317	-0.066351
GQTR1	-0.058244	0.023255	-2.504590
GQTR2	0.085178	0.021777	3.911350
GQTR3	0.033436	0.444102	0.075289
GQTR4	-0.060370	0.445830	-0.135411

SEASONAL INDEX

	Quarter 1	Quarter 2	Quarter 3	Quarter 4
1991	0.057802	0.071154	0.000408	-0.028311
1992	0.052992	0.076596	0.000408	-0.030112
1993	0.043372	0.087480	0.000408	-0.030851
1994	0.038562	0.092922	0.000408	-0.031261
1995	0.038562	0.088602	0.000408	-0.031671
1996	0.038562	0.088602	0.000408	-0.031082
1997	0.038562	0.089724	0.000408	-0.031077
1998	0.038562	0.090285	0.000408	-0.032902
1999	0.038562	0.095727	0.000408	-0.033312
2000	0.055549	0.085586	-0.010572	-0.047850

RESPONSE OF POSTAL SERVICE WITNESS THRESS TO INTERROGATORIES OF ABA&NAPM

REGRESSION DIAGNOSTICS

Sum of Sq Resids	0.009943
Mean-Squared Error	0.000473
Durbin-Watson	2.544326
R-Square	0.978657
Adj. R-Square	0.960363
Degrees of Freedom	21

SHILLER K-SQUARED VALUES

PX1_3WS	0.006250
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AUTOCORRELATION STRUCTURE OF FINAL RESIDUALS

Lag	Auto-Correlation	Partial Auto-Correlation	Standard Error	T-Stat on Partial
1	-0.284074	-0.281385	0.160128	-1.757250
2	0.016309	-0.049069	0.162221	-0.302483
3	0.191314	0.135798	0.164399	0.826027
4	-0.422930	-0.301848	0.166667	-1.811089
5	0.296676	0.180249	0.169031	1.066370
6	-0.239812	-0.168974	0.171499	-0.985280
7	0.093555	0.117622	0.174078	0.675685
8	0.299131	0.088923	0.176777	0.503024
9	-0.462466	-0.286858	0.179605	-1.597160

REGRESSION RESIDUALS (Final)

	Quarter 1	Quarter 2	Quarter 3	Quarter 4
1991	-0.013532	0.056244	-0.040389	-0.001302
1992	0.024168	-0.012796	0.005611	-0.018005
1993	-0.003015	0.006626	-0.014723	0.014720
1994	-0.017906	-0.027222	0.004110	-0.012747
1995	0.013908	0.004785	0.016056	0.015095
1996	-0.001099	-0.006051	0.007663	-0.000628
1997	0.008082	0.012521	0.019639	0.002874
1998	-0.013765	-0.019411	-0.008397	0.003285
1999	0.004258	-0.005334	-0.001814	-0.004303
2000	0.000698	0.000698	0.000698	0.000698

RESPONSE OF POSTAL SERVICE WITNESS THRESS TO INTERROGATORIES OF ABA&NAPM

Mail Category:

Workshared First-Class Letters

R2005-1 Demand Equation

Sample Period:

1991:1 TO 2001:4

Non-Seasonal Variables

	Coefficients	Std. Error	T-Ratio
CONSTANT	-0.512934	0.309673	-1.656372
STR	0.435545	0.170395	2.556082
BROADBAND(-4)	2.265918	1.519088	1.491631
MSADJ	-0.056404	0.014368	-3.925674
MC95	-0.047569	0.014259	-3.335948
D1_3WS_FIT	0.100659	0.019094	5.271741
D3R_NCR_L	-0.066306	0.030079	-2.204425
PX1_3WS	0.078970	0.213606	0.369701
lag 1	0.026690	0.244056	0.109360
lag 2	-0.025591	0.220700	-0.115952
lag 3	-0.077871	0.183819	-0.423630
lag 4	-0.130152	0.123053	-1.057683

Long-Run Price Elasticities

	PX1_3WS
Current	0.078970
Lag 1	0.026690
Lag 2	-0.025591
Lag 3	-0.077871
Lag 4	-0.130152
Sum	-0.127953
T-Statistic on Sum	-0.799914

RESPONSE OF POSTAL SERVICE WITNESS THRESS TO INTERROGATORIES OF ABA&NAPM

Seasonal Variables

	Coefficients	Std. Error	T-Ratio
SEP_DEC10	0.203622	0.324474	0.627545
DEC11_31	0.508322	0.326430	1.557218
JAN_MAY	0.166875	0.324378	0.514446
JUNE	0.367948	0.981399	0.374922
GQTR1	-0.062683	0.008309	-7.544305
GQTR2	0.070315	0.006728	10.451715
GQTR3	-0.079763	0.221720	-0.359747
GQTR4	0.072131	0.220408	0.327258

SEASONAL INDEX

	Quarter 1	Quarter 2	Quarter 3	Quarter 4
1991	0.221286	0.232152	0.166875	0.132518
1992	0.216870	0.237173	0.166875	0.136041
1993	0.208038	0.247216	0.166875	0.135314
1994	0.203622	0.252237	0.166875	0.134919
1995	0.203622	0.248296	0.166875	0.134524
1996	0.203622	0.248296	0.166875	0.129777
1997	0.203622	0.249377	0.166875	0.131572
1998	0.203622	0.249918	0.166875	0.133339
1999	0.203622	0.254939	0.166875	0.132944
2000	0.210005	0.237190	0.155007	0.138242
2001	0.210938	0.237190	0.155007	0.136432

RESPONSE OF POSTAL SERVICE WITNESS THRESS TO INTERROGATORIES OF ABA&NAPM

REGRESSION DIAGNOSTICS

Sum of Sq Resids	0.002794
Mean-Squared Error	0.000147
Durbin-Watson	1.538425
R-Square	0.993413
Adj. R-Square	0.985093
Degrees of Freedom	19

SHILLER K-SQUARED VALUES

PX1_3WS 419430.400000

AR-Coefficients

	Coefficient	Std. Error	T-Ratio
Rho-1	-0.000610	0.130927	-0.004663
Rho-2	0.000000	0.000000	0.000000
Rho-4	-0.287633	0.073963	-3.888867

AUTOCORRELATION STRUCTURE OF FINAL RESIDUALS

Lag	Auto-Correlation	Partial Auto-Correlation	Standard Error	T-Stat on Partial
1	0.208192	0.203018	0.160128	1.267848
2	-0.122804	-0.165374	0.162221	-1.019434
3	-0.337067	-0.288636	0.164399	-1.755707
4	-0.278853	-0.185765	0.166667	-1.114588
5	0.128083	0.175220	0.169031	1.036616
6	0.159513	0.002402	0.171499	0.014003
7	0.187165	0.014794	0.174078	0.084982
8	-0.238999	-0.222667	0.176777	-1.259595
9	-0.201791	0.080037	0.179605	0.445625

RESPONSE OF POSTAL SERVICE WITNESS THRESS TO INTERROGATORIES OF ABA&NAPM

REGRESSION RESIDUALS (w/o AR-Corrections)

	Quarter 1	Quarter 2	Quarter 3	Quarter 4
1991	-0.040471	0.050822	-0.073035	-0.022750
1992	0.023723	-0.008832	0.011868	-0.004195
1993	-0.009228	0.007497	-0.011866	0.016114
1994	-0.014594	-0.017486	0.003778	-0.008048
1995	0.017903	0.008652	0.007389	0.003443
1996	-0.005976	-0.006418	-0.000502	-0.005815
1997	0.000085	0.014171	0.019550	0.007122
1998	-0.008310	-0.006229	-0.006431	0.006762
1999	0.005437	-0.005680	-0.012613	-0.014504
2000	0.000672	0.005069	0.009784	0.001518
2001	-0.000438	-0.002640	-0.006109	0.003110

REGRESSION RESIDUALS (Final)

	Quarter 1	Quarter 2	Quarter 3	Quarter 4
1991				
1992	0.012068	0.005800	-0.009145	-0.010731
1993	-0.002407	0.004951	-0.008448	0.014900
1994	-0.017239	-0.015338	0.000354	-0.003411
1995	0.013700	0.003633	0.008481	0.001132
1996	-0.000824	-0.003933	0.001619	-0.004825
1997	-0.001637	0.012325	0.019414	0.005461
1998	-0.008282	-0.002158	-0.000812	0.008807
1999	0.003050	-0.007468	-0.014466	-0.012566
2000	0.002227	0.003435	0.006159	-0.002647
2001	-0.000243	-0.001182	-0.003297	0.003543

RESPONSE OF POSTAL SERVICE WITNESS THRESS TO
INTERROGATORIES OF ABA&NAPM

ABA&NAPM/USPS-T7-3.

Beyond elasticity calculations you have done for single piece and worksharing rates in the FCLM subclass, there are extra ounce rates in FCLM.

- a. Have you performed any elasticity studies with respect to the extra ounce rate? If so, please provide the results. If not, why not?
- b. In your opinion, whether based on your analyses or other information, did the rate increases for FCLM extra ounces from R2001-1 have anything to do with the notable drop-off in extra ounce volumes following implementation of that rate increase?
- c. In your opinion, whether based on your analyses or other information, did the rate increases for FCLM extra ounces from R2001-1 have anything to do with the notable drop-off in the volume of checks processed following implementation of that rate increase?

RESPONSE

- a. The extra ounce rate charged by the Postal Service is incorporated into the price indices from which First-Class letters price elasticities are estimated.
- b. The additional ounce rates for First-Class letters were not increased as a result of R2001-1. The additional ounce rate for single-piece First-Class letters was left unchanged at 23 cents, while the additional ounce rate for workshared First-Class letters was reduced from 23 to 22.5 cents.
- c. See my response to b. It is my understanding that the volume of checks processed via the mail is affected by many factors beyond the price of additional ounces charged by the Postal Service. Peter Bernstein has presented evidence in this case, for example, that the total volume of checks has fallen consistently from 49.5 billion in 1995 to 36.7 billion in 2003 (USPS-T-8, Table 4, page 26).

RESPONSE OF POSTAL SERVICE WITNESS THRESS TO
INTERROGATORIES OF ABA&NAPM

ABA&NAPM/USPS-T7-4.

Pitney Bowes Chairman and CEO Michael Critelli made the observation in his keynote address at the 2004 annual Rutgers Conference on Postal and Delivery Economics that while the Postal Service institutionally thinks in terms of higher or lower rate increases, its electronic competitors think in terms of price decreases for their competing substitutes.

- a. Have you ever computed the impact on postal volumes in FCLM from any nominal cut in FCLM rates? If so please provide the results.
- b. If your answer to a. is no, and notwithstanding your CES model restrictions, please provide any empirical evidence you have that shows a cut in FCLM rates would produce lower revenues for the Postal Service?
- c. In your opinion does the performance of NSA agreements to date indicate a higher elasticity for those mailstreams than the overall elasticities you compute for FCLM in this case?

RESPONSE

a. As per standard economic practice, my demand equations estimate the impact of changes in real Postal prices on mail volumes. Historically, real Postal prices have both increased and decreased at various times in their history. For example, real First-Class letters prices fall regularly between rate cases.

b. As explained in my answer to part a, the price elasticity estimates presented by me in this rate case were estimated based upon real price data which have experienced both increases and decreases over the time period which I have studied. Hence, my estimate that the own-price elasticity of First-Class letters is significantly less than one can be taken as strong empirical evidence both that an increase in First-Class letter rates will produce greater First-Class revenue as well as that a decrease in First-Class letter prices will produce lower First-Class revenues.

c. Because NSAs involve reductions in prices only beyond a certain volume, however, the interpretation of any price elasticities implied by volume changes resulting from NSAs is not the same as the econometric price elasticities estimated in my work. It is also important to understand that differences between

RESPONSE OF POSTAL SERVICE WITNESS THRESS TO
INTERROGATORIES OF ABA&NAPM

expected and realized volumes may be due to a plethora of factors and may not be indicative of differences only in price elasticities.

RESPONSE OF POSTAL SERVICE WITNESS THRESS TO
INTERROGATORIES OF ABA&NAPM

ABA&NAPM/-T7-5.

- a. Please confirm that what you compute using time series data going back to 1983 is a set of long run own price elasticities.
- b. When these are applied to test year revenues, under new rates, please confirm that you are applying long run elasticities to short run test year rates and revenues, specifically that you are using data heavily influenced by distant prior periods that were very different economic environments from today such as 1983-1990.

Ideally, and to maximize the competitive position of the Postal Service, wouldn't it be preferable to estimate short run elasticities to apply to 2006 test year revenues?

RESPONSE

a. I do not completely understand what you mean by the term "long run" price elasticities. When I use the term "long-run" in my testimony, I am referring simply to the sum of the impact of current and lagged prices, that is, the impact on mail volume of a change in Postal prices after allowing time for all of the lagged responses to take effect. The corresponding "short-run" elasticities, under this definition, would then refer to the specific impact of the current price and whatever lagged prices have been found to affect mail volumes.

I do, of course, assume within my model that the own-price elasticities with respect to single-piece and workshared First-Class letters, both long-run and short-run, are constant throughout the sample periods over which these two demand equations are estimated. In the case of single-piece First-Class letters, this means that I assume that the own-price elasticity of single-piece First-Class letters has been constant from 1983 to the present. In the case of workshared First-Class letters, I assume that the own-price elasticity of workshared First-Class letters volume has been constant from 1991 to the present.

b. Not confirmed. Test Year volumes are projected using short-run price elasticities, as defined in my response to part a. It is my expert opinion that the procedure which I use will produce the most accurate volume forecasts of mail volume possible.

RESPONSE OF POSTAL SERVICE WITNESS THRESS TO
INTERROGATORIES OF ABA&NAPM

The question of maximizing the competitive position of the Postal Service is beyond the scope of my testimony.

CERTIFICATE OF SERVICE

I hereby certify that I have this date served the foregoing document in accordance with Section 12 of the Rules of Practice and Procedure.

Eric P. Koetting

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May 25, 2005