

1 STATEMENT  
2 OF  
3 THOMAS E. THRESS  
4

5 AUTOBIOGRAPHICAL SKETCH  
6

7 My name is Thomas E. Thress. I am a Vice-President at RCF Economic and  
8 Financial Consulting, Inc., where I have been employed since 1992. As a Vice  
9 President at RCF, I have major responsibilities in RCF's forecasting, econometric, and  
10 quantitative analysis activities.

11 I testified to the volume forecasts underlying the Postal Service's case in the last two  
12 omnibus rate cases prior to the enactment of the Postal Accountability and  
13 Enhancement Act (PAEA): Docket Nos. R2006-1 and R2005-1. Prior to this, I testified  
14 regarding the demand equations underlying the volume forecasts for all mail categories  
15 except for Priority and Express Mail in Docket Nos. R97-1, R2000-1, and R2001-1. I  
16 have also appeared as a rebuttal witness for the Postal Service in Docket No. MC95-1,  
17 and submitted written testimony for the Postal Service in Docket No. MC97-2.

18 I have had primary responsibility for the econometric analysis underlying Dr. George  
19 Tolley's volume forecasting testimony since Docket No. R94-1. In addition, I was  
20 responsible for the development of the share equation methodology used by the Postal  
21 Service since MC95-1, as well as the classification shift matrix construction used in Dr.  
22 Tolley's volume forecasting testimony in MC95-1 and MC96-2 to shift mail into the new  
23 categories proposed under classification reform.

24 I completed my Master's Degree in Economics in 1992 at the University of Chicago.  
25 I received a B.A. in Economics and a B.S. in Mathematics from Valparaiso University in  
26 1990.

## **PURPOSE AND SCOPE OF TESTIMONY**

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2       The purpose of this testimony is to document the estimated impact of the “Great  
3 Recession” on mail volumes through the Sources-of-Change decomposition analysis  
4 originally filed with the Postal Regulatory Commission on May 17, 2010, in response to  
5 interrogatories of the Greeting Card Association (GCA) in the “5-day delivery” case,  
6 N2010-1. This testimony documents the process by which these numbers were  
7 calculated. The Excel spreadsheets within which this process is performed are  
8 provided as USPS-R2010-4R/1.

1 **I. Introduction**

2 In response to an interrogatory from the Greeting Card Association, directed to  
3 Postal Service CFO Joseph Corbett in Docket No. N2010-1, the Postal Service filed a  
4 spreadsheet entitled, 'GCA.1.Sources-of-Change.xls'. This spreadsheet presented a  
5 decomposition of the factors affecting mail volume through FY 2009. Of particular  
6 interest, this spreadsheet provided an estimate of the impact of macro-economic factors  
7 on Postal Service mail volumes in FY 2008 and FY 2009. These estimates form the  
8 basis for the Postal Service's request for exigent relief in this phase of the present case.

9 The results of this analysis are summarized in Table One below. The primary  
10 purpose of this testimony, then, is to explain the calculation of these numbers.  
11 Since, however, the analysis behind Table One presents estimates in terms of the  
12 former subclasses of mail around which the demand models are structured, it is also  
13 useful to convert those estimates to the products included in the current mail  
14 classification schedule as it has evolved under the PAEA. Estimates of cumulative  
15 volume losses over FY 2008 and 2009 due to the recession, converted from Table One  
16 to the current products of First-Class Mail and Standard Mail, are shown in Table Two  
17 below.

**TABLE ONE: Sources of Change in Mail Volumes: 2000 – 2009**

	<u>Starting Volume</u>	<u>Adult Population</u>	<u>Macro- Economy</u>	<u>Diversion</u>	<u>Trends</u>	<u>Postal Prices (nominal)</u>	<u>Inflation</u>	<u>Other Factors</u>	<u>Final Volume</u>
<b>Total First-Class Mail</b>									
2001	103,525.8	1,247.3	16.7	(2,045.8)	1,095.0	(440.7)	1,186.2	(928.9)	103,655.6
2002	103,655.6	1,319.4	(1,878.7)	(2,065.3)	1,012.4	(1,118.7)	755.2	698.8	102,378.6
2003	102,378.6	1,274.6	(1,752.8)	(2,301.8)	909.8	(2,137.0)	693.5	(6.1)	99,058.9
2004	99,058.9	1,164.9	(671.0)	(2,400.2)	837.3	(660.6)	753.2	(156.2)	97,926.4
2005	97,926.4	1,163.1	378.2	(3,006.1)	797.4	(9.4)	1,005.7	(184.4)	98,071.0
2006	98,071.0	1,129.7	499.9	(3,413.0)	762.7	(688.8)	1,236.3	(123.1)	97,474.7
2007	97,474.7	1,161.6	(198.1)	(4,164.9)	732.2	(1,351.0)	996.7	1,247.0	95,898.1
2008	95,898.1	1,075.7	<b>(1,800.8)</b>	(4,092.2)	685.9	(1,512.2)	1,185.1	(159.1)	91,280.5
2009	91,280.5	993.3	<b>(4,662.2)</b>	(4,052.8)	613.8	(1,181.2)	667.0	(341.6)	83,316.9
<b>Total Standard Mail</b>									
2001	90,057.2	1,095.4	(1,916.1)	0.0	1,520.7	(2,343.8)	1,372.9	152.2	89,938.4
2002	89,938.4	1,122.6	(2,630.4)	0.0	1,500.9	(2,443.2)	855.1	(1,112.8)	87,230.6
2003	87,230.6	1,116.3	0.7	0.0	1,554.2	(2,229.6)	782.0	2,038.0	90,492.2
2004	90,492.2	1,078.9	2,265.7	0.0	1,668.0	(790.1)	913.5	(64.7)	95,563.5
2005	95,563.5	1,160.0	1,487.7	0.0	1,818.0	(164.0)	1,230.2	(153.4)	100,942.1
2006	100,942.1	1,174.2	(782.0)	0.0	1,885.8	(1,028.2)	1,540.9	(1,273.2)	102,459.6
2007	102,459.6	1,237.3	(7,670.1)	0.0	1,877.1	948.1	1,243.1	3,421.1	103,516.1
2008	103,516.1	1,160.7	<b>(10,538.6)</b>	0.0	1,888.0	2,578.8	1,470.4	(991.2)	99,084.2
2009	99,084.2	1,050.3	<b>(16,506.6)</b>	0.0	1,644.9	(1,308.7)	681.8	(1,940.3)	82,705.6
<b>Total Market Dominant Mail</b>									
2001	205,812.3	2,489.7	(1,862.5)	(2,143.0)	2,371.7	(2,860.9)	2,633.5	(952.7)	205,488.1
2002	205,488.1	2,592.1	(4,848.1)	(2,189.2)	2,276.8	(3,690.7)	1,649.6	(182.5)	201,096.1
2003	201,096.1	2,533.8	(2,100.6)	(2,387.4)	2,235.9	(4,462.5)	1,520.5	2,217.1	200,653.0
2004	200,653.0	2,374.4	1,482.5	(2,460.0)	2,282.8	(1,460.0)	1,713.3	(6.9)	204,579.2
2005	204,579.2	2,455.4	1,923.3	(3,051.2)	2,387.2	(173.4)	2,298.6	(320.7)	210,098.4
2006	210,098.4	2,433.5	(142.3)	(3,469.3)	2,417.2	(1,777.0)	2,848.6	(1,057.8)	211,351.5
2007	211,351.5	2,535.5	(7,793.8)	(4,218.7)	2,368.9	(491.3)	2,291.2	4,556.9	210,600.3
2008	210,600.3	2,362.6	<b>(12,429.8)</b>	(4,143.6)	2,342.8	881.0	2,731.5	(1,216.8)	201,128.0
2009	201,128.0	2,159.6	<b>(21,642.7)</b>	(4,103.5)	2,048.9	(2,569.3)	1,365.9	(2,710.4)	175,676.5

**TABLE TWO: Estimated FY 2008 – 2009 Volume Losses due to the Recession**  
 (,000s of pieces)

First-Class Mail:	
Single-Piece Letters and Cards	(1,590,665)
Flats	(277,143)
Parcels	-
Presort Letters and Cards	(4,595,244)
Total First-Class Mail	(6,463,052)
Standard Mail:	
High Density and Saturation Letters	(342,942)
High Density and Saturation Flats & Parcels	(1,028,520)
Carrier Route	(4,582,310)
Letters	(13,245,549)
Flats	(7,845,907)
Not Flat-Machinables and Parcels	-
Total Standard Mail	(27,045,228)
Total First-Class and Standard Mail	(33,508,280)

## 1 II. Calculation of Sources-of-Change Decomposition Analysis

### 2 A. General Overview

3 The estimated exigent impact of the “Great Recession” on Postal Service mail  
4 volumes comes out of a set of calculations which underlie all of the Postal Service’s  
5 demand equation analysis and volume forecasts, called a Sources-of-Change  
6 Decomposition Analysis.

7 Sources-of-Change tables of this type were one of the centerpieces of my testimony  
8 in Docket Nos. R2005-1 and R2006-1, where they were entitled “Estimated Impact of  
9 the Factors Affecting Mail Volume.” These tables presented the percentage change in  
10 mail volume from one Fiscal Year to the next attributable to various factors which were  
11 identified in my testimonies.

12 The general calculation of Sources-of-Change Decomposition Analysis tables of this  
13 type are constructed as follows. These calculations were made in the spreadsheet,  
14 Sources-of-Change.xls, which is included in Library Reference USPS-R2010-4R/1,  
15 which has been filed with this statement.

16 The calculation of the estimated impacts on mail volume begins with the calculation  
17 of quarterly projection factors of the form,  $[x_{it} / x_{i(t-1)}]^{e_i}$ , as described in my R2006-1  
18 testimony (pp. 333 ff.). The process by which I convert from quarterly percentages to  
19 annual percentages is a three-step process. First, the quarterly percentage impact of  
20 each factor is converted into a number of pieces. The quarterly impacts, expressed as  
21 pieces, are then aggregated to express annual impacts of each factor, expressed as a  
22 number of pieces. Finally, the annual impact of each factor is converted from a number  
23 of pieces to a percentage. The numbers used in this Exigent Case are expressed in  
24 terms of annual pieces, so that the third step – the conversion from pieces back to  
25 percentages – is not necessary here.

26 In converting percentages to pieces, order matters – i.e., if I multiply each  
27 percentage times the starting volume, I get a different answer than if I multiply each

1 percentage times the ending volume, and in neither of these cases, if I then sum up the  
 2 pieces, do I get the same answer as if I sum up the percentages<sup>1</sup>. In this case, I  
 3 converted from percentages to pieces sequentially. That is, suppose there are three  
 4 factors; x, y, and z; contributing to changes in volume. Then,

$$5 \quad \text{Ending Volume} = \text{Starting Volume} \cdot (1+x) \cdot (1+y) \cdot (1+z)$$

7  
 8 First, x is converted to pieces ( $P_x$ ) by multiplying Starting Volume times x. Next, y is  
 9 converted to pieces ( $P_y$ ) by multiplying [Starting Volume +  $P_x$ ] times y. Finally, z is  
 10 converted to pieces ( $P_z$ ) by multiplying [Starting Volume +  $P_x$  +  $P_y$ ] times z.

11 This leads to the result that

$$12 \quad \text{Ending Volume} = \text{Starting Volume} + P_x + P_y + P_z$$

13  
 14 In this case, however, the values for  $P_x$ ,  $P_y$ , and  $P_z$  depend on the order in which  
 15 they are calculated. For consistency, I use a standard order in which explanatory  
 16 variables are analyzed for all mail categories: population, macroeconomic variables,  
 17 time trends, Internet variables, input prices, Postal prices (nominal), competitor prices,  
 18 inflation, other econometric factors (e.g., dummy variables), seasonality, and “other”  
 19 unexplained factors.

20 After converting from quarterly percentages to quarterly pieces, then, quarterly  
 21 pieces are converted into annual pieces. This is done by summing the quarter-by-  
 22 quarter impacts of moving from Quarters 1 through 4 to Quarters 5 through 8 as follows.

23 The impact of a factor between Quarter 1 and Quarter 5 is equal to the impact from  
 24 Quarter 1 to Quarter 2 plus the impact from Quarter 2 to Quarter 3 plus the impact from  
 25 Quarter 3 to Quarter 4 plus the impact from Quarter 4 to Quarter 5. Looking at the  
 26 impact from Quarters 2 through 4 to Quarters 6 through 8 in the same way yields the  
 27 following overall formula:

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<sup>1</sup> Percentages are multiplicative, not additive. Whenever I use the phrase “sum [or add] up the percentages” I mean, for percentages a, b, and c, calculate  $(1+a) \cdot (1+b) \cdot (1+c) - 1$ .

1  
2 Change from (Quarters 1 through 4) to (Quarters 5 through 8) =  
3 Change (Q1 to Q2) + 2·Change (Q2 to Q3) + 3·Change (Q3 to Q4) + 4·Change (Q4 to Q5) +  
4 3·Change (Q5 to Q6) + 2·Change (Q6 to Q7) + Change (Q7 to Q8)  
5

6 The annual percentage changes that were presented in my earlier testimonies were  
7 then backed out from these annual pieces. Again, the order matters to convert these  
8 pieces to percentages. The order in which annual pieces are converted to annual  
9 percentages parallels the order in which quarterly percentages were converted to  
10 quarterly pieces.

## 11 **B. Specific Sources-of-Change Factors Presented in This Case**

### 12 **1. Underlying Demand Models**

13 The recession impact numbers presented here are taken from a Sources-of-Change  
14 Decomposition Analysis based on the volume forecast and underlying demand  
15 equations that were filed with the Postal Regulatory Commission in January, 2010.  
16 These demand equations were estimated using data through 2009Q4. Hence, the  
17 Sources-of-Change data shown here for FY 2008 and FY 2009 are based entirely on  
18 historical data.

19 That being said, it is important to understand that analyses of this type will vary  
20 depending on the specific equations underlying such an analysis. That is, if one  
21 updates the underlying demand equations using more recent data, this could affect the  
22 estimated sources-of-change factors for FY 2008 and FY 2009 even if the underlying  
23 data in those years are unchanged. This could be because of changes to the  
24 underlying equation specifications based on more recent Postal Service volumes and/or  
25 continuing emerging research on the factors which have driven mail volume historically.  
26 Even if the underlying demand equations specifications are unchanged, however, the  
27 addition of newer data will likely affect the estimated elasticities associated with the  
28 specific variables which will, in turn, affect the Sources-of-Change numbers for past  
29 years.

## 2. Complication: Interaction Between Factors

There is one complication in this work which is particularly relevant to the specific issues being analyzed here. The decomposition of the factors affecting mail volume outlined here is built around a specific factor being calculated for each specific variable included in a particular demand equation.

The column in Table One above labeled “Macro-Economy” is the sum of the individual impacts of all variables that can reasonably be characterized as “macro-economic” in nature – e.g., Employment, Investment, etc. The column in Table One above labeled “Diversion” is the sum of the individual impacts of all variables in the demand equations that are used to model the impact of Internet and other types of diversion. In Table One, this is primarily various measures of Internet usage (see my R2006-1 testimony for a fuller description of these types of variables).

One way in which the “Great Recession” adversely affected mail volume was by accelerating the rate of diversion of First-Class Mail. This is perhaps even more evident today than it was at the time when the equations underlying Table One were estimated (in late 2009). While the macro-economy has stabilized somewhat over the last one to two years, First-Class Mail volume has continued to decline precipitously. For example, First-Class single-piece mail volume in FY 2011 was 10.4 percent below FY 2010 volume. This decline was virtually identical to the decline from FY 2008 to FY 2009 in the heart of the “Great Recession” of 10.8 percent.

In the demand equations underlying Table One, this observed relationship between the rate of diversion of First-Class Mail and the macro-economy is modeled by interacting the Internet variables used to model diversion in the First-Class Mail demand equations with macro-economic variables. If the objective, however, is to seek to distinguish recession effects from diversion effects, it is necessary to split the effects of the interaction variable between “Macro-Economy” and “Diversion” factors. Therefore, in preparing the Sources of Change Decomposition Analysis requested by GCA in May

1 of 2010, I estimated such a split of these factors, and that split is reflected in both the  
2 material provided in the 5-day case and in Table One above.

3  
4 **3. Decomposition of Sources-of-Change Volumes to be Consistent with**  
5 **Costing / Contribution Detail**  
6

7 Sources-of-Change tables of the sort presented in my testimony in earlier rate cases  
8 and of Table One here are typically made at the level of detail at which I estimate  
9 demand equations for specific mail categories. For First-Class Mail, for example, I  
10 estimate four demand equations: First-Class single-piece letters, flats, and parcels;  
11 First-Class workshared letters, flats, and parcels; First-Class single-piece cards; and,  
12 First-Class workshared cards.

13 I am informed that for the Postal Service, it is not the volume loss attributable to the  
14 “Great Recession” that is the immediate cause of the present case, so much as the lost  
15 net revenue contribution associated with this mail. In order to convert my estimates of  
16 the volume loss attributable to the “Great Recession” into an estimate of the total loss in  
17 net revenue contribution, it is necessary to map the volumes presented here into the  
18 mail categories at the level of detail at which the Postal Service calculates and presents  
19 costs and contributions. Volumes that have been mapped in this way are presented in  
20 Table Two above. This mapping takes place in the Excel spreadsheet,  
21 FY08.09.Recessn.Conversion.xls, which has been included in Library Reference USPS-  
22 R2010-4R/1, which has been filed with this Statement.

23 The process by which volumes were mapped in this way is probably best explained  
24 via an example. The example I will use for this purpose is the mail formerly known as  
25 Enhanced Carrier Route Standard Mail.

- 26
- 27 • Enhanced Carrier Route Standard mail falls into one of two subclasses of  
28 mail for which I estimate unique demand equations (and, hence, unique  
29 Sources-of-Change calculations): Standard Enhanced Carrier Route (ECR)  
mail and Standard Nonprofit ECR mail.

- 1           • From my Sources-of-Change tables, the combined impact of the macro-  
2 economy on Standard ECR and Nonprofit ECR mail volumes in FY 2008 and  
3 FY 2009 was a loss of 5,953.8 million pieces. What need to be done, then, is  
4 to map these 5,953.8 million pieces into the three products in which this mail  
5 is currently classified. Those three products are High Density and Saturation  
6 Letters, High Density and Saturation Flats and Parcels, and Carrier Route.

7           Overall, the RPW reports show that the volumes of those three products  
8 declined by 434 million pieces, 1,303 million pieces, and 5,809 million pieces,  
9 respectively, in FY 2008 and FY2009 combined, for a total combined decline  
10 of 7,548.2 million pieces in those two years.

- 11           • Hence, High Density and Saturation letters accounted for 5.8 percent of the  
12 total volume loss in Standard ECR and Nonprofit ECR mail volume ( $434.8 /$   
13  $7,548.2 = 0.058$ ).

14           Following the same method for the other two products, we can calculate the  
15 “loss share” of each of the three products as 5.8 percent High Density and  
16 Saturation Letters, 17.3 percent High Density and Saturation Flats and  
17 Parcels, and 77.0 percent Carrier Route.<sup>2</sup>

- 18           • Applying these “loss shares” to the total loss in Standard ECR and Nonprofit  
19 ECR mail volume attributed to the macro-economy (5,953.8 million pieces),  
20 5.8 percent is attributed to High Density and Saturation letters, or 342.9  
21 million pieces ( $5,953.8 * 0.058 = 342.9$ ). Similarly, 17.3 percent, or 1,028.5  
22 million pieces, is attributed to High Density and Saturation Flats and Parcels,  
23 and 77.0 percent , or 4,582 million pieces, is attributed to Carrier Route.
- 24           • Similar calculations were done for all mail categories to produce a final set of  
25 volume losses attributed to the macro-economy at the level of detail at which  
26 the Postal Service calculates and presents cost and contribution data.

27

28           **4. Continuing Impact of “Great Recession” on Postal Service Finances**  
29 **through FY 2011**

30

31           The above analysis focuses exclusively on volume losses experienced in FY 2008  
32 and FY2009. Of course, it is clear that the impact on mail volume of the “Great  
33 Recession” extended well beyond FY 2009, continuing to have adverse effects on mail  
34 volume, revenue, and contribution through FY 2010 and FY 2011 (and likely beyond).  
35 To illustrate the potential magnitude of the continuing effects of the Recession on mail

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<sup>2</sup> Using this approach, any mail categories for which volume did not decline over this time period were excluded from the analysis, with the impact of the “Great Recession” on such categories implicitly set equal to zero.

1 volume in FY 2010 and FY 2011, I point to material that was already provided by the  
2 Postal Service in its Initial Comments on Remand on July 25, 2011. In Table Five  
3 (following page 46) of those Initial Comments, the Postal Service presented estimates  
4 (by class) of mail volume lost to the recession in all of the years from FY 2008 through  
5 FY 2011. I generated those lost volume estimates by taking the Exigent Forecast  
6 models and spreadsheets (which I had prepared for purposes of the July 2010 Exigent  
7 filing) and decomposing the actual (FY 2008 and FY 2009) and forecasted (FY 2010  
8 and FY 2011) mail volumes in a Sources-of-Change analysis directly comparable to the  
9 one I had prepared in May for purposes of responding to the GCA interrogatory in the 5-  
10 day case. (Of course, the base model for the Sources of Change decomposition in the  
11 5-day case was that filed with the Commission on January 20, 2010, while the base  
12 model for Exigent Forecast decomposition was the later forecast prepared for the July  
13 2010 Exigent filing.) To appreciate the impact of excluding FY 2010 and FY 2011 from  
14 the analysis, one can compare my Table One at the beginning of this statement, which  
15 shows total Market Dominant Mail volume losses due to the recession in FY 2008 and  
16 FY 2009 of 34.1 billion pieces, with the total Market Dominant volume losses from FYs  
17 2008, 2009, 2010, and 2011 shown in Column 3 of the Table Five of the July 25 Initial  
18 Comments, which shows total Market Dominant Mail volume losses of 46.2 billion  
19 pieces over the longer period.<sup>3</sup> I note these results of my previous analysis to  
20 underscore the point that the effects on mail volume of the Great Recession most  
21 certainly did not end in FY 2009, and that excluding subsequent years from this analysis  
22 should not be equated with any suggestion to the contrary. Instead, effects in  
23 subsequent years on mail volume (and hence on contribution) were substantial.

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<sup>3</sup> Moreover, although my role in the preparation of Table Five was limited to supplying the estimates of volume lost due to the Recession, on its face, Table Five indicates that flowing the recession-related volumes lost over those four years through the rollforward model indicates the lost contribution associated with those lost volumes in FY 2011 alone would exceed \$5.5 billion.