

TECHNICAL APPENDIX E

Forecast Error Analysis

- 1 The following tables display the net trends and forecast errors for the Priority
- 2 Mail and Express Mail models.

Priority Mail Net Trend Computation

PQtrs	Historical	Forecast
1996:4	287.894	270.361
1997:1	239.130	227.807
1997:2	246.234	239.316
1997:3	244.627	233.096
1997:4	335.564	327.045
1998:1	274.592	266.983
1998:2	284.198	276.323
1998:3	275.764	268.122
1998:4	333.445	333.964
1999:1	288.325	284.887
1999:2	297.074	292.869
1999:3	276.050	266.686
1999:4	326.364	328.463
2000:1	283.583	273.743
2000:2	318.102	302.863
2000:3	279.492	261.632
2000:4	334.404	325.376
2001:1	274.694	266.578
2001:2	303.383	297.817
2001:3	264.587	262.197
Sum		
96Q4-01Q3	5767.508	5606.129

Volume 96:4 - 01:3

Actual	5767.508
Forecast	5606.129
% Error	2.798%

Net Trend:	0.005692
Annual Net Trend Projection	
Factor 1996:4 to 2001:3	1.005692

PRIORITY MAIL FORECAST ERROR ANALYSIS

Forecast Errors From Forecasts Using Base Period 95Q4- 96Q3

Year	Fall	Winter	Spring	Summer
1996				0.062835
1997	0.048506	0.028498	0.048287	0.025715
1998	0.028102	0.028102	0.028102	-0.001554
1999	0.011995	0.014253	0.034512	-0.006412
2000	0.035316	0.049092	0.066035	0.027366
2001	0.029994	0.018518	0.009074	

SPLY Differences of Forecast Errors:

Year	Fall	Winter	Spring	Summer
1996				0.062835
1997	0.048506	0.028498	0.048287	-0.037120
1998	-0.020403	-0.000396	-0.020184	-0.027269
1999	-0.016108	-0.013849	0.006409	-0.004858
2000	0.023321	0.034839	0.031523	0.033778
2001	-0.005322	-0.030574	-0.056961	

4-Quarter Averages of SPLY Differences:

Begin	End	
1996:4	1997:3	0.047031
1997:1	1997:4	0.022042
1997:2	1998:1	0.004815
1997:3	1998:2	-0.002408
1997:4	1998:3	-0.019526
1998:1	1998:4	-0.017063
1998:2	1999:1	-0.015989
1998:3	1999:2	-0.019353
1998:4	1999:3	-0.012704
1999:1	1999:4	-0.007101
1999:2	2000:1	0.002756
1999:3	2000:2	0.014928
1999:4	2000:3	0.021206
2000:1	2000:4	0.030865
2000:2	2001:1	0.023705
2000:3	2001:2	0.007351
2000:4	2001:3	-0.014770
SUM/17.0 =		0.003870

Annual Net Trend Projection Factors:

1996:4 to 2001:3	1.005692
R2001-1 Forecast	1.000000

Express Mail Net Trend Computation

PQtrs	Historical	Forecast
1996:4	17.516	17.943
1997:1	13.096	13.456
1997:2	14.377	14.536
1997:3	14.634	15.022
1997:4	20.807	21.023
1998:1	14.322	14.701
1998:2	15.567	15.895
1998:3	16.062	16.256
1998:4	20.177	20.642
1999:1	15.051	15.439
1999:2	16.090	16.506
1999:3	16.558	16.373
1999:4	20.668	20.587
2000:1	15.357	14.937
2000:2	16.599	16.328
2000:3	17.198	16.818
2000:4	21.223	21.828
2001:1	15.901	16.178
2001:2	16.488	17.669
2001:3	16.952	17.646
Sum		
96Q4-01Q3	334.643	339.783

Volume 96:4 - 01:3

Actual	334.643
Forecast	339.783
% Error	-1.536%

Net Trend:	-0.00304
Annual Net Trend Projection	
Factor 1996:4 to 2001:3	0.996956

EXPRESS MAIL FORECAST ERROR ANALYSIS

Forecast Errors From Forecasts Using Base Period 95Q4- 96Q3

Year	Fall	Winter	Spring	Summer
1996				-0.024050
1997	-0.027103	-0.011053	-0.026171	-0.010345
1998	-0.026113	-0.020811	-0.012013	-0.022763
1999	-0.025488	-0.025557	0.011233	0.003916
2000	0.027745	0.016430	0.022327	-0.028092
2001	-0.017247	-0.069157	-0.040136	

SPLY Differences of Forecast Errors:

Year	Fall	Winter	Spring	Summer
1996				-0.024050
1997	-0.027103	-0.011053	-0.026171	0.013705
1998	0.000989	-0.009758	0.014158	-0.012418
1999	0.000625	-0.004746	0.023245	0.026680
2000	0.053232	0.041987	0.011095	-0.032008
2001	-0.044991	-0.085587	-0.062463	

4-Quarter Averages of SPLY Differences:

Begin	End	
1996:4	1997:3	-0.022094
1997:1	1997:4	-0.012655
1997:2	1998:1	-0.005632
1997:3	1998:2	-0.005309
1997:4	1998:3	0.004774
1998:1	1998:4	-0.001757
1998:2	1999:1	-0.001848
1998:3	1999:2	-0.000595
1998:4	1999:3	0.001677
1999:1	1999:4	0.011451
1999:2	2000:1	0.024603
1999:3	2000:2	0.036286
1999:4	2000:3	0.033248
2000:1	2000:4	0.018576
2000:2	2001:1	-0.005979
2000:3	2001:2	-0.037873
2000:4	2001:3	-0.056262
SUM/17.0 =		-0.001141

Annual Net Trend Projection Factors:

1996:4 to 2001:3	0.996956
R2001-1 Forecast	1.000000

Priority Mail Volume Forecast Errors

	Actual Volume	R2000-1 forecast Table 1	Percent Error
PFY 2000	1215.581	1205.872	0.799%
	Actual Volume	R2000-1 forecast using revised data	Percent Error
PFY 2000	1215.581	1213.791	0.147%

Source:

Actual volume is the sum of the four postal quarters of 2000. LR-J-27, Table C.1, page 75.

R2000-1 forecasts Table 1 is from the Direct Testimony of Gerald L. Musgrave, USPS T-8, Table 1.

R2000-1 forecasts using revised data are obtained from witness Musgrave (USPS T-9) Technical Appendix E spreadsheet FPMAR00.XLS, substituting the revised current data where possible.

Both forecasts use the same model coefficients as in R2000-1. The forecast in the first line uses DRI's forecasts of the explanatory variables. The forecast in the second line uses the actual values where possible.

Express Mail Volume Forecast Errors

	Actual Volume	R2000-1 forecast Table 1	Percent Error
PFY 2000	70.377	69.477	1.280%

	Actual Volume	R2000-1 forecast using revised data	Percent Error
PFY 2000	70.377	69.492	1.258%

Source:

Actual volume is the sum of the four postal quarters of 2000. LR-J-27, Table C.1, page 75.

R2000-1 forecasts Table 1 is from the Direct Testimony of Gerald L. Musgrave, USPS T-8, Table 1.

R2000-1 forecasts using revised data are obtained from witness Musgrave (USPS T-9) Technical Appendix E spreadsheet FPMAR00.XLS, substituting the revised current data where possible.

Both forecasts use the same model coefficients as in R2000-1. The forecast in the first line uses DRI's forecasts of the explanatory variables. The forecast in the second line uses the actual values where possible.