

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-T7-6 - 11)  
(June 24, 2005)

The United States Postal Service hereby provides the responses of witness Thress to the following interrogatory of ABA and NAPM, filed on June 10, 2005:

ABA&NAPM/USPS-T7-6 - 11.

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

Respectfully submitted,

UNITED STATES POSTAL SERVICE

By its attorneys:

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ABA&NAPM/USPS-T7-6.

With respect to your answer that it is “not clear” what is referred to in the introductory sentence to the interrogatory, here are some quotes from your recent rate case testimonies.

“While it would certainly be better if one could include an explanatory variable that is more pleasing theoretically than simply “time” or a “trend”, the failure to include any variable to account for observed behavior may bias one’s other coefficient estimates. In cases of this type, it may therefore be necessary to introduce some type of trend variable into certain demand equations.

Several mail volume equations include some type of trend. For example, the First-Class letters equations include logistic trend variables which are discussed above.” (R2001-1, USPS-T-8, p. 115, lines 1-7)

“As recently as the R2000-1 rate case, for example, the Internet was not explicitly included as an explanatory variable in any of the mail demand equations used for forecasting.” (R2005-1, USPS-T-7, p. 24, lines 6-7.)

“It is always desirable to be able to explain the behavior of a variable that is being estimated econometrically as a function of other observable variables. Occasionally, however, the behavior of a variable is due to factors that do not easily lend themselves to capture within a time series variable suitable for inclusion in an econometric experiment. It is not uncommon for such phenomena to be modeled in part through the use of trend variables.” (R2005-1, USPS-T-7, pp. 33-34.)

In a general demand equation, including that for a postal product such as FCLM, where the quantity demanded is represented on the lhs in the equation as the dependent variable, the independent explanatory variables which appear on the rhs of the equation include the price of the good, the prices of competing substitutes, income and other variables which may affect quantity demand of the good in question. You have used “time trend” variables and also “logistics market penetration variables” in place of data on the prices of competing substitutes, and until this rate case in place of any type of explicit consideration of the Internet competing substitute and the electronic payments system competing substitute for FCLM. In this rate case you have used an “Internet Experience” variable which you have constructed out of Global Insight’s ISP expenditures time series.

- a. You state the ISP price index has “not exhibited any discernible trend over the past several years.” (R2005-1, USPS-T-7, p. 27, lines 5-6.) However, that impact of the earlier price declines you have noted likely operate with a long lag period, as banks and others make investments to eventually take advantage of the new competing substitute. Did your experimental modeling include estimating the lagged impact of the ISP price index declines on the demand for FCLM? If so, what were the results, if not why did you not perform such an experiment?

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- b. You state on p. 32, starting at line 10 of your testimony in this case that using NACHA time series “tended to be less robust within the econometric demand equations. I think this is because electronic diversion of the mail is a very generalized risk.” Have you tested the robustness of this data, [or the quarterly time series data on commercial check volumes, which exists back to at least 1995Q1] against the specific portions of FCLM volumes that electronic payments systems divert, such as billing statements and bills paid through the mail (or for checks, the impact on extra ounce volume, which is a reasonable proxy for bank statements sent through the mail with canceled checks in the mail piece)? If your answer is “yes”, please provide a complete answer to what your findings were. If your answer “is no”, please explain why you have not done such tests.
- c. In your answer to a. you agree that “In general, it is true that high cross-price elasticities of demand are often associated with high own-price elasticities of demand...” Since you have price data, both nominal and real on postal prices, and since there is voluminous time series available for revenue and/or volume variations for the Internet competing substitute and the electronic payments system (both transactions data and check volume data), econometric modeling of cross price elasticities is possible. Have you conducted any such estimates of cross price elasticities? If so what were the results and how high were those elasticities, if not why not?

RESPONSE:

- a. I have not experimented with the ISP price index as a possible explanatory variable in the First-Class letters demand equations. It is my opinion that substitution between First-Class Mail and Internet alternatives is not driven by the relative prices of these two media so much as by the extent to which electronic alternatives to the mail exist and are utilized. In particular, it is difficult empirically to evaluate the price of an alternative which is not available. That is, what was the price of electronic bill-payment in the late 1980s when electronic bill-payment was not available?

Further, in most cases, once electronic alternatives become widely available and are utilized, it does not appear to me that such alternatives compete at the margins with First-Class Mail based on price. For example, I currently pay my Discover card bill online at Discover’s web site. The cost to me of doing so is nothing. While it may be true that this price (\$0) as compared with the price of paying via the mail (\$0.37 plus the cost of a check) was relevant in my decision to begin to use this service, the specific

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difference in these prices is no longer relevant to my decision to continue to pay electronically. That is, the Postal Service could cut its First-Class Mail price to ten cents and it would still be sufficiently more expensive than the electronic alternative that I would be skeptical of such a move inducing many, if any, bill-payers to switch from electronic alternatives to a mail-based payment system.

b. I have not attempted to estimate demand equations for specific segments of First-Class Mail volume due to a lack of reliable data on the specific mail volumes within such segments.

c. Personally, I would not consider the amount of “time series data available for revenue and/or volume variations for the Internet competing substitute and the electronic payments system (both transactions data and check volume data)” to be “voluminous.” Further, as explained in my response to part a. of your question above, I am skeptical of modeling cross-price relationships between First-Class Mail and electronic alternatives. I have, however, experimented with some data on electronic bill-payment volumes as a possible explanatory variable in the demand equations for First-Class Mail. Results of these experiments are presented and briefly discussed in USPS-LR-K-65 at pages 4 – 353.

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ABA&NAPM/USPS-T7-7.

- a. You assert in your answer to ABA&NAPM/USPS-T7-2 parts b. and c. that your estimated own price elasticity for single piece FCLM is “stable” across various sample periods, but do not state what it is. What is that “stable” value?
- b. You assert that your estimated own price elasticity for workshared FCLM is “stable” across vary sample periods, but do not state what it is. What is that “stable” value?
- c. Your econometric specification presumes constant elasticity of substitution (CES), it does not offer any proof, or derive any conclusion whatsoever, that postal demand curves are in fact CES demand curves. In your tests over sample periods, have you also presumed a CES specification? Have you run your sample data under any econometric demand specification that allows for varying elasticity of substitution, as opposed to CES? If you are testing, as you claim, whether elasticities are varying over time by choosing different sample periods, how can you conduct such a test when you largely (if not entirely) rule out by virtue of the CES functional form, the very question you are trying to investigate, i.e. variation in own price elasticities?
- d. What do you mean by “changes in econometric methodology”, the last of four factors you mention in your answer to b. as being possible causes of changes in demand elasticities for FCLM? Under that term, are you including the use of explicit variables for competing substitutes? If not, then why would you not include the influence of competing substitutes as one factor that could influence estimated own price elasticities, or would this be a “fifth” “possible factor”?
- e. You state in your answer to b. that in your experiments with various sample periods, the own price elasticity for single piece and also for workshared emerged as stable across various sample periods. However, in c. you appear to contradict that statement by stating that three changes to the workshared demand equations “appear to have had the most significant impact on my estimate of the workshared First-Class letters own price elasticity”, and you go on to list those three changes, among them shortening the sample period to start at 1991Q1 rather than 1983Q1. Please reconcile these two statements.
- f. You indicate in your answer to b. that you included the number of Broadband subscribers in your workshared equations. Did you include the number of Broadband subscribers in your single piece equations, as well as your workshared equations? If so, what were the results? If not, why not, given your statement to the effect that households are increasingly paying bills online?
- g. For workshared letter demand equations, you state your experiments were “generally” supportive of a stable own price elasticity since 1991. This appears to be a somewhat weaker statement than you made in your answer concerning

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single piece elasticities. In what specific non-general areas did you find evidence that workshared elasticities were not necessarily stable? Please provide all details of your conclusions.

- h. In your answer to e. you state the changes to your demand elasticities in this case “were the result of changes to the demand specifications used in this case”. Over the historical period between R2001-1 and R2005-1, as indicated from the (latest available) 2003 Household Diary Study and considerable other evidence, there has been substantially greater diversion of payment mail (bills sent and bills paid) to electronic payments systems and substantially greater diversion of what the Diary defines as “transactions” related mail to the Internet. Are you saying these impacts had no influence on your demand elasticities? Or, that you are unable to measure these impacts because your demand equations presume constant elasticity of substitution? Or, by the term “demand specifications” are you including the impact from competing substitutes such as the Internet and electronic payments systems?

RESPONSE:

a. It is my belief that the own-price elasticity of single-piece First-Class letters volume is approximately -0.175 as presented in my testimony.

b. It is my belief that the own-price elasticity of workshared First-Class letters volume is approximately -0.329 as presented in my testimony.

c. It is true that I assume a constant-elasticity specification, both in the demand equations to which I testify in this case, as well as in the experiments which I undertook to investigate the stability of the price elasticities which I use in this case. I would strongly disagree with your assertion, however, that such an assumption “rule[s] out ... the very question you are trying to investigate.” If the true own-price elasticity of single-piece First-Class letters changed between, say, 2000 and 2004, then an own-price elasticity estimate obtained using data through 2000 would be different from an own-price elasticity estimate obtained using more recent data, even if both estimates assumed constant own-price elasticities throughout the relevant sample periods. In fact, however, as presented in my response to ABA&NAPM/USPS-T7-2(f), the

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estimated own-price elasticity using data through 2000Q4 (-0.181) is virtually identical to the estimated own-price elasticity using data through 2005Q1 (-0.175).

Within the context of my own-price elasticity estimates, the term “constant-elasticity specification” refers to the relationship between the own-price elasticity and the volume and price of the relevant mail category. That is, alternatives to a “constant-elasticity specification” would posit some relationship between the own-price elasticity of single-piece First-Class letters and the volume and price of single-piece First-Class letters. While such a relationship would not be “constant” in the sense that it could vary with changes in volume and/or price, the relationship between the own-price elasticity and volume and price would nevertheless remain unvarying throughout the sample period in such a case.

The “constant-elasticity specification” is no less amenable to an assumption that the own-price elasticity has either changed over time or is a function of some other explanatory variable than any other functional form. In fact, an example of the former, a “constant-elasticity specification” elasticity which changes over time, can be found within the single-piece First-Class letters specification presented in my testimony, which posits that the elasticity of single-piece letters with respect to employment has declined over time.

d. By “changes in econometric methodology” I was thinking of methodological changes to my econometric estimation procedure. For example, changing from a log-log functional form to a linear functional form would fall into this category, or a decision to begin to test for and correct fourth-order autocorrelation would represent a change in “econometric methodology.”

I would consider “the use of explicit variables for competing substitutes” to be an example of “changes in the demand specification,” which was the first of my four factors defined in ABA&NAPM/USPS-T7-2(b).

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e. My experiments with various sample periods to which I refer in my response to ABA&NAPM/USPS-T7-2(b) held the specification and starting period constant and varied only the ending date of the demand equations. Hence, my response to ABA&NAPM/USPS-T7-2(c) was intended to explain that the differences in price elasticity estimates across rate cases was **not** suggestive of changes in true price elasticities within the time period over which these price elasticities are modeled **in this case**, but was solely the result of changes in the demand specification used in this case.

f. I did investigate the number of Broadband subscribers in the single-piece First-Class letters equation. Results of such experiments are presented in USPS-LR-K-65 at pages 23 – 37.

g. Because of the shorter sample period over which the workshared First-Class letters equation is estimated (starting in 1991Q1 as compared to 1983Q1 for single-piece letters), the own-price elasticity estimates across various sample periods that I described in my response to ABA&NAPM/USPS-T7-2 exhibited a somewhat greater range of elasticity estimates. For example, the workshared letters own-price elasticity estimates presented in my response to ABA&NAPM/USPS-T7-2(f) ranged in value from -0.128 to -0.568. While there is no evidence here of a trend, nevertheless, the range of own-price elasticity estimates is quite large. In contrast, the own-price elasticity estimates associated with single-piece letters in that same response range from -0.153 to -0.182, which is, of course, a much tighter range.

h. My use of the Internet Experience variable as a measure of the effect of the Internet on First-Class single-piece letters volume would be one example of a change in

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demand specification. Beyond that, however, I am asserting that the true own-price elasticity of First-Class single-piece letters appears not to have been directly impacted by the increased use of electronic alternatives in recent years. For example, as noted above, as presented in my response to ABA&NAPM/USPS-T7-2(f), the estimated own-price elasticity using data through 2000Q4 (-0.181) is virtually identical to the estimated own-price elasticity using data through 2005Q1 (-0.175), which suggests to me that the own-price elasticity of First-Class single-piece letters has not changed as a result of changes in the availability and use of electronic alternatives over the past four years.

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ABA&NAPM/USPS-T7-8.

- a. In your response to ABA&NAPM/USPS-T7-3, question b., there was a typo. "R2001-1" should have read "R2000-1". With that correction, please answer the original question, parts b. as well as c.
- b. With respect to your answer to part c. in this original interrogatory, you avoid a direct answer to the question about rising postal rates influencing the decline in check volumes by stating that check volume "is affected by many factors beyond the price of additional ounces charged by the postal service" and you note that the total volume of checks has "fallen consistently" since "1995".  
Do you have any evidence that increasing postal rates, including the extra ounce rate since the implementation of that rate increase from R2000-1, have not been one of the "many factors" causing the decline in check volumes? Do you have any evidence that the extra ounce rate hike emerging from R2000-1 was not the predominant factor after 2001Q4 that continued to reduce check volume further, and accelerated the decline?

RESPONSE:

- a. Just to be clear, I think the typo was in the question, rather than in my response.  
While it is undoubtedly true that the additional ounce rate charged by the Postal Service will affect the volume of First-Class Mail weighing more than one ounce, it seems to me, in looking at the history of additional ounce volume, without having studied this issue very closely at all, that price is likely only one of many factors that affect the volume of additional ounces.
- b. I have no evidence that postal rates have not affected check volumes. I have not performed any specific analysis of check volumes, so I would consider myself unqualified to offer any definitive evidence one way or the other on this topic.

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ABA&NAPM/USPS-T7-9.

- a. In your response to ABA&NAPM/USPS-T7-4. part a., you were asked whether you “have ever computed the impact on postal volumes in FCLM from any nominal cut in FCLM rates”. Your answer was non-responsive, focusing instead on “real Postal prices”. Please answer the original question as asked, and provide any elasticity estimates you have of the results on postal volumes from cutting the nominal prices of FCLM.
- b. If your answer to a. is “No.” please answer the following question. How can you then conclude as you did in answering part b. that your elasticity estimates (all of which are generated for rate cases when an increase in FCLM rates is being requested) provide “strong empirical evidence” that a “decrease in First Class letter prices will produce lower First-Class revenues”?

RESPONSE:

a. It is my opinion, consistent with standard economic practice, that the only relevant measure of price is real price. Therefore, I have never conducted any analysis of nominal prices only.

In 1980, for example, the nominal price of a gallon of gas was approximately \$1.00. If one were to make no adjustment for inflation and to simply compare that to the current nominal price of gas of \$2.00 or so, one might conclude that gas was quite cheap in 1980 and one might expect that people would have been guzzling up all of that cheap gas in 1980. But, of course, gas was not cheap in 1980, because all prices and incomes were much lower, so much so that \$1.00 for gas in 1980 was, in fact, equivalent to \$2.18 for gas in 2005. The same holds true for stamp prices as well. A 37 cent stamp in 2004 costs the same, relative to other goods and services, as a 32 cent stamp cost in 1996 or as a 25 cent stamp cost in 1989.

b. As I explained in my original response to ABA&NAPM/USPS-T7-4, the First-Class letters price series which I included in the First-Class letters demand equations presented in my testimony have exhibited both price increases and price decreases. As I explained in my response to part a. above, it is my opinion that the only relevant measure of price is real price. Given that, it seems clear to me that my elasticity

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estimates, which are estimated using real price data which has both increased and decreased at various times, provide strong empirical evidence that a decrease in First-Class letter prices will produce lower First-Class revenues.

In fact, if it were the case that increasing First-Class prices will increase Postal Service revenue, as posited in this case, and that decreasing First-Class prices would also increase Postal Service revenue, as you seem to suggest may be plausible, that would suggest that the First-Class prices currently charged by the Postal Service are, in fact, revenue-minimizing prices.

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ABA&NAPM/USPS-T7-10.

In your response to ABA&NAPM/USPS-T5, you define your use of the term “long run”, whereas the question specifies precisely the context in which it uses the term “long run”, namely your use of data that goes all the back to 1991 for workshared letters and all the way back to 1983 for single piece letters.

- a. Would you agree that the competitive market environment for Postal Services in 1983 did not include Internet competition and electronic payments systems?
- b. Would you agree that if there were enough rate data from cross-sectional variation in real and/or nominal postal rates were the setting a free market rather than a regulatory one for postal services, that you would have a more accurate estimate of current own price elasticities for postal products than is possible by using time series data dating back to 1983?
- c. Would you agree that whatever the short run “lagged prices” that impact TY2006 post rate increase volumes are, that your use of, for example 1983-1987 data, in estimating CES own price elasticities is also influencing those test year volume forecasts? If your answer is anything other than an unequivocal “yes”, please fully explain your answer.

RESPONSE:

- a. Yes.
- b. More data will generally lead to more accurate elasticity estimates.
- c. Yes. It is my opinion that, consistent with my answer to part b. above, the use of 1983 – 1987 data increases the accuracy of the elasticity estimates which I use in this case.

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ABA&NAPM/USPS-T7-11.

Please confirm from your testimony in this case that the computed own price elasticity for FCLM workshared letters is greater than that for Standard A Regular letters, namely  $-0.376$  versus  $-0.267$ .

RESPONSE:

The computed own-price elasticity for First-Class workshared letters which I cite in my testimony is  $-0.329$ . However, great care needs to be taken in interpreting the First-Class price elasticities which I have presented in this case. See pages 67 through 70 of my testimony for a detailed discussion of this issue.

## 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.

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