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WASHINGTON, D.C. 20268-0001

RATE ADJUSTMENT DUE TO EXTRAORDINARY OR EXCEPTIONAL CIRCUMSTANCES	Docket No. R2013-11

RESPONSES OF THE UNITED STATES POSTAL SERVICE
TO QUESTIONS 1-9 OF PRESIDING OFFICER'S
INFORMATION REQUEST NO. 1
(October 30, 2013)

The United States Postal Service hereby provides its responses to Questions 1-9 of Presiding Officer's Information Request No. 1, dated October 23, 2013. Answers were sought no later than today. Each question is stated verbatim and is followed by the response. The responses are sponsored by Thomas Thress.

Respectfully submitted,

UNITED STATES POSTAL SERVICE

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1. You indicate that for Standard Mail the change (decline) in volume from 2008 through 2012 attributed to the Great Recession "Macro Economy and Recession-Induced Factors" amounted 29.1 billion pieces (see Second Row, last column in Table 1). At the same time, RPW reports shows changes in the total volume of Standard Mail over this period as follows (in thousands):

2008	99,084,155
2012	79,801,009
Change (decline)	19,283,146

a. Is it correct to say that your estimated total decline in Standard Mail volume attributed to the Great Recession (29.1 billion pieces) is equal to 151.0 percent of the actual decline in volume (19.3 billion pieces) shown in the RPW Reports? If not, please explain.

b. Please explain why your estimating procedure attributes to the Great Recession a far greater change (decline) in the volume of Standard Mail, by almost 10 billion pieces, than actually occurred according to RPW Reports?

RESPONSE

a. No. The 29.1 billion piece figure in my Table One includes the impact of the Great Recession on FY 2008 mail volumes. Hence, the starting point for comparison here should be FY 2007. In FY 2007, total Standard Mail volume – as shown in Table Two – was 102,968.6 million pieces (note: my numbers exclude Standard Regular parcels which have been reclassified as Lightweight Parcel Select). In FY 2012, total Standard Mail volume (again, excluding what is now Lightweight Parcel Select) was 79,577.0 million pieces. So, I calculate the change in total Standard Mail volume from which the 29.1 billion recession-induced loss can be compared as 23.4 billion pieces. I calculate that 29.1 billion would be just under 125 percent of 23.4 billion pieces.

b. The total decline in Standard Mail is the result of the negative impact of the Great Recession combined with the impact of other factors, many of which acted to increase mail volume over that time period. Examining Table Two on page 8 of my Statement, population and other trends acted to increase volume by approximately 5 billion pieces from FY 2008 through FY 2012 while the Great Recession acted to reduce volume by 29.1 billion pieces over the same period. The combined impact of these negative and positive effects is 23.4 billion, which equals the actual volume loss (not the 19.3 billion cited in this POIR), from FY 2008 to FY 2012.

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2. You indicate that for First-Class Mail the change (decline) in volume from 2008 through 2012 that was attributable to the Great Recession "Macro Economy and Recession-Induced Factors" amounted to 22.6 billion pieces (see First Row, last column in Table 1). At the same time, RPW reports shows changes in the total volume of First-Class Mail over this time period as follows (in thousands):

2008	91,696,737
2012	69,639,569
Change (decline)	22,057,168

a. Is it correct to say that your estimated decline in First-Class Mail volume due to the Great Recession is equal to 102.0 percent of the actual decline in RPW volume for First-Class Mail? If not, please explain.

b. Please explain why your estimating procedure attributes to the Great Recession a greater change (decline) in the volume of First-Class Mail than actually occurred?

RESPONSE

a. No. The 22.6 billion piece figure in my Table One includes the impact of the Great Recession on FY 2008 mail volumes. Hence, the starting point for comparison here should be FY 2007. In FY 2007, total First-Class Mail volume – as shown in Table Two – was 95,347.0 million pieces (note: my numbers exclude First-Class parcels and International mail). In FY 2012, total First-Class Mail volume (again, excluding International Mail and domestic parcels) was 68,673.7 million pieces. So, I calculate the change in total First-Class Mail volume from which the 22.6 billion recession-induced loss can be compared as 26.7 billion pieces. I calculate that 22.6 billion would be just under 85 percent of 26.7 billion pieces.

b. As explained in part a of this question, my "estimating procedure" does not "attribute[] to the Great Recession a greater change (decline) in the volume of First-Class Mail than actually occurred". See, also, my response to question 1.b of this POIR, for an explanation of why it might nevertheless hypothetically be reasonable to view the Great Recession as having reduced mail volume by more than mail volume declined overall.

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3. In the right-hand column of Table 1, you provide the lost volume attributed to the Great Recession for the period 2008-2012 computed for each class of mail.

a. For the total estimated lost volume shown in that last column, have you computed any statistical measures of variation for any of the listed classes of mail?

b. If part a. is answered affirmatively, please indicate what statistical measures you computed. Provide the library reference or the source where these measures/results of statistical analysis can be found.

c. If part (a). is answered affirmatively, please provide the 95 percent confidence interval for the estimated changes in volume shown in the last column of Table 1 for the 2008-2012 period by class.

d. If you did not compute statistical confidence intervals for the estimated loss in mail volume attributed to the Great Recession, please explain why not.

RESPONSE

a. No.

b. N/A

c. N/A

d. I was asked by the Postal Service to provide my best estimate of the total volume loss attributable to the Great Recession, which is what I have provided in Tables One and Two of my Further Statement in this case.

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4. Please refer to the Further Statement of witness Thress, page 8, Table Two: "Exigent Postal Service Losses, FY2008 – 2012 and Technical Appendix II," pp. II-8 through II-10.

a. i. Are the zeros for each year shown in Table 2 the result of statistical calculations?
ii. Does your model contain data on variables that can be used to estimate diversion of Standard Mail attributable to the Internet, for example?
iii. If the answer to subpart (a.ii) is yes, do the performed statistical calculations indicate that there is no diversion? If so, please identify and describe those variables, and any analysis performed.

b. If your model does not contain any variables that can be used to estimate diversion of Standard Mail – which readily would explain the zeros under the Diversion column – please explain whether that should be interpreted to reflect your personal opinion that diversion of Standard Mail to other media either cannot or has not occurred?

c. When estimating the loss in Standard Mail volume for the years 2008-2012, could omitting consideration of diversion – and variables that might measure such diversion – increase the volume loss attributed to "Macro Economy and Recession-Induced Factors"? If not, please explain why not.

d. Does your model for Standard Mail contain as an independent variable the amount spent on Internet advertising, either in total or, preferably, the amount spent by catalog mailers? If so, please identify and describe this variable. If not, please explain why not.

RESPONSE

a. No to all subparts, although see my response to part b of this question below for further discussion related to a.ii.

b. Your question regarding the proper interpretation of the "Diversion" column in Table Two requires a somewhat broader discussion of the Standard Mail models. The distinction between "Trends" and "Diversion" in my Table Two is semantic, and mostly (but not completely) boils down to this: "Trends" are positive and "Diversion" is negative. In both cases, these variables are modeled econometrically through (mostly linear) time trends. The Standard Mail demand equations used in this case all include linear time trends. The estimated coefficient on these time trends is positive in the case of Standard Regular mail and negative in the case of Standard ECR, Nonprofit, and Nonprofit ECR mail.

It is generally not possible to distinguish econometrically between trend influences which are positively affecting mail volume and concurrent trend influences which are negatively affecting mail volume. The econometric coefficients on these trend variables should, instead, be thought of as capturing the net effect of all trend factors, positive and negative.

If one wanted to distinguish between positive "trends" and negative "diversion" at the level of detail at which I estimate demand equations, one could re-classify the negative "trend" effects on Standard ECR, Nonprofit, and Nonprofit ECR mail volumes as "diversion". Doing this would suggest that Standard Mail volume might have been reduced by 1.89 billion pieces of mail from 2008 through 2012 due to the continuation of pre-existing diversion.

c. If an explanatory variable is omitted from an econometric equation, the effect of that variable will be picked up by the other variables in the equation. The extent to which coefficient estimates of included variables may be affected by omitted variables is a function of how closely correlated the included variable is with the omitted variable.

To the extent that "diversion" is likely to be most closely correlated with a time trend, it seems most likely that any diversion which may have occurred in Standard Mail will be measured by the trend variables in the Standard Mail equations. This is especially true of any diversion that might have pre-dated the Great Recession.

To the extent that such "diversion" may have originated or accelerated during the Great Recession, such diversion could be picked up by "Recession-Induced Factors". But, of course, to the extent that such diversion was induced by the Great Recession, this is as it should be as recession-induced diversion should be considered a "recession-induced factor" by definition.

For example, the cessation of the positive time trend in Standard Regular Mail is included in my Table Two as a "Recession-Induced Factor". If you go to sheet "Volume" of ExigentImpact.xlsx, the positive trend in column H for Standard Regular Mail (rows 95 through 132) continues unabated through 2012 but is offset, starting in 2007, by "recession-induced diversion" in column W, where, in this case, "diversion" refers to the cessation of the pre-existing positive trend as opposed to necessarily referring to the loss of such Standard Mail to some alternate advertising medium. Prior to the Great Recession, a persistent long-run positive trend had been evident in Standard Regular Mail volume, consistent with long-run growth in the U.S. advertising market in general, and with direct-mail advertising capturing a growing share of the overall advertising market. Since the Great Recession, however, this trend is no longer evident, because of the specific impact of the Great Recession on the overall advertising market in general and on industries that were the heaviest users of direct-mail advertising, such as housing, credit cards, and other financial services, in particular. The dissolution of this trend is best thought of, then, as having been caused by the Great Recession.

This can best be seen by looking at the total U.S. advertising market.

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In FY 2009, Standard Mail revenue declined by 16.2 percent. Over that same time period, total U.S. advertising expenditures declined by 16.0 percent. Clearly, the story at that time in Standard Mail was not diversion to other advertising media (e.g., Internet advertising) but was simply an industry-wide crash in the advertising market that was triggered by the Great Recession.

The table below compares total advertising expenditures and Standard Mail revenues over the past two decades.

	Total Advertising Expenditures			**Std Mail Revenue**
FY	Total	Growth	% of GDP	Share of Total Advertising
1991	$91.9		1.5%	9.6%
1992	$94.5	2.8%	1.5%	9.9%
1993	$98.2	4.0%	1.5%	9.6%
1994	$104.7	6.6%	1.5%	9.6%
1995	$115.4	10.2%	1.6%	9.9%
1996	$123.2	6.8%	1.6%	9.7%
1997	$131.4	6.6%	1.6%	9.6%
1998	$144.5	10.0%	1.7%	9.3%
1999	$155.9	7.9%	1.7%	9.1%
2000	$176.0	12.9%	1.8%	8.8%
2001	$172.2	-2.2%	1.7%	8.9%
2002	$168.9	-1.9%	1.6%	9.1%
2003	$176.9	4.7%	1.6%	9.5%
2004	$186.6	5.5%	1.6%	9.5%
2005	$195.0	4.5%	1.6%	9.5%
2006	$203.1	4.2%	1.5%	9.6%
2007	$206.8	1.8%	1.5%	9.8%
2008	$200.4	-3.1%	1.4%	9.9%
2009	$168.4	-16.0%	1.2%	9.9%
2010	$168.0	-0.2%	1.2%	10.0%
2011	$172.9	2.9%	1.2%	9.9%
2012	$174.9	1.1%	1.1%	9.6%
Averages				
1991 - 2007		5.2%	1.6%	9.5%
2008 - 2009		-9.8%	1.3%	9.9%
2010 - 2012		1.3%	1.2%	9.8%

Sources: Pivotal Research Group, U.S. Bureau of Economic Analysis, USPS RPW Reports

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From 1991 through 2007, total U.S. advertising expenditures maintained a fairly stable share of total U.S. GDP, and Standard Mail revenues held a fairly stable share of the total advertising market. In 2008 and 2009, the total advertising market declined by 20 percent while Standard Mail actually increased its share of the market slightly.

Since the end of the Great Recession in FY 2009, annual growth in total U.S. advertising expenditures has continued to be less than GDP growth and the average annual growth rate for advertising expenditures is down almost 4 percent from its long-run average. Standard Mail revenues have continued to keep pace with the overall advertising market, outside of a slight decline in 2012 (which still left Standard Mail's market share above its historical levels from as recently as FY 2005).

Clearly, both Standard Mail volume's large decline in FY 2008 and FY 2009 as well as its continued sluggish growth rates since FY 2009 are consistent with the broader U.S. advertising market. This strongly suggests that the sluggishness of Standard Mail volume over this time period is due to the same factors that are driving the overall U.S. advertising market over this time period, and are reasonably and appropriately attributed to the Great Recession.

d. No. I have experimented in the past with Internet advertising expenditures as a potential explanatory variable in the Standard Mail demand equations and have, in fact, presented Standard Mail demand equations to the Postal Regulatory Commission that include such variables. In general, it is extremely difficult to find a plausible statistical relationship between Standard Mail volume and Internet advertising expenditures. As measured by PriceWaterhouseCoopers for the Interactive Advertising Bureau, Internet advertising expenditures grew from $267 million in 1996 to $16.879 billion in 2006. Over this time period, Standard Mail volume grew at an average annual rate of 2.7 percent. In the decade preceding this, prior to the emergence of the Internet as an alternate advertising medium, Standard Mail volume grew at an average annual rate of 1.5 percent. As I said in my response to subpart b of this question above, to the extent that Internet advertising expenditures may have diverted some Standard Mail volume, this diversion will be incorporated into the coefficients on the long-run linear trend variables in the four Standard Mail equations presented by me in this case, and, in the aggregate, was clearly overwhelmed by offsetting positive influences on Standard Mail volume.

I have never seen data on Internet advertising expenditures by catalog mailers only.

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5. Please refer to Further Statement of witness Thress, page 8-10, Table Two: "Exigent Postal Service Losses, FY2008 – 2012".

a. Is it correct that in 2012 you estimate some 1,911.6 million pieces of First-Class Mail were lost on account of diversion, *i.e*., the Internet, pay-by-phone, and other factors that might cause diversion, while a loss of 3,546.2 million pieces were attributable to the Macro-Economy and Recession-Induced Factors, *i.e*., in 2012, lingering effects of the Great Recession were almost twice as important to explaining volume loss in First-Class Mail as was diversion caused by the Internet, pay-by-phone, and other factors that might cause diversion?

b. Would it be a correct interpretation of the data in Table 2 that for the 5-year period 2008 – 2012 you attribute a loss of 22,590.2 million pieces of First-Class Mail to the Macro-Economy and Recession-Induced Factors, and over that same 5-year period you attribute a loss of 11,278.2 million pieces of First-Class Mail to diversion?

c. Would it be a correct interpretation of the data in Table 2 that from 2008 – 2012 you attribute a loss of 29,121.5 million pieces of Standard Mail to the Macro-Economy and Recession-Induced Factors, while over that same period you believe no volume loss occurred in Standard Mail as a result of diversion?

RESPONSE

a. In 2012, I estimate that 1,911.6 million additional pieces of First-Class Mail were lost to diversion trends which pre-date the Great Recession, and that 3,546.2 million additional pieces of First-Class Mail were lost to the Great Recession.

b. I estimate that 22,590.2 million pieces of First-Class Mail were lost from 2008 through 2012 to the Great Recession, and that 11,278.2 million additional pieces of First-Class Mail were lost to diversion trends which pre-date the Great Recession over this same time period.

c. Please see my response to question 4 of this POIR above.

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6. Please refer to Further Statement of witness Thress, page 8-10, Table Two: "Exigent Postal Service Losses, FY2008 – 2012."

a. Do you contend the year after year increase in cumulative negative impact of the recession on mail volume will continue in years after FY2012?

b. Is it likely that the model from which the data in Table 2 are derived (or developed) will continue to attribute positive losses indefinitely under the "Macro-economy and Recession-induced" factor?

c. If you answered affirmatively to either part (a) or (b), please indicate when you expect the effect of the 2007-2009 recession to no longer have an impact on mail volumes. Please produce all available supporting data and analysis.

d. If you answered negatively to either part (a) or (b), please clarify under what circumstances would estimates from the model used here phase down to zero the estimated annual losses from the "Macro-Economy and Recession-Induced Factors."

e. If the economic recovery were to accelerate and become more robust, and private investments were to exceed their highest previous levels, could the "Macro-Economy and Recession-Induced Factors," instead of having losses in volume attributed to it would reverse and have positive gains attributed to it in those years?

f. In your model, can "Macro-Economy and Recession-Induced Factors" only have a negative or zero effect on volume (as opposed to a positive effect on volume)? If so, please explain your rationale for not allowing Macro-Economy and/or Recession-Induced Factors to have a positive effect on volume in your model.

RESPONSE

a. – c. To date, I have seen no evidence that negative trends in mail volumes which have resulted from the Great Recession are abating. As such, it is my belief that the cumulative negative impact of the Great Recession will continue for the foreseeable future.

To the extent that one of the effects of the Great Recession on mail volume was the elimination of pre-existing positive trends in mail volume or the introduction or acceleration of negative trends in mail volumes, the year-over-year impact of the Great Recession can be expected to continue to be negative until such time as these trends may begin to abate. Thus far, there is no evidence to suggest that these Great Recession-induced trends are likely to ease any time soon.

d. N/A

e. - f. The purpose of the "Macro-Economy and Recession-Induced Factors" column of Table Two in my Statement was to quantify the impact of the Great Recession on mail volume.

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The Great Recession was an unquestionably negative influence on mail volume. As such, it would make no sense to attribute positive effects to the Great Recession.

Certainly, if the macro-economy continues to grow, this will have a positive effect on mail volumes, as, for example, it has begun to do for Standard Mail volume (see, for example, ExigentImpact.xlsx, sheet 'Volume', cells F104 through F106). But these gains in mail volume are not "due to the Great Recession"; they are, instead, an indication that the negative impact of the Great Recession has abated in some sectors of the economy. On average, most macro-economic factors exceed their highest previous levels more often than not: from 1986 through 2006, gross private domestic investment exceeded its highest previous level in 14 of 20 years. The measure of the extent to which the Great Recession harmed the macro-economy and mail volume is not the extent to which the macro-economy or mail volume fall below historical highs but the extent to which they fall below the level they could have been expected to reach in the absence of the Great Recession. Rather than offsetting the negative impact of the Great Recession, recent macro-economic growth has instead reflected a new normal, with lower expected growth rates from a much lower base.

One source of macro-economic data which highlights this point is the "output gap", which measures the gap between potential GDP and actual GDP. The first graph on the next page shows actual and potential GDP by quarter over the past twenty-two years. The second graph shows the difference between these two numbers: the output gap.

Historically, the output gap has fluctuated cyclically around a long-run level of zero: i.e., historically, long-run GDP has tended to fluctuate around the level of potential GDP. Since the onset of the Great Recession, however, this is no longer the case. Instead, after a modest recovery in 2010 and 2011, actual GDP has remained 4.6 percent below potential GDP.

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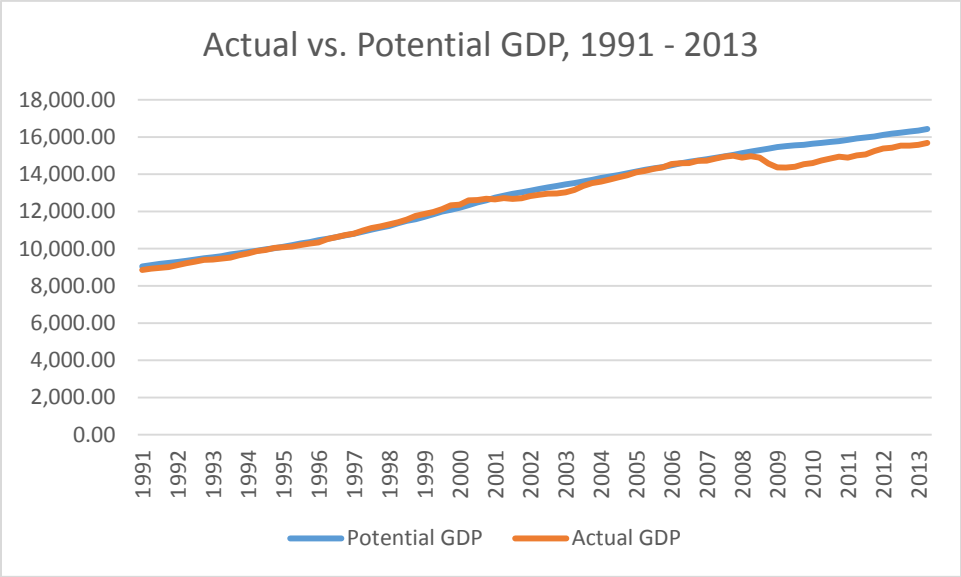

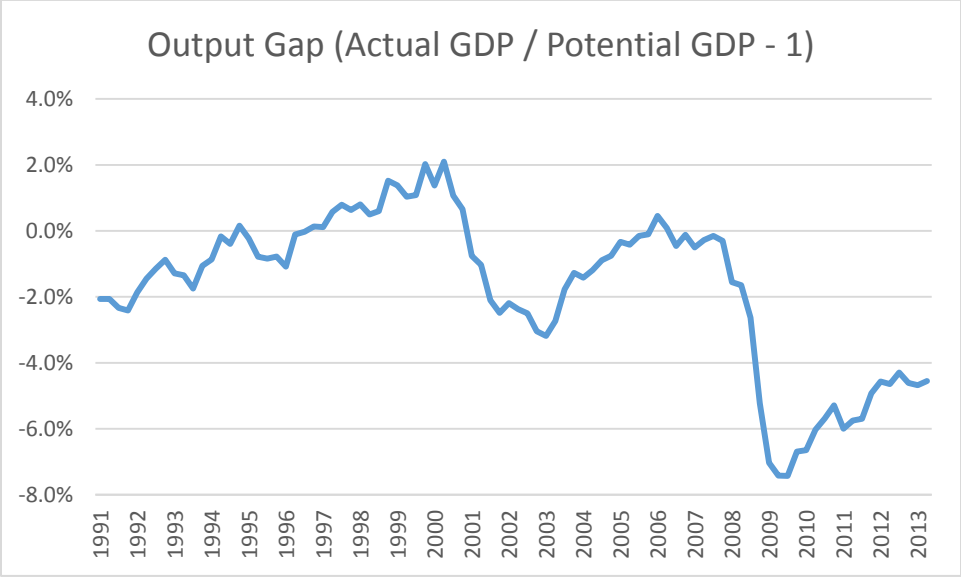

Sources: U.S. Bureau of Economic Analysis, IHS Global Insight

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7. In First-Class Mail, the cumulative effect of nominal price [in Table Two] from 2008 – 2012 is a reduction in volume of 3,588.9 million pieces, and the cumulative effect of inflation over the same period is a gain in volume of 2,392.8 million pieces, and the net effect of these two is a volume loss of 1,196.1 million pieces, or about 1.3 percent of the starting First-Class Mail volume of 95,347.0 million pieces.

For Standard Mail, the cumulative effect of nominal price from 2008 – 2012 is a reduction in volume of 10,219.1 million pieces, and the cumulative effect of inflation over the same period is a gain in volume of 5,614.2 million pieces, for a net volume loss of 4,604.9 million pieces, or about 4.5 percent of the starting Standard Mail volume of 102,968.5 million pieces.

Under the PAEA, First-Class Mail and Standard Mail are both subject to the same CPI-rate cap, or Nominal Price Change, and Inflation obviously is the same for both classes. In view of that, what are the principal reasons why the combined effects of Nominal Price and Inflation appear to be so much greater for Standard Mail (4.5 percent of starting volume) than they are for First-Class Mail (1.3 percent of starting volume)?

RESPONSE

First, Standard Mail is more sensitive to price changes than First-Class Mail. This is reflected in higher estimated own-price elasticities for Standard Mail than for First-Class Mail. Using FY 2012 volumes as weights, the weighted average own-price elasticity for First-Class Mail used in this case is −0.28; the weighted average own-price elasticity for Standard Mail is −0.54. Hence, Standard Mail is approximately twice as sensitive to a given percentage change in price than First-Class Mail.

Second, although the PAEA does, in fact, subject First-Class and Standard Mail to the same CPI-rate cap, the first change in nominal prices within the time frame considered here was the implementation of R2006-1 rates in May, 2007. This rate change pre-dated the implementation of the PAEA and led to an average rate increase of 5.8 percent for First-Class Mail and 4.9 percent for Standard Mail.

Finally, the column labeled "nominal price" includes the effect of dummy variables and non-linear interventions which are tied to Postal rate changes, including R2006-1 in May, 2007. In the case of First-Class Mail, this effect is fairly modest (-462.1 million pieces, see ExigentImpact.xlsx, sheet 'CRA Level', cell AR6). In the case of Standard Mail, however, the combined effect of dummies and interventions tied to R2006-1 from FY 2008 through FY 2012 is a reduction in Standard Mail volume of 4.36 billion pieces of mail.

The R2006-1 dummies and interventions for Standard Mail are intended to pick up shifts from Standard ECR to Standard Regular and from Standard Nonprofit ECR to Standard Nonprofit due to the elimination of Automation letter discounts for Standard ECR and Nonprofit ECR mail at this time. These shifts should have been fairly volume-neutral, however, with net

volume losses due to higher prices being picked up directly by the own-price elasticity. In fact, however, the econometric equation for Standard ECR Mail explains a much larger volume loss (5.27 billion pieces) than the volume gains explained in the Standard Regular equation (1.86 billion pieces). The latter of these numbers is almost exactly equal to the volume of Standard ECR automation letters in FY 2006 (the last full Fiscal Year before the implementation of R2006-1) and, I strongly suspect, is therefore the far more accurate estimate of the actual impact of the elimination of automation letter discounts in Docket No. R2006-1 on Standard ECR mail volume.

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8. Table 2 indicates that in 2011, the Postal Service lost 1,407.5 million pieces attributable to the Great Recession.

2008-2011	27,937.0
2008-2010	25,989.5
Change, 2010-2011	-1,407.5

However, RPW Reports indicate that over the same time period the volume of Standard Mail increased as follows (in millions):

2011	84,691,971
2010	82,514,808
Vol. Increase, 2010-2011	2,167,163

a. Is it correct that you believe that in 2011, when actual Standard Mail volume increased by 2,167.2 million pieces, your model nevertheless estimates that losses in volume attributable to the Great Recession increased by 1,407.1 million pieces? If so,

b. If part (a) is confirmed, please explain why you believe this result is correct.

c. If part (a) is not confirmed, please explain.

RESPONSE

a. Yes.

b. Please see my response to question 1.b of this POIR.

c. N/A

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9. Please refer to the column headed "Macro-Economy & Recession Induced Factors" in Table 2.

a. Please explain why the trend component of any macro-economic variable would be related to the 2007-2009 recession.

b. Please explain why the volume effects from the trend component of macro-economic variables should be classified as recession-related, as you have done for First-Class Single-Piece Letters, Cards, and Flats; and for Standard Nonprofit Mail.

c. Please explain why the volume effects derived from total macro-economic variables, which combine both trend and cyclical components, should be classified as related to the recession, as you have done for Standard Regular Mail and for Standard ECR Mail.

d. Please identify all data, studies, and analyses on which your responses to parts a through c rely, and produce any items that have not already been produced in this docket.

RESPONSE

a. – b. In some cases, macro-economic variables are decomposed into separate "trend" and "cyclical" components in order to more accurately model the impact of macro-economic factors on mail volumes. The demand for some products may react differently to temporary, or cyclical, changes to the economy than it does to more permanent, trend, changes to the economy.

The trend component of the relevant macro-economic variables is calculated dynamically as a function of past, present, and future macro-economic levels at every point in time. It is important to understand, therefore, that the trend component of these variables is not constant over time and that the trend component of a macro-economic variable changes with changes in the underlying macro-economic variable.

One feature of the Great Recession, as distinct from some earlier lesser recessions, is that, because of the length and magnitude of the Great Recession, it affected not only the cyclical demand for goods and services but it also had a significant impact on long-run macro-economic trends. These long-run impacts on, for example, the demand for various types of mail are properly understood to be the result of the Great Recession and have to be included in any full accounting of the impact of the Great Recession on mail volumes.

Consider, for example, an individual who is laid off. In the short run, the person will cut back on what might be deemed more frivolous items: the person may eat at restaurants less frequently or the person may perhaps postpone or cancel an expensive vacation they might have been planning, for example. The demand for such purchases may, therefore, be affected as much or more by cyclical changes to the person's macro-economic conditions such as

employment or income. If the person's layoff is extended, however, the person may begin to cut back on less frivolous items. If a person is only laid off for one or two months, he may choose to keep his cable television; if the layoff stretches to six months, he could cancel his cable television. If the person's layoff extends still further, or, perhaps, is ended by the person having to take a lower-income job, the result could be a change in the person's permanent economic condition and may lead to much more extreme measures, such as moving into smaller, less expensive housing, or cancelling things like credit cards, cell phone service, and/or cable television. The demand for these things may, therefore, more properly be viewed as being tied to the long-run, or trend, component of this person's macro-economic conditions (e.g., employment, income).

Moreover, not only might a person who was laid off reduce his expenditures while he was without a job, he might reduce his expenditures (compared to his pre-laid off spending) even after he gets a job again. Changes of this more permanent nature might be expected to have a more significant impact on the mail sent and received by this person – e.g., fewer bills and statements. But certainly such changes in mail volume are the result of the change in macro-economic conditions faced by this person.

In fact, this appears to be exactly what is happening in the U.S. economy today: people are not spending as freely as they did before the recession even if their employment and income situation has returned to the pre-recession level. More generally, American consumers appear to be far less willing to take on debt than they were – once bitten, twice shy for many homeowners who found themselves underwater or consumers who were overwhelmed with credit card debts. These changes in consumer behavior have had a significant effect on underlying mail volume trends and are likely to continue to adversely affect the Postal Service even as the cyclical effects of the Great Recession are over. To the extent that such changes were triggered by the Great Recession, it would obviously be correct to include such volume as having been lost due to the Great Recession.

One example of this type of change in long-run macro-economic trends coming out of the Great Recession is the U.S. advertising market, which I discussed in response to question 4 of this POIR above. Repeating some of that discussion here, the table below shows total U.S. advertising expenditures, both in billions of dollars and as a percentage of total (nominal) GDP.

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Total Advertising Expenditures

FY	Total	Growth	% of GDP
1991	$91.9		1.5%
1992	$94.5	2.8%	1.5%
1993	$98.2	4.0%	1.5%
1994	$104.7	6.6%	1.5%
1995	$115.4	10.2%	1.6%
1996	$123.2	6.8%	1.6%
1997	$131.4	6.6%	1.6%
1998	$144.5	10.0%	1.7%
1999	$155.9	7.9%	1.7%
2000	$176.0	12.9%	1.8%
2001	$172.2	-2.2%	1.7%
2002	$168.9	-1.9%	1.6%
2003	$176.9	4.7%	1.6%
2004	$186.6	5.5%	1.6%
2005	$195.0	4.5%	1.6%
2006	$203.1	4.2%	1.5%
2007	$206.8	1.8%	1.5%
2008	$200.4	-3.1%	1.4%
2009	$168.4	-16.0%	1.2%
2010	$168.0	-0.2%	1.2%
2011	$172.9	2.9%	1.2%
2012	$174.9	1.1%	1.1%
Averages			
1991 - 2007		5.2%	1.6%
2008 - 2009		-9.8%	1.3%
2010 - 2012		1.3%	1.2%

Sources: Pivotal Research Group, U.S. Bureau of Economic Analysis, USPS RPW Reports

- From 1991 through 2007, total U.S. advertising expenditures maintained a fairly stable share of total U.S. GDP.
- In 2008 and 2009, the total advertising market declined by 20 percent.
- Since the end of the Great Recession in FY 2009, annual growth in total U.S. advertising expenditures has continued to be less than GDP growth and the average annual growth rate for advertising expenditures is down almost 4 percent from its long-run average.

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Thinking in terms of trend and cyclical components, the trend component of advertising expenditures has shifted from 5 percent per year through the 1990s and early 2000s to less than 1.5 percent per year more recently. This effect of the Great Recession is in addition to the cyclical decline in advertising expenditures of 20 percent in 2008 and 2009.

Another source of data where the Great Recession has had a clear impact on the long-run macro trend is the number of personal loan accounts held by American consumers. These data are presented in the Table on the next page.

Overall, the total number of loan accounts grew at an average annual rate of 1.8 percent per year from 2003 through 2008, a modest and sustainable rate of growth. From 2008 to 2010, loan accounts plummeted by nearly twenty percent (9.0 percent per year). That was bad enough, but even after the Great Recession ended, loan accounts have continued to decline at a rate of 0.5 percent per year.

This change in the long-run trend in such accounts, from +1.8 percent per year to -0.5 percent per year, represents a decline in the annual growth rate of these accounts of 2.3 percent per year. Loan accounts can generate considerable mail volume, and mail volume declines associated with declines in the number of such accounts is neither a continuation nor an acceleration of any kind of pre-existing trend toward Internet or electronic diversion, but is clearly due to changes in consumer behavior that were triggered by the Great Recession. The loss in mail volume resulting from these changes is therefore properly attributed to the Great Recession.

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	Number of Accounts					Change in Accounts				
	Auto Loan	Credit Card	Mortgage	Home Equity (Revolving)	Total	Auto Loan	Credit Card	Mortgage	Home Equity (Revolving)	Total
2003	74.5	462.3	80.5	14.8	632.1					
2004	80.0	450.8	84.7	18.7	634.3	7.5%	-2.5%	5.2%	26.5%	0.4%
2005	82.0	452.6	86.5	22.9	643.9	2.4%	0.4%	2.1%	21.9%	1.5%
2006	85.0	456.2	91.3	24.1	656.6	3.7%	0.8%	5.6%	5.6%	2.0%
2007	87.3	470.0	96.2	24.1	677.5	2.7%	3.0%	5.3%	-0.3%	3.2%
2008	87.0	483.8	97.7	24.1	692.6	-0.3%	2.9%	1.6%	0.3%	2.2%
2009	83.5	410.7	93.8	23.1	611.1	-4.0%	-15.1%	-4.0%	-4.2%	-11.8%
2010	80.9	381.1	90.3	21.6	573.9	-3.1%	-7.2%	-3.7%	-6.4%	-6.1%
2011	80.2	384.5	87.7	20.3	572.7	-0.8%	0.9%	-2.9%	-6.1%	-0.2%
2012	81.3	383.8	84.3	19.1	568.4	1.4%	-0.2%	-3.9%	-6.2%	-0.7%
				Average Annual Growth Rates						
					2003 - 2008	3.2%	0.9%	3.9%	10.2%	1.8%
					2008 - 2010	-3.6%	-11.2%	-3.9%	-5.3%	-9.0%
					2010 - 2012	0.3%	0.4%	-3.4%	-6.2%	-0.5%

Source: Federal Reserve Bank of New York, Consumer Credit Panels / Equifax

c. I believe that the answer to c. is encompassed by my answer to a. – b. above.

d. My responses above present the logic upon which they are premised. The distinction between long-run and short-run macro-economic impacts draws heavily from Milton Friedman's permanent income hypothesis. See, for example, Friedman's seminal 1957 work *A Theory of the Consumption Function*. The mathematical underpinnings for the filtering of macro-economic variables that I perform was designed by Robert J. Hodrick and Edward C. Prescott and explained in a 1997 article in the *Journal of Money, Credit, and Banking* entitled "Postwar U.S. Business Cycles: An Empirical Investigation."